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THE STRATEGIC LINKS BETWEEN PURCHASES AND
LOGISTICS FUNCTIONS
CASE STUDY : AREVA

Degree Programme in International Business
and Marketing Logistics

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This thesis is meant to global companies that would implement purchasing and logistics strategies in order to win a competitive edge and increase their performance.

The purpose of this thesis is to learn about the organization of purchasing and logistics functions within global companies.

Not only to discover their organization but also to understand their operational principal and realize how strategic and important those function can be to an international company.

The Case Study of AREVA is meant to give an example of an inside multinational company's functioning but also to give them recommendations. It is used to enhance what can be done to improve the purchasing and logistics management.

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1 INTRODUCTION

The evolution and globalization of the trade as lead companies to face new positive and negative issues. Indeed, the possibilities of markets has been tremendously expanded to another level with an easier access to international market places, but has also increase the competition between companies that have to face new competitors with more or less advantages. The recent accessibility of new markets and the increasing of competition had change the way of trading : companies try to find supplies broad to have an edge over their competitors.

This globalization brought on new challenges and issues for company. To answer to it, the companies had to evolved and it has been discover that the purchasing function can be more useful than ever, and together with the logistic process it can represent a considerable edge.

In fact, a lot of different strategies has been implemented by global companies to face the issues of internationalization. This thesis will enhance the evolution of the purchase and logistic functions within companies and how a good strategy of those two can bring to an advantage for companies.

2 PURPOSE AND OBJECTIVES OF THE THESIS

2.1 Purpose

Since the last decades, the organization of trade had completely evolved thanks to globalization bringing with it new issues for companies. The organization of international companies has evolved to include new ways to compete worldwide. It is in this new way of thinking that the logistics and purchases functions had been released as strategic for companies to overtake the issues of worldwide competition.

The overall purpose of this thesis is to relate the evolution of the logistics and purchases department within the companies since the past few years and to go deeper in the acknowledgement of those functions. First of all, to enhance the fact that both functions logistic and purchase can be a strategic difference for a company and also bring new challenges. Then, the purpose is also to enlighten the link between both functions and how thanks to a good management of the two functions, a company can create a considerable competitive edge.

This thesis is based on a theoretical background to leadingly understand better the organization and the challenges of both functions, their link and then in which way both of them can support each other to create more efficiency. This conceptual approach is also completed by a case company to enforce the notions in a real case. The case company is used to display the plus and the cons of the theory that is put forward. The company that will be used is AREVA, as this company is a good example of international group that has to face the mentioned issues.

I choose this subject because it is an ongoing major aspect of how international enterprises can deal with globalization and competition problems. I asked to AREVA to be the case company because their success represents well the integration of new strategic factors.

2.2 Objectives

The objectives of this thesis are first personal, that is to say to learn more about the conceptual approach of logistics and purchases, to be able to analyze and demonstrate the strategic links between the two functions.

Then the objectives is to implement the theory to a real case, to analyze the real case and to bring recommendations to the company.

The questions that are to be answered during this thesis are the following ones :

- *What represent the purchases and logistics functions ?*
- *What role are they playing in a company and what challenges are they creating?*
- *What is the link between them?*
- *What is a Supply Chain?*
- *How can companies use those two functions to ameliorate their international strategy and their intern organization?*
- *What is AREVA ?*
- *How can AREVA improve their competitiveness thanks to the Supply Chain Management?*

2.3 Conceptual Framework

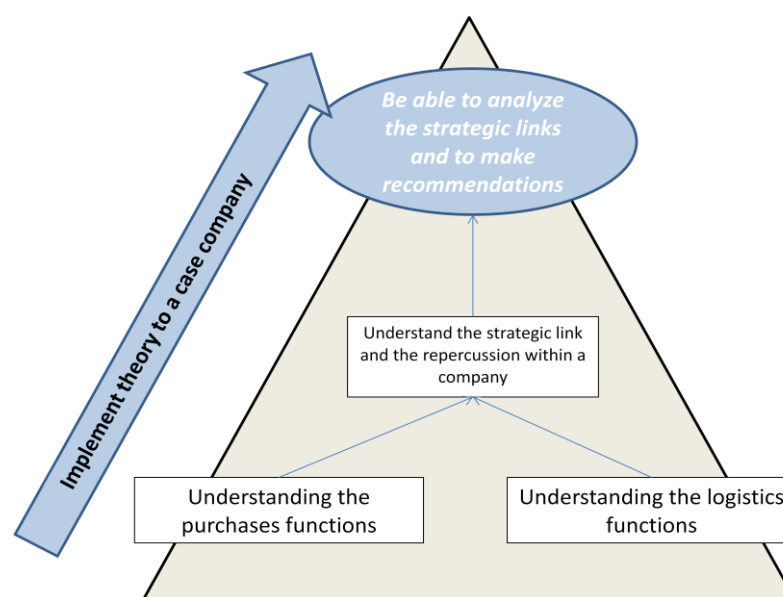


Figure 1: Conceptual Framework

Analysis of the framework :

This framework is to be read from the bottom to the top.

The white parts in this conceptual framework represents the theoretical background of the thesis. At the really bottom, I choose to put the Logistic and the purchases into two different cases as in the thesis I will explain the functions of logistics and purchases separately to have a complete aspect of both roles and issues. Then, the reading of the two first parts leads to the clarification about the strategic link between logistic and purchases.

The blue parts are to illustrate the fact that the theory is implement on a case study. I choose to do my global researches and the company researches simultaneously to be able to apply instantly the theory to the case study.

To finish, the direction of the arrows shows the trend of the thesis

2.4 Limitations and Boundaries :

This thesis is made in purpose to understand better the strategy that companies can implement in their logistic and purchase functions to improve competitiveness and intern processes, but it has some limits and boundaries that I will mention below.

This thesis is limited, owing to the subject, to the strategic links between purchase and logistic function without including others presents functions within a company even if some mentions are made in some parts. The thesis mainly focused on the strategy a company can develop to improve their competitiveness through logistic and purchase issues only.

Moreover, this thesis is also axed on a case company, that is to say that the example of implementing a strategy between logistic and purchase functions used in the last part of the thesis is only based on one company. Meaning that others way to do it can be possible, and implicating that the company's strategy is not forced to be the best.

Also, this thesis is not specially made-up for the company and even though some suggestions will be made, the company might not apply them.

3 THE PURCHASE FUNCTION

3.1 Definition of purchase

As already quickly mentioned in the introduction part, the function of purchasing is quite a new concept and to define it precisely is not so easy. The purchases had long time been mingled with supplies, and it is important to make the difference between both.

To begin with, the classic definition of purchasing is "to buy materials of the right quality, in the right quantity from the right source delivered to the right place at the right price" (Lysons & Farrington, 2012, 6). However this definition is controversial. Indeed, we can wonder : what can be considered as "right", knowing that the notion of "right" can be different owing some situations ; and how to manage to get all of the above "rights" (i.e. right price might not be always the right quality). This definition is outdated and a better and more recent definition has been given by the Winthrop University of Rock Hill stating "Purchasing is the process of procuring the proper requirement, at the time needed, for the lowest possible costs and from a reliable source". The difference is slight, but this newer definition give more space and relativity to the act of buying.

Yet, as Marc Day in the Handbook of purchasing Management (2002, 4) has mentioned, there is not one definition that can wholly integrate the concept of purchasing. In fact, the act of purchasing must not be seen as an act but from several perspectives. In fact, purchasing must be apprehended as a function, a process and a discipline. As for, a function is defined as a unit or a department in which the people working in develop specialized skills and resources to perform their tasks, a function is also defining what is the use-how of a good or service. To explain, the purchasing as a function is an organizational unit that is integrated within a bigger organization, with the responsibility to acquire the necessary goods (or services) for the bigger organization. From this point of view, the purchasing is not only an act, but an whole organization with duties, responsibilities, and knowledge as accounting, purchasing, managing supplies...

Furthermore, it is important to consider the purchasing as a process knowing that a process is a sequence of stages directed to achieve a precise goal. Also, purchasing can be described as a process chain leading to the acquisition of supplies. This include that the purchasing integrate the management of a huge system of suppliers, customers, and logistics as in the figure 3.1.1 below.

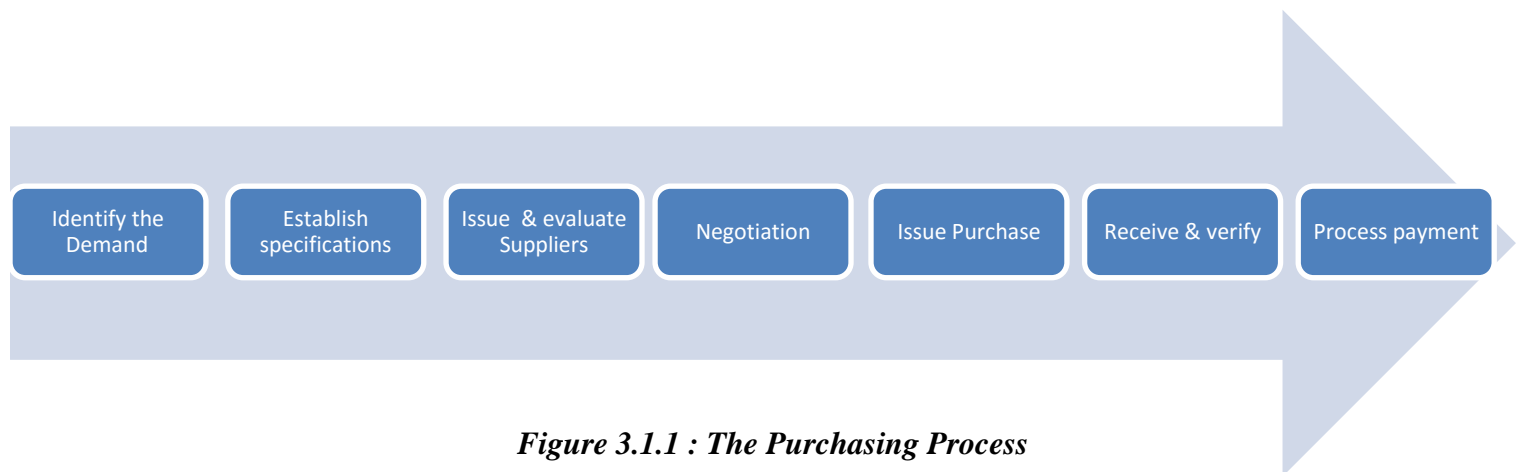


Figure 3.1.1 : The Purchasing Process

It is easy to recognize that the purchasing is a process, it is not limited to the case "Issue Purchase", but is extended to a lot of different skills and issues and is taking in account others stakeholders they have to deal with. This integration and process will be developed further in the Thesis.

Then, and to finish with the definition of purchasing, it has also to be considered as a discipline. That is to say that it is not only about management but also requires a branch of knowledge such as accounting, researches, marketing, logistics, laws and the most important one relationship as it is the key factor in the process.

To resume, it is impossible to give contain the wideness of purchasing in one definition. Purchasing is a concept that need to be analyze from different angles to be fully understood and to operate successfully.

3.2 History of purchase function

Even though the act of purchasing and trading goods against a counterparty exist since ages, the purchasing as an entire entity in a company has been accepted quite recently. The evolution of the purchase also follows the evolution of the human needs and of the micro-macro environment. So far, the History of the purchases can be divided in 7 periods that will be expand below.

1 - The Early Years (1850-1900) :

This period is the birth of purchasing as a function. At the moment, the USA economy is growing fast and they are witnessing a huge change within companies as they have more needs to be satisfied. The first purchasing function created as an official status was in the Pennsylvania Railroad company in 1866. Few years later, the first book talking exclusively about the purchase function "The handling of railways Supplies - Purchase and Disposition" was published, leading to the first idea of centralization of purchasing department.

2 - Growth of purchasing fundamentals (1900-1939):

After the success of several railroad companies, the industrial sector began to integrate purchasing function. In fact, the first World War helped a lot to increase the importance of purchasing, especially the purchase of mostly raw materials.

3 - The War Years (1940-1946):

Following the trend during the WW1, The WW2 created a new stage in the purchasing history. The numbers of "Purchasing Agents" had tripled between 1935 and 1945. At this moment, purchasing begin to be seen as a profession, and being recognize as an important part of business.

4 - The Quiet Years (1947-1960) :

The soar of purchasing during the WW2 did not continue during the post war due to the demand that was less important. However, in the USA the Ford Company settled down a purchase analysis department which aim as to provide some help to the buyers agents. This is the first time in the history that the idea of having a reflexive purchase is stated.

5 - Materials management (1960-1970):

During the mid 1960s, there were a consequent increase of the materials management concept. That is to say, the management of supplying in a flow owing the production rather than from time to time. It is during this period that the purchasing become to be tactical, with a new behavior of sourcing (searching different suppliers and choosing the best owing different precise criteria). By this way of thinking, the supplier become a value-added partner and the purchase can be consider as a mean to be competitive through negotiations, length relationship with suppliers... Price competition becomes the new major factor in purchasing.

6 - The Global Era (1970-1999) :

This new era was pushed by the evolution of the macro environment : the competition has never been that intense before, global firms are mushrooming out of the US, different strategies are enforced, the technology change and innovation become part of the daily life and the most important is the apparition of the World Wide Web.

To answer to their needs, the companies began to have a coordinate point of view on purchasing, from suppliers through end customers. Here is the beginning of the Supply Chain Management, It is seen as a mean to cut the high costs and improve the efficiency.

7 - Integrated Supply Chain Management (Beyond 2000):

Nowadays, purchasing is entirely linked with logistics to create a supply chain. The suppliers relationship are now cooperative with the help of the technologies (internet linkages, shared databases, ...). There are three main outcomes of this era : the purchasing function is now seen as a response to the challenges of the competition gone global ; the purchasing is a key factor to increase competitiveness ; the integration can be even more accentuated.

Through the centuries, we can see how the purchasing function has made its place within a company and how important it has become nowadays.

3.3 The Role and Issues of the Purchasing Function :

3.3.1. Roles :

Through time and due to the evolution of purchasing, the function has been raised to a much important place within companies. In fact, owing to Philippe Petit in his book "Toute la Fonction Achats" or "The Whole purchasing function" (Dunod, 2012); "The purchasing function has evolved from a support role to a strategic one in the company." This came through several steps: from the simple role of supply and to brand differentiation. Below, I will explain the main roles of the Purchasing function. There are four main role of the purchasing function. And it is the combination of the four of them that has brought purchases to its importance.

First, it has a federative and advising role in the company. That is to say that, even inside the company itself the purchases are important. Indeed, it is the only function that is transversal, the purchasing function is in contact with every others functions of the company as all of them are its first customer (through office supplies, coordination and planning of the needs). And thanks to the transversality of its function, the purchases are also one of the most important pillars into the intern communication of the company, and advising others functions. This mind of service to others function makes the purchases more integrated.

Then, the purchasing function has a role of controlling and negotiation. The controlling role is highly important and take part in several task ; the purchasing function must be controlling all the administrative parts (mostly in the redaction of purchase order), but also quality control of the products or services that need to be bought. The purchase has the duty of negotiating any characteristics that would not fit in the quality control management.

In addition, the function of purchasing extend its importance through its role of optimizing the cost of the company. Indeed, the actors of the purchases must improve the suppliers relationship to create an collaborative optimization of the costs for example due to ordering, delivering, controlling, paying, etc. In average, half of the turnover of companies is outlaid in the purchasing cost ; by reducing the costs linked to purchasing, the function can enhance the company's turnover and help to create valuable assets.

The last, but not least role of the purchasing function is its role in the value chain. The value chain of Porter (1985) is taken as a reference, Porter describe a value chain as compound of values activities and margin, those values activities are divided into two main parts, the support activities which are firm infrastructure, human resource management, Technology development and procurement ; and Primary activities which are inbound and outbound logistics, operations, marketing & sales and services (see figure 2 below). Even if the role of purchasing is not evident at first sight, we will see that it is actually the first key factor to perform a value chain as for the primary activities, it has the role of procuring the needed material and equipments related to inbound and outbound logistics or operations ; and as for the support activities, it has the role of buying products or services for the other support functions. Thanks to a good management of reducing the costs, the purchasing function can help to decrease the cost related to the primary and support activities in order to increase the margin and to create better benefits.

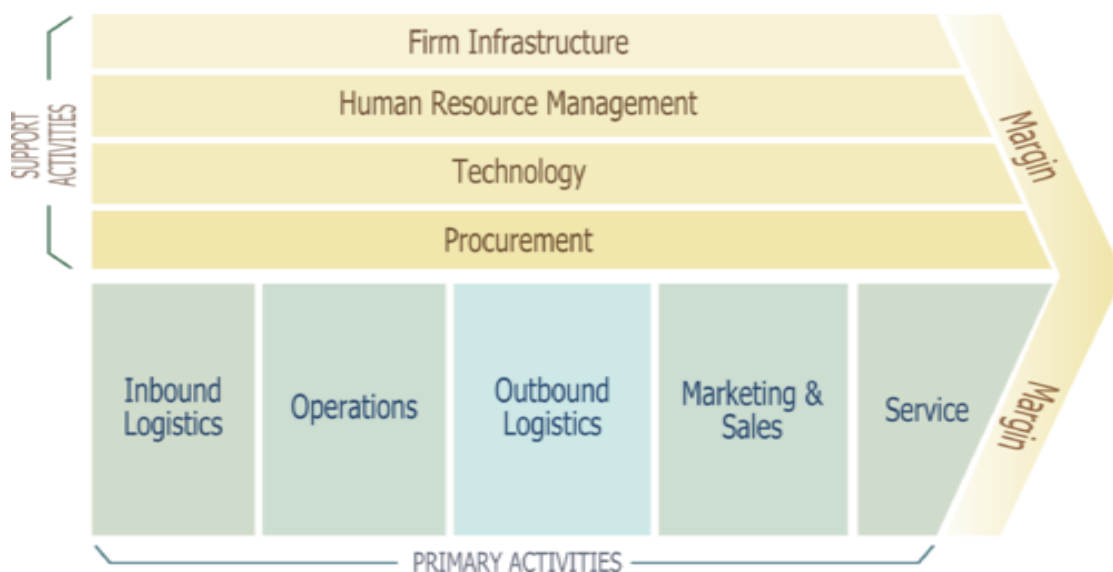


Figure 2 : The Value Chain, Porter's model (1985)

3.3.2. Issues

Thanks to its evolution, the purchasing function has also enlighten new issues and challenges. We can resume these issues in three important points : Financial issues, Commercial issues and Strategic issues.

The financial issues of the purchasing function is basically to improve the turnover of the company. This issue is quite challenging as I had already mentioned, in average, half of the turnover of a company is consumed in purchasing and supplying outgoing. The reducing of the costs at every level of purchasing (supplying, ordering, delivery, etc.) helps to create some scales economy and decrease the outgoings of the company. Doing so, the part of the turnover designated to purchasing can be significantly diminished and the part of real profits increased.

In term of commercial issue, the purchasing had become a key factor, the efforts are not only concentrated on selling or focused on marketing but axed on purchasing strategy. In fact, the purchasing functions can be synonym of value creation through different possibilities; the creation of value can be made by the quality of the products or services acquired, also it can be a creation of value with a good sourcing , choice of supplier and good relationship management. Also this helps to enhance brand differentiation, it means that thanks to the purchases a brand can create a competitive edge and differentiate itself from its competitors.

Then and finally comes the strategic issues. The purchasing function is in charge of supplying goods on time to the company and more than that, is in charge of avoiding any sold out in the stocks (which is often a bad advertisement for companies). As I said, the purchasing function can arouse competitive edge and advantages by differentiation but not only. Thanks to the good management of relationship with suppliers, they can ameliorate the prices and also others factors such as time delivery.

The purchasing function has evolved to a consequent role in companies, and doing so it has drag along new issues and challenges. This is the reason why the measurement of the purchasing performance has become so important ; because can lead to a better management of the purchasing and to a better management of the issues.

3.4 The purchasing process

As it is already said in the definition, the purchases are not only an act but a process. This process include several different steps that are all as important as others, in fact it is the whole steps of the purchasing chain that made the purchasing function as complete as it is now. As it is the essence of the purchases to be a process, it is necessary to develop the concept of the chain and of the different steps.

First of all, all the steps building the purchasing chain process, even though their differences in term of action, skills or responsibilities, are really closely connected to each others. The strength which is at the same time to difficulty of the purchasing process is that all the interfaces are linked and the quality of the output of a step will determine to a large extend the quality of the output of the followings steps. If deficiencies are to appear during one of the step, it is clearly proved that it will lead to a bigger problem in the subsequent steps. So, to proceed to a good management of the purchasing process includes to define clearly each interfaces and their responsibilities ; to get a full grip on the process of buying each steps must be defined and followed in a strict way.

In the definition of the Purchasing Function (3.1.), a Schema of the purchasing process chain is shown, this schema itemizes well every steps of the purchasing process and show clearly the line that is followed during the buying process.

The first step is actually the most important in the cycle of purchasing. The identification of the demand and the needs of the customer must be clearly defined ; it is the clear understanding of the needs that will lead to a correct establishing of the specifications and to a good fulfillment of the following steps. Then, the establishing of the specifications mostly take form under a specifications chart where is specified everything concerning the product and the order. It is necessary to set up a complete and precise specification chart in order to avoid any mistakes or bad surprise with the product that will be bought.

After the settlement of the specifications, the buyer needs to source the suppliers that are likely to respond to the needs established and choose the one that will fit the best in the requirements. To do so, the method of funnel is followed; a large choice of suppliers is firstly done and then reduced through a comparison of the suppliers (price, quality, order terms, etc...) in order to have at the end only one or few numbers of suppliers to negotiate with.

The negotiation phase is actually the next step in the purchasing process. The negotiation has the main goal if there are still few suppliers to make a last selection to end up with only one supplier; and when there is only one supplier left to negotiate the terms of the contract that will be done. After the interface of negotiating the order need to be contractualized, so then the purchase can be issued.

At the delivery of the merchandizes, the role of the buyer is to acknowledge the good receipt and to control if the quality meets the requirements that were negotiated in the precedent phase. In consequence the payment can be done only after the verification, otherwise a renegotiation or talks can be instituted with the supplier to solve the matter.

However, the process explain in a chain is not complete. J.M. Loubère (2007, 55), French economist specialized in the risk and management of purchases has developed a better graphics to explain the buying process (see figure 3). Indeed, his vision of the process enhances all the different steps but in addition emphasizes the dynamic of the process.

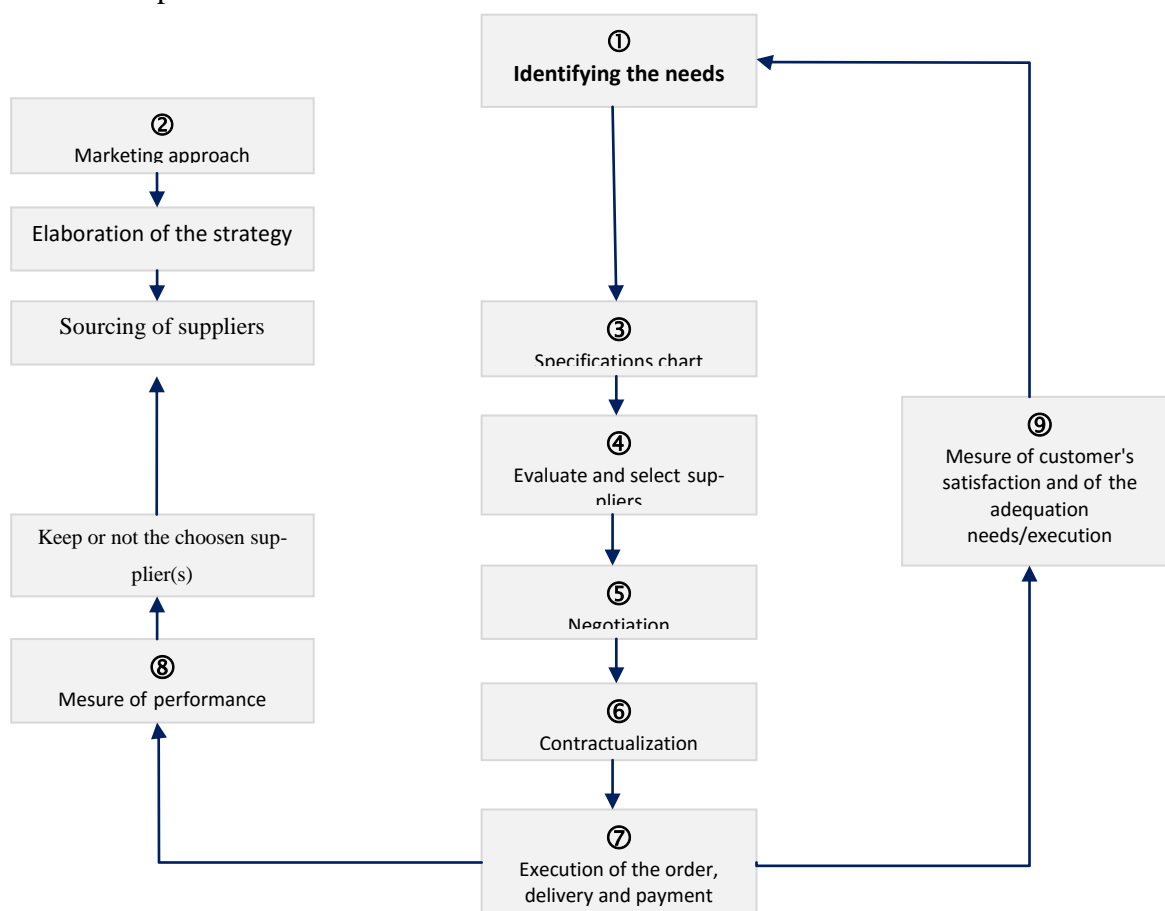


Figure 3: The Purchasing Process, approach of J.M. Loubère

Here you can find again all the steps that are developed above, but in addition J.M. Loubère subjoins the measurement of the performance and also the measurement of the customer's satisfaction. The measurement of those two points are also really important as they can lead whether to a deepening of the supplier's relationship or at the contrary the stop of any business with this last.

3.5 Strategic Purchases

Paul Steele and Brian Court in their Handbook of profitable purchasing strategies (1994,13) give a precise definition of Strategic purchases, as "the development of ways of approaching and interacting with the supply-market, taking account of not only the present situation but also how it might develop in the future". That is to say that the concept of strategic purchases is based on the ability of the buyers to determine and/or change the supply-market as a strategic purchase cannot be practiced into the market as a entire entity but must be adapt to specific situations within it.

So we can relate that to carry out the concept of strategic purchases it is necessary to divide the different types of purchases within a company and classify them, consequently, will appear a classification of the purchases and the emergence of different levels of importance.

There are different methods to classify the purchases of a company, but in the several attempts being made the Pareto analysis is to remember. Vilfredo Pareto was an economist in the end of the 19th Century who developed the concept of the 80-20 rule; even though his analysis is quite old, it is still topical and extensively used.

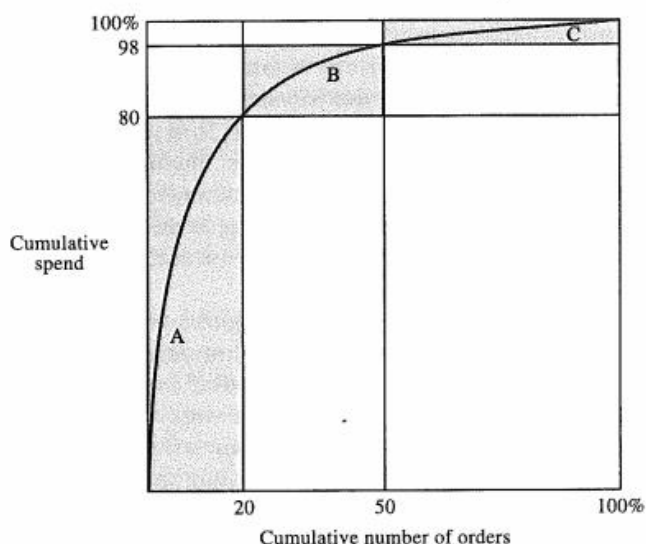


Figure 4: Purchasing and the Pareto Curve

Analysis of Pareto method : His method is to classify the prod-

ucts owing to their financial impact on the company (see figure 4). Pareto divides the products in three categories : 80% of the purchases representing 20% of the purchasing turnover, conversely 20% of the high-valuable purchases accounting for 80% of the spending and then the middle class. The curve of the diagram can vary from an organization to another. His method had appeared to be really helpful to determine which category of purchases need to be taking in account more carefully, as per the 20 of products involving 80% of the spending are the most strategic purchases.

However his analysis is not perfect and has some limitations. Pareto defines the 80% of low-value item as routine supplies that should not be consider as important, this way of thinking can be tricky as if these low-value purchases would fail they could have a disproportionate effect on the finances.

Since then, different kind of methods had mushroomed in term of classifying the purchases, I decided to concentrate on a most recent one which has a complete and better approach to the matter : the Kraljic Matrix (1983).

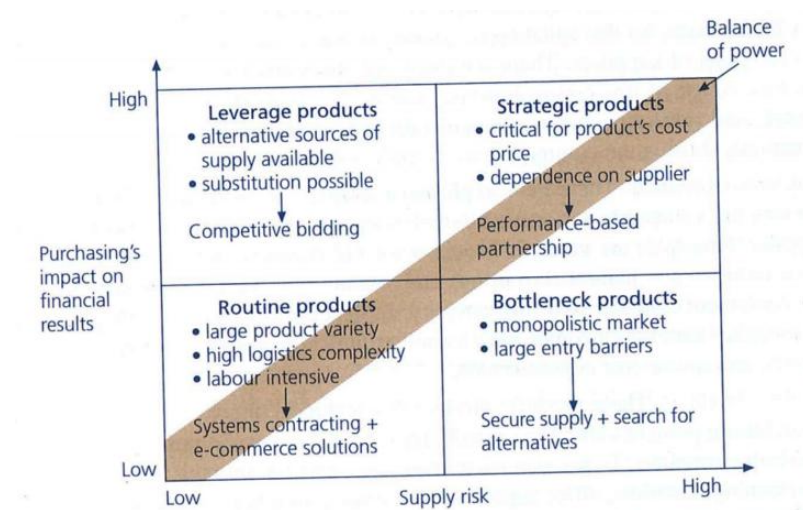


Figure 5: Kraljic Matrix of purchasing product portfolio approach

Analysis of the Kraljic Matrix : His method has the same starting base as the one from Pareto as it is also taking in account the financial impact of the purchases, however, Kraljic has added few others criteria to set up a more precise categorization, criteria as the supply risk involved in the purchasing process, the number of suppliers and difficulties that can be encountered.

His analysis has lead to a four-category level of products :

- *The Routine Products* : these products are the less challenging one and produce few technical or commercial problems, it is mostly really low-value items that can be found in many alternative suppliers (i.e. office supplies). The only matter is that in many cases the cost of handling are higher than the value itself of the products.

- *The Bottleneck Products*: They are really limited in value but challenging as they can be found only in one supplier and consequently the supplier has a higher power during the negotiation (ie. Spare parts).

- *The Leverage Products*: They can normally be obtained from different suppliers and they represent quite a large share of the cumulative spend but as they are bought in bulk orders it is still easy to negotiate the prices.

- *The strategic products*: they are mainly high-tech, high-volume products which are often supplied tailor made for the customer. They are highly challenging as only one supplier can deliver the product and they are highly expensive. This implies that the negotiation and exchanges between the buyer and the supplier will take a longer time than any others products and a balanced relationship is recommended better than a buyer or supplier dominated segment.

Kraljic also specify that once the matrix is done it is also important to the buyer to share his time owing the category of product (less time for routine products that do not need specific supplying strategy and more time for strategic products that need a long time of thinking before buying).

We can easily note that all the purchases are not to all the same and that the purchases must not be considered as a whole entity but separate into categories. Within a company it is essential to determine the strategic purchases and to classify the purchases compare to the portfolio, indeed, it is only by doing so that the buyers can then develop a Purchasing strategy.

3.6 Purchasing Strategy

Purchasing strategy and Strategic Purchases are two different terms that are sometimes interchangeably used, and the confusion of these terms had led to certain mistakes that need to be avoided. The definition of Strategic purchases already being given in the precedent part from the point of view of Paul Steele & Brian Court (1996, 13), I will use also their definition of purchasing strategy to understand better the difference between both. Following their idea, a "purchasing strategy is concerned with identifying, selecting and implementing an overall change program designed to place the purchasing process at the heart of a business, so enabling it to make the maximum contribution to corporate profitability while gaining a commercial competitive edge".

3.6.1 Purchasing strategy serving corporate strategy:

In their definition, they clearly define that a purchasing strategy must be adapt to the supplied products and that the main goal of implementing such an effort into different strategies in purchasing is to induce a competitive edge over the competitors.

First of all, a purchasing strategy must be applied to the corporate strategy of the company because a corporate strategy is to provide a long-term direction to follow, so it can also give to the purchasing strategies a line of conduit to follow and common objectives to achieve.

Michael Porter was the first economist in his five forces model (1979) to develop the idea that a purchasing strategy parallel to a corporate strategy can lead to a competitive edge (see figure 6). He has mentioned that the negotiation power of the buyers is a force that must be used to differentiate from others competitors. Indeed each factors of the five forces have a direct influence on prices and costs of the enterprise.

Following the idea of Michael Porter, it means that there are a lot of different factors that have an influence direct or indirect on the strategy. It is the same for purchasing strategies, a lot of factors influence the purchasing strategy : sourcing process, negotiation force, suppliers' position ...

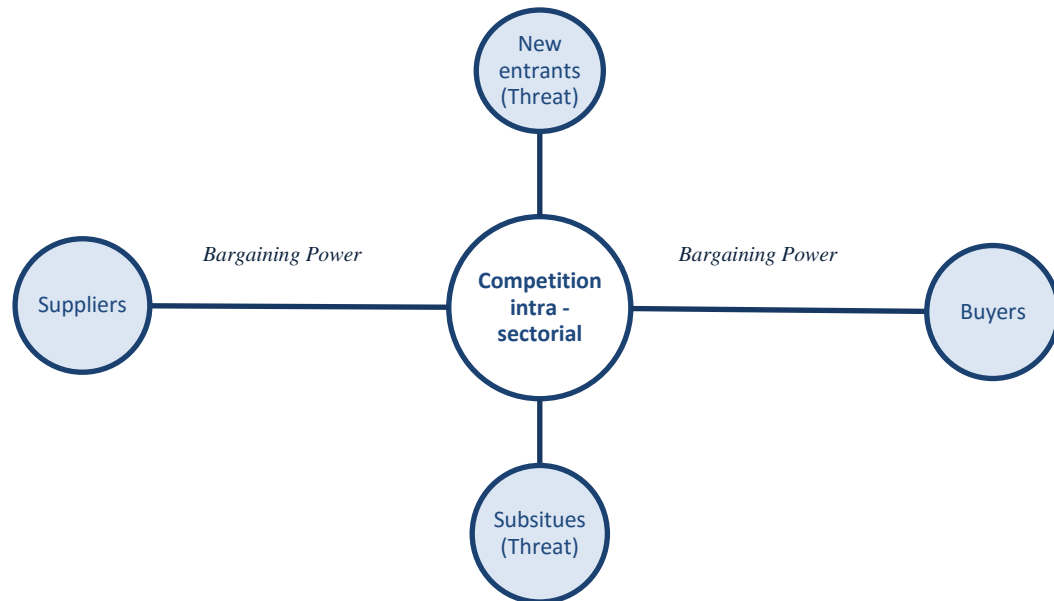


Figure 6: The five forces of Porter (1979)

3.6.2. Implementing purchasing strategies:

We have seen that the purchasing strategies, applied to the corporate strategy are a critical success factor of gaining competitive edges.

To implement a purchasing strategy the company needs to have an overlook on its position in regards of its three major stakeholders, i.e. customers, competitors and suppliers. Those three stakeholders and the company itself represent what is call the "strategic triangle".

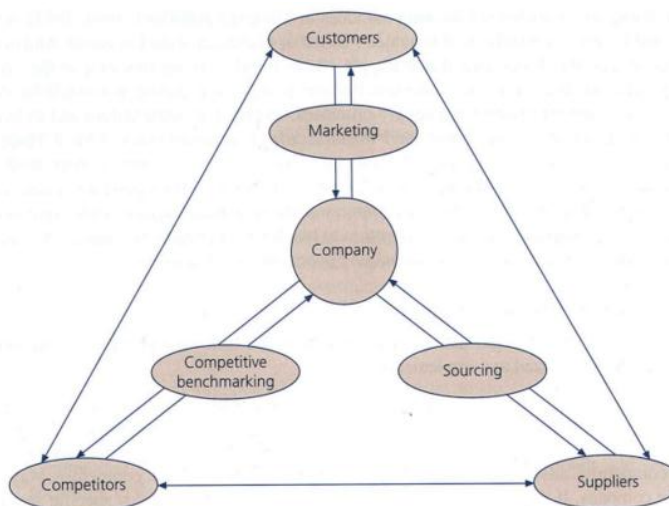


Figure 7: The Strategic Triangle

Thanks to the strategic triangle it is easy to see what main axes the purchasing function has to concentrate on in order to improve its strategy.

However it is also important not to implement one purchasing strategy to the overall of the products, as mentioned in the definition it is indispensable to adapt different purchasing strategies to the purchases categories. Kraljic (stated in the precedent part) reports two main needs for a company to install a supply strategy, and that they depends on a first place on the strategic importance of the purchases in term of valued added brings by the product to the company and the percentage of total costs and in second place on the complexity of the supply market.

Therefore, there are four basic supplying strategies that can be applied to the four segment purchases:

- *E-procurement solutions* : This strategy is mostly use for routine products. Indeed these solution's aims are to reduce any administrative task (and consequently the time spent) and also the logistic complexity and costs. This is a simple but effective way to order from e-catalogue from a pre-selected supplier, in addition it helps to reduce the number of suppliers and to standardize the procedure of supplying the routine products

- *Securing continuity of supply*: It is the adaptive strategy for bottleneck products As mentioned, the principal issue with bottleneck product is the dependence on one supplier. This can be done while developing alternative solutions, with alternative products and alternative suppliers. This strategy is often costly but reduce the risks.

- *Competitive bidding*: This is a strategy that is to be applied to the leverage products. With implementing competitive bidding, the buyer will increase the competition between the suppliers and get better prices or contract terms. This strategy leads to small savings by order but to an significant sum of money by the end.

- *Performance-based partnership*: The strategic products are the most challenging one and so is the strategy to go with. It is advised to settle a strong relationship with the supplier to be able to negotiate at the utmost. For these kind of products, even a small discount (in percentage) will have a direct impact on the purchasing turnover.

As the dependence on the supplier is strong, it is recommended to have a good partnership to create a mutual participation. So the main aspect of this strategy is the choice of the supplier and the management of the relationship.

Through this whole part we can learn that the purchasing function has been raised to a brand new level within companies. Indeed, it has been proven that developing strategies of purchasing has several positive impacts and ameliorate the competitiveness of the company. That is why nowadays the purchases are occupying such an important place in businesses.

4 THE LOGISTIC FUNCTION:

4.1 Definition of logistics

If in the precedent part we developed the Purchasing function and its extents as a recent concept, at the contrary, the logistic is much an older term. The Purchasing and logistic function together are often considered in the wider context of supply chain that will be opened out later in this thesis.

Logistics was initially a military term used during the Napoleon Wars (end of the 18th Century) referring to the techniques of moving and quartering an army and its materials.

The logistic term as then being extended to a non-military application with the following definition : "Logistics is the total Management of the key operational functions in the supply chain procurement, production and distribution. Procurement includes purchasing and product development. The production function includes manufacturing and assembling, while the distribution function involves warehousing, inventory, transport and delivery" (definition from the EU Council Directive 99/31/EC).

It a much simple way, logistics is the managing of the movement of goods and the storage of materials from the first source (supplier) until the final point (final cus-

tomers). The logistic function does not stop at the physical stage as it is also including the flow of information within the company but also in a further extend, between the suppliers, the company and the customers. The concepts of "GO" and "STOP" are commonly used relatively for the activities related to the movement of goods (GO) and to activities related to storage (STOP).

With such a definition, the logistic function appears to be closely linked to the purchasing function and reflects some similarities. Indeed, its function is also cross-functional within companies as every others department or units need at a certain point a good management of the logistic. Moreover, the logistic is a function that have a huge influence on the performance of the company (delivery of goods, sharing of data, etc.). In addition, the logistic function does not limit itself to the company, it extended upstream with the managing of the procurement of goods from suppliers, within the company with the stock management, the internal moving and flow of information's, and downstream with the stock management of the finished goods and their transportation until the final customers. The logistic function has been since divided into different typologies of push or pull logistics, and methods of intern and extern logistics. (Those concept will be define further)

To conclude about the definition of the logistic terms and definition, the logistic function is operating at every levels of the company and even outside the company and represents one of the main key factor of performance for enterprises; it is considered as a strategic function.

4.2 Evolution of Logistic:

If "Logistic" is such an old term the question is how did it get from a strictly military term to a strategic function within companies ? Indeed, as stated in the definition, the term as appeared a long time ago but was already focused on the efficiency, often the success of a war was depending on the good managing of transporting ammunition and food. Since when, the military appliance has been developed by companies keeping the strict aspect of logistic to ensure efficiency.

The evolution of Logistic is extended on a very much longer time lapse than the purchasing evolution so I will just state the 6 historic steps of Logistics Evolution :

Era 1: Farm to market (1900-1940)

Era 2: Segmented functions (1940 to early 1960s)

Era 3: Integrated functions (early 1960s to early 1970s)

Era 4: Customer focus (70s to 80s)

Era 5: Logistic as differentiator (mid 1980s to nowadays)

Era 6: Behavioral and boundary spanning is planned for the future.

As we can see, in the past thirty years, the logistic function has been taken to a new level. It has been considered during a long time as a secondary function, nowadays its role has been pushed in front of the scene deploying the logistic as a strategic weapon. In fact, the logistic tends to be industrialized as the gain of cost is no longer the main goal (it is now a full part of logistic) but to deploy an element of differentiation, a service.

Concentrating on the past few decades, the logistic activities have evolved under the influence of the following four principal phenomena:

- *Externalization*: More and more, global companies outsourced their logistic activities and entrust them to providers in order to concentrate on their core activity.
- *Concentration*: of small to big providers of any kind of logistic services (transportation, storage)
- *Computerization and automating*: every inside and outside flows of materials or information are now secured by automatic and informatics storage.
- *Semi-industrialization*: the logistic activities are getting more and more industrialized mostly when it comes to warehousing. These techniques permitted to get closer to the customer by realizing a tailor made service.

The next evolution to take in account are mostly due to the challenges of the 21st Century: globalization, new technologies but also environmental issues. The "Green Logistic" is a new way of logistic that is being developed to respond to the sustainable development (i.e. COP21 in December 2015).

To put in a nutshell, the logistic function and its activities are at a complete developed stage and settle as a strategic function within companies, however, companies must carefully take in account the new challenges coming up in this 21st Century to adapt and ameliorate their logistics. It is a highly moving function that will continually change to adapt.

4.3 Role and Issues of the logistic function.

4.3.1 The roles

The role of the logistic function is closely linked to its importance in a enterprise. In the article "Role of Logistic in the Development of New Products" the authors refers to the Theory of resources dependences of Pfeffer & Salanick (1978). Their theory and idea has been developed then in 1999 by Workman & Krohmer stating that the services in a company that brings precious resources without comparable equivalent, whose other services of the same company depend on, are likely to possess a greater power or influence within the company. It has been proven that the logistic function is cross-functional and that logistic brings to any other function of the company essential resources, that is the reason why the logistic had grew bigger and is getting a bigger importance.

By meaning a bigger importance, the growth of its roles is related, and we can relate four main roles of logistic for the company.

First, it has a supplying role, this part is linked to the purchasing function as the role of logistic in the supplying is not only to take care of the routing of the goods from the supplier to the company but also to have a great management of this logistic activities so the goods will arrive just-in-time, that is to say not too late to avoid any sold out, but not too early to manage the space in the warehouse. This is an upstream role of the logistic as it takes place in uphill of the businesses.

Then, it has a consequent role during the production by managing the inside transportation of goods from storage to production site. Nowadays, the warehouse and

production site are put together in a matter of time gaining strategy. This is the role of the logistic in the heart of the company, during this part the logistic function has to work hand to hand with the production function.

After having important roles upstream and inside the activities of the company, the logistic function extends also its role downstream with the distribution. Indeed, the logistic function is in charge of the delivery of the finished, semi-finished products to the final customer. This is mainly a matter of transportation but can be considered as an added service that the company can propose to its customers. For this part, the logistics function is working closely with the sales department that are in relations with the customers.

The last but not least role of the logistic function is related to all the others roles. Indeed, in the three precedent roles, we can notice that the logistic function has to work together with other service of the company. Its last role concerns also the whole company as it is the good sharing and spreading of the information. Thanks to the IT development and the creation of highly efficient software, the logistic function must be aware of everything in the company to ensure its activities on time, but also is in charge of relaying the information to all the services so that the chain of the process is never broken. The difficulty for the logistic function is to have a management of two different flows (material and information) that are completely inversed (see figure 8).

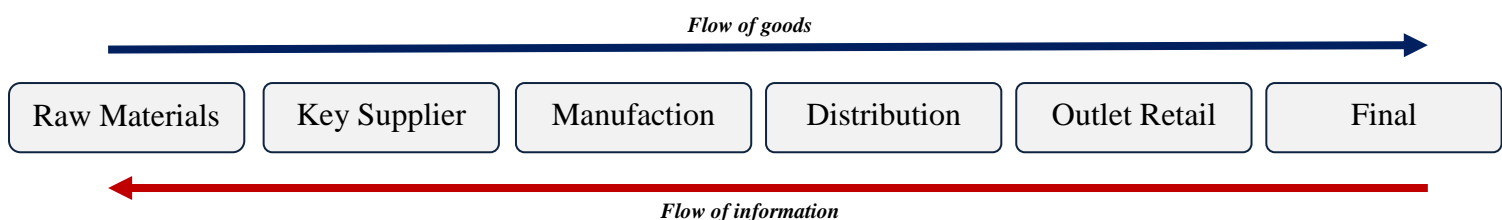


Figure 8: The opposed flows in logistics

4.3.2. Issues of Logistics :

As the evolution of the place of logistic within company has been growing, also its issues had become more important. There are four main issues that the logistic function adduces to a company.

First of all it is a key factor for the efficiency and the performance of the company. The logistic is a strategic critical factor to induce a greater performance in the company thanks to the good management of the supplies and its role before and during the production. In fact it can ameliorate the time of supplying, delivering and producing thanks to an industrialize logistic.

Related to the performance issue, the company can use its logistics functions and activities as a competitive edge on its competitors. Indeed, a greater performance is considered as a selling argument introducing quality management. Also, the logistics activities are nowadays turned towards the customer. That is to say it is an added service that a company can provide to its customers by organizing the transportation of the goods following each customer's requirements. A quicker delivery and a quality management of the logistic is a positive point that can make the difference from a customer's point of view.

Moreover, the logistics activities had been developed in order to reduce the internal costs of companies. Through this concept, the logistics had been collectivized and grouped to gain costs on transportation or storage. The logistic function is strategically creating scales economies that benefits directly to the company. Since the two pas decades the logistics costs has been reduced nearly to nothing. Owing to David B. Grant in his book "Logistics Management (2012), the global costs of logistics in the USA have been divided by two (in percentage of the USA GDP) from 1990 to 2010. This is clearly the proof that the logistic function is a cost-gaining factor.

As a last issue, the concept of added value of the logistic was developed quite late (see figure 9).

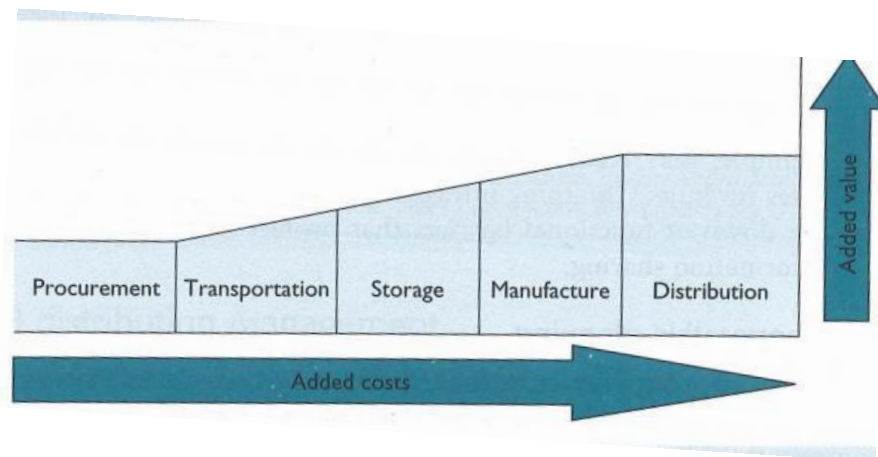


Figure 9: The added Value aspect of Logistics (issued from *Purchasing and Supply Chain Management* by K. Lysins & B. Farrington)

The logistics activities represents a certain added value to the company: indeed the costs of the logistics activities are added to the product cost and the more logistics activities the bigger is the added value. It has to be seen as a profitable investment because the company will first invest in those logistics activities before getting benefits from it when the final products will be sold.

4.4 Different types of logistics flows:

4.4.1. Typology of logistic

The five major activities of logistics have been identifies as transportation, warehousing & storage, inventory, information technology and production (or operations management). These main activities had been divided into two types of flows : internal and external flow. Both types of logistic are part of the support activities in the value chain of Porter (already stated in part 3.3.1 The Role of purchases). This means that they are both strategic function is the organization of a company.

The *internal flows* or activities represent every logistics related operations that are to be done inside the company, it resides mostly within the operations of warehousing or storage, inventory and production. The goal of the internal logistic is to optimize at the utmost the volume of stocks owing the customer's needs, and handling activi-

ties around the production. During the phases of internal logistics the whole operations are mostly centered towards the production and the company's needs, that is to say every transportation of raw materials (or either spare parts or semi-finished products), to get them into the process of fabrication and the handling of the goods between the different steps of production or transformation, and finally the storage of the goods when they arrive and when they are ready to be sold.

The *external flows* concerns every operations that take place outside of the company, it can be either inbound or outbound operations, that is to say that it is the concerning the operation of transportation, and information flows. The external logistic can be itself divided into two subparts that would be the upstream operations and the downstream ones.

As their name state quite clearly, the upstream operations represents the whole inbound activities. It is the entire operations taking place before the internal logistic. The main goal of this part of the logistic is to take care of the supplying of the goods from the first supplier (it can get through different levels of suppliers or intermediaries) until the warehouse or production site.

On the contrary the downstream operations are the outbound activities. It is again mostly about transportation of goods but this time from the warehouse or production site until the final customer. Once again, the transportation can go through several steps of customers. This part is really important and turn toward the customer to satisfy his requirements.

About the information flows, it is the only flow that is transversal. Indeed the flow of information and information technologies management must be carefully follow all along the production chain. Thanks to highly developed software and Enterprise Resources Planning, the sharing of the information can be now done instantly from the final customer to the first supplier and getting through every intermediaries.

Methodology of logistic

Within the overall logistics operations different methods can be adapted. This where we can distinguish four methods of logistics.

The pushed flows : it is a specific methods for internal logistics, with this organizational type each step of the production is triggered by the availability of the raw materials or components. Then the products are produced and stored waiting for the demand.

The pulled flows: the fabrication process or delivery is only made when a customer ask for it. This means that there are zero stocks within the company.

Just-In-Time: it is a combination of both precedent methods, it is nearly the equivalent of the pull strategy, however there is still a minimum of stock to ensure any sold out.

Synchronous flows: in this methods, the components or raw materials are delivered on place owing their entry order in the production process. They are delivered on place only at the moment they are needed, it permits to reduce the storage and by the same way the costs related to warehousing.

4.5 Logistic Strategy :

4.5.1. Implementing logistic strategy

In parallel to the implementation of purchasing strategy, the creation of a logistic strategy must follow the corporate governance strategy of the company. However implementing a logistic strategy is not an easy task and before it is necessary to have a strategic analysis of the global logistics situation.

To do so, there are different methods, but the SWOT analysis is a good method to get a complete overlook on the situation. Indeed, the SWOT analysis does not limit to the intern situation but also consider external environment. The SWOT matrix is developed around the four following factors: Strengths, Weaknesses, Opportunities and

Threats ; the strengths and weaknesses are an analysis of the plus and cons of the intern situation while the opportunities and threats represents the positive and negative aspects of the external environment (see figure 10). By consequence, the intern factors are considered as controllable while the external one are not. The positive aspect of this strategic analysis is that is gives a complete overlook, and permits to find out what are the main problems to find solutions to solve them.

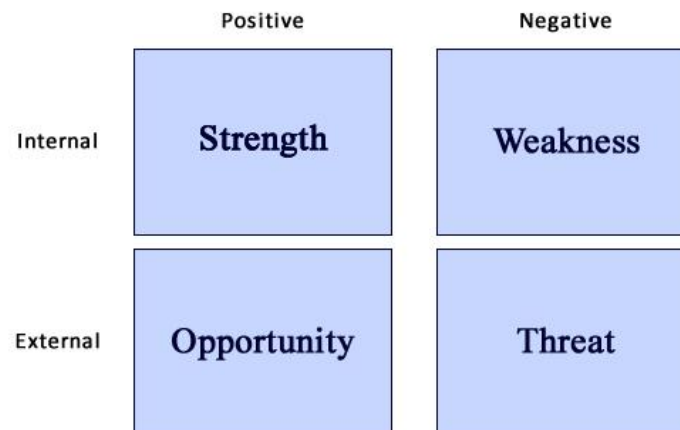


Figure 10: The SWOT Matrix

The first strategic choice that can be made concerning the logistics is the question of outsourcing or integrating the function? Outsourcing is an arrangement in which one company provides services for another company. That is to say that a company takes the decision on annexing one of its functions and give it in charge of a provider. In logistics, the trend of outsourcing is high, indeed it can permit to a company to concentrate on its core competence.

4.5.2 Logistic Strategy

Following the idea that the logistics function is integrated in the company (and not outsourced), two economist Donald Bowersox and Patricia Daugherty had presented a typology to succeed in logistic strategic in the late 1980's. they have determined three important elements in a logistics strategy : the process, the market, and information or channel.

The process strategy is stated as the first key factor in a logistic strategy, it is basically the management of the traditional logistics activities (transportation and warehousing) with the precise aim to control the costs that they involve. It is stated as a "efficiency strategy".

Then the market strategy is the management of few selected traditional logistics activities through the different units of the company. The goal of the market strategy is to gain an competitive edge by facilitating the complexity of the operations for the customers. They describe it as a "effectiveness strategy".

The last one is the *information or channel strategy*, the goal of this is to gather the traditional and other logistics activities together in order to create a common system whether than just a chain of different operations. This strategy permits to ameliorate coordination and collaboration between the organizations and all long the channel. This strategy is the entry point of Supply Chain Management.

Those three elements are a synthesis of the essence of logistics role in increasing the performance and the effectiveness of the company. The three elements are common in every organization, however the strength of the strategy can change owing the company. For example, a firm that is in a highly competitive sector might need to implement an "intense" logistics strategy.

Logistics is nowadays a strategic function of the organization, thanks to a good management or a efficient strategy can help a company to increase its competitiveness or its internal performance. However it is important to have first a strategic analysis of the actual intern and extern situation in order to be sure to implement the good strategy.

5 THE LINK BETWEEN PURCHASING AND LOGISTICS

In the two precedents parts, the concepts of purchasing and logistics functions and how strategic they have become are developed separately. Within this part, the aim is to expand further the subjects and to behold the fact that, together with, those two functions can be even more strategic.

5.1 Physical Link

With the description given of the purchasing and logistics functions, it is easy to perceive that the two of them are closely linked. Indeed, the two functions are physically closely linked within the company as they often work together; their objectives converge and the cooperation of both is an idea that have become necessary.

First of all, their physical linked is really tight. Within a company organization, the two functions are often put together. Indeed, they have to work hand to hand to assure the continuity of the supplies. Moreover, they have a lot of common points, for example, they are the only two functions of the company that are completely transversal or cross-functional; both purchasing and logistics have to work with every others functions of the company as in one part the purchasing can be general purchases (that will be used by everybody in the company), production purchases or investment purchases; and in the other part the logistics take care of the physical operation of supplies (every kind of supplies), the logistics operations during the production process and also the transportation of goods to the final customers.

To go deeper in this principle of cross-functionality, the two function do not only work as partners with the others function, but they deliver services to them. To understand this concept, it is interesting to see the others functions in a company as customers of purchasing and logistics.

The common points of purchasing and logistic is expanding beyond. As already said in their definition, their objectives are to maintain a continuity of the supplies, assuring a quality management. To go ahead, that is to say that their objectives are fre-

quently, not to say always, converging in one same objective. The strategies employed in those functions are commonly parallel and generally following the corporate strategy; it is easy to notice that their role and objectives are directed into one big main objective.

It becomes obvious that the cooperation between the two functions is a necessary step in the strategies development of the company. The purchasing and logistics need not to work only as two functions that complete each other but as partners putting their efforts together to deliver at the end a better service. It is only with the collaboration of them that it will be possible to set up a better strategy, to gain more competitive edges.

The collaboration of the purchasing and logistics has become more and more important, through the time it has become even bigger, and companies went deeper in the cooperation of both by creating what is call a supply chain.

5.2 Definition of Supply Chain

5.2.1 Definitions

There are a lot of definitions that has been given to the term of Supply Chain, The APICS Dictionary (APICS is the first professional association for Supply Chain and Operations Management and the leading provider of research, education and certifications programs in Supply Chain excellence and innovation) defines a Supply Chain as "the global network used to deliver products and services from raw materials to end customers through an engineered flow of information, physical distribution, and cash".

However, even if the APICs gives a clear definition, the one from D.S. Rogers & R. Tibben-Lembke (in *Going Backwards: Reverse Logistics Trends and Practices*) covers quite more completely the concept. For them a "supply chain is that network of organizations that are involved, through upstream and downstream linkages, in the

different processes and activities that produce value in the form of products and services in the hands of the ultimate customer or consumer".

Their definition highlights the most important aspects of the supply chain stating that firstly it involves several participants to take care of different activities through the supply chain management, also the concept of network bring the supply Chain further than just a chain or a process, it means that it includes also coordination between the different organization parts of the Supply chain and in addition that it implies a management of supplier and customer's relationship.

Also the concepts of upstream and downstream in this order gives the current of the supply chain management, the upstream part illustrates all the activities and relations with suppliers and even supplier's supplier while the downstream part is at the contrary, the activities and relations with customers and even until the customer's customer (or ultimate consumer as mentioned in the definition).

In addition, the concept of added value is one of the key idea in a Supply chain (the value being what a consumer is willing to pay owing Porter), the supply chain is to be considered as the sequence of activities and operations bringing added value to the final products.

5.2.2. different types of Supply Chain

A supply chain does not exist under one unique form and will vary from a company organization to another. In fact there are a lot of different kind of supply chain, but they can be divided into three different types from a "direct supply chain" to the "ultimate supply chain".

A *direct supply chain* (see figure 11) is the less extended form of supply chain and the easiest one to set up. That is to say that a direct supply chain, only take in account the direct stakeholders of the core organization and does not implicates further participants or operations linked to those further participants. Those "beyond" activities or operation, in the case of direct supply chain will be more likely to be outsourced or consigned to providers.

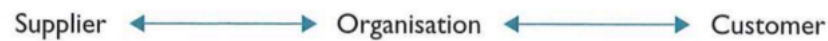


Figure 11: Direct Supply Chain Model

Then there is the *extended supply chain* (see figure 12), which as its name states is a more extended version of supply chain. Indeed this type of supply chain is going further into the integration of the stakeholders as it is also including the suppliers of the immediate supplier and the customers of the immediate customer.



Figure 12: The Extended Supply Chain Model

The last type of supply chain is what is called the "*ultimate supply chain*" (see figure 13). It means that in addition of including supplier's supplier and customer's customer, the ultimate supply chain joins also all organizations that take parts in the upstream and downstream flows (products, services, finances, information), and all of this from the ultimate supplier to the ultimate consumer.

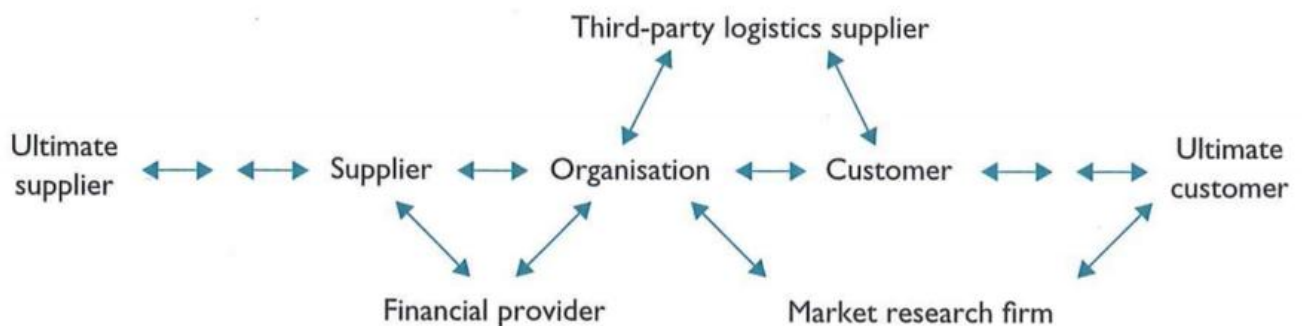


Figure 13: the Ultimate Supply Chain Model

5.3 Evolution of Supply Chain

Even if for most of people the supply chain seems to be a really recent term, the supply chain exist since quite a while and had evolved over time. The evolution of the supply chain can be divided in three main "historic" parts.

- *The Early Supply Chain:* The supply chain mainly exists since humans begin to trade somehow over 2000 years ago. However, since at the moment the trade was limited to local buyers and sellers, the challenges generated were not the same as nowadays, and it was more a hub-and-spoke network. The era of early supply chain continued to evolved during long time.

- *The Local Supply Chain:* it is only in the twentieth century that the supply chain knew a big changes with the vertical integration trend. Ford Motors was pioneer in this new implementation as they integrated their iron supplier. The advantage of this new integration were mainly the full control of all the operations upstream and reduced time lapse of production. Then it becomes more and more common that the companies include their suppliers and also the beginning of the technologies development helped a lot with the creation of Electronic Data Interchange (EDI: real time sharing data) that was meant to maintain a continue flow of information to avoid any cessation in the supplies.

- *The Global Supply Chain:* obviously the era of global supply chain is the consequence of the globalization. This expansion opened the access to new markets and new places of supply and it has been now generalized to nearly every company that seek for competitive prices and cutting their costs.

5.4 Strategic Supply Chain Management:

The Supply Chain Management (SCM) is to be considered as a philosophy, there is not one unique way of SCM as it will completely vary from a business to another. Indeed the SCM is more about the integration and the management of all the businesses processes across the Supply Chain.

5.4.1. Implementing a Supply chain Management Strategy

As in the 21st Century the Global competition is at its highest point, and the businesses are trying harder and harder to get into foreign markets, their dependence to the supply chain is increasing proportionally. Indeed the main aim of a supply chain is based on the raise of its participant's profitability and the optimization of the total profits. The goal of building a competitive supply chain is mainly to generate profits throughout the whole value chain.

To set up a supply chain strategy it is necessary to take in account the four main element (see figure 14) that are the marketplace, the unique value proposal, its internal processes and its managerial focus. All the stated elements also include multiple factors.

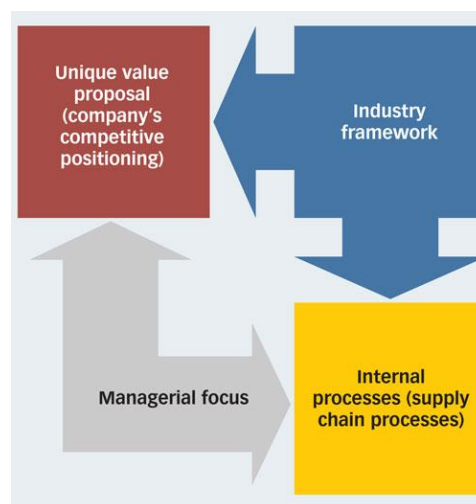


Figure 14: The Four Elements in a SCM Strategy

Analysis of the Schema :

- *Industry Framework*: refers to the sector of the business by taking in account the interaction with suppliers, customers but also every technological development and macro/micro economic factors that affect the competition in the sector. This is highly important because all of the sub factors included in the Industry Framework are related and affect the Supply Chain (i.e. Demand variation affects the production and manufacturing; the product lifecycle, you are likely to be more competitive if you are

able to answer to the demand and to develop a product in a shorter time than the competitors; etc)

- *Unique Value Proposal*: it is the second element in setting up a SCM strategy. It requires a clear and complete understanding of the business competitive positioning, specially by highlighting the efficiency and performance aspects that best differentiate your company. Those factors of efficiency and performance are globally the consequences of a good SCM. It also emphasizes the importance of having a value proposal not only focusing on the performance but also on the customer's needs.

- *Managerial Focus*: it is the linkage between the organization's positioning and its supply chain processes. What is linking one to each other is the decision making process, that is to say the importance of the coherence between the SCM and the business corporate strategy and positioning.

- *Internal processes*: it is the fourth element and one of the most important as it is the factor that gives an orientation to follow.

To put in a nutshell, to set up a SCM strategy it is necessary to have an overlook of the four main elements of the Supply Chain. By doing so, the company can see clearly what are the competitors edge in its sectors and how to compete them with a better strategy. The key to succeed into implementing a SCM Strategy resides in the alignment of all the strategies within the company.

5.4.2. Different kind of strategies :

There are a lot of different SCM Strategy and they can obviously change from an organization to another as it has to be following the corporate strategy. However it is still possible to identify different kind of SCM Strategies that can be more or less followed. In this case we will be speaking more about strategies orientation more than a strategy in itself.

Product oriented Strategy : in this case, the SCM will be focusing more on the logistics operations and the activities related to the production or manufacturing. That is

to say that the company will try to enhance the quality management of their products and also the performance with an efficient management of the operations.

Cost-cutting strategy: This strategy is focused on reducing the costs related to the logistics operations and purchasing. There are different means to achieve this kind of strategy, for example about the logistics operations it is axed on "delivering more for less", in the Supply chain, the company put in common its installation with its supplier's one to share the costs; for the buying cost, this strategy need some good negotiation skills from the buyer and/or a choice of cheap suppliers.

Supplier Oriented strategy: this is more and more common nowadays. In this kind of strategy, the organization ameliorates its relationship with its suppliers and supplier's supplier. The installation of a stable a durable relationship help to negotiate more easily a better quality, reduced costs, better organization of the supplies...

Customer Oriented Strategy: This is part of the most used strategy in the SCM nowadays. This way of thinking focused on the customer's need. That is to say that everything done upstream is calculated to suit the customer. This strategy is quite efficient as the SCM is arranged to become a competitive edge against the competitors and a service tailor-made to the customer.

These are some examples of possible strategies for the SCM, of course there are a lot of other different possibilities but there are the most common one. It is also possible to cumulate several kind of strategy to gain even more competitive edge in the sector and to differentiate from the competitors. In every ways, the Supply Chain has turn form a function to a vital process within the company.

5.5 The Future Trend

The Globalization, by increasing the worldwide competition and opening to new markets, also contributed to some kind of unfair competition and non-ethical procurement (i.e. purchasing from country where human rights are not respected, child labor, extremely cheap labor-force, unmoral working conditions, etc...).

Global companies are now facing issues that are the consequences of a massive unethical procurement and massive non-sustainable logistics operations.

The SCM is at the moment in the heart of a huge controversy and need to be adapt to the new challenges. The future of the SCM need to be oriented towards ethical procurement and nature respectful operations and to ameliorate the Corporate Social Responsibility of companies.

In respond to the raising of these new issues the Chartered Institute of Purchasing and Supply (CIPS) had published a code of conduct to follow stating that the procurement should be done in respect of the Human Rights, in respect of the Labor International rights, in a sustainable way and against the corruption. This implicates that the company must develop its supplier's relationship to a next level to be sure that they trust and respect ethics issues.

The ethical issues do not stop at human rights but extend also to environmental issues. The globalization had plunge the world in a global contamination, and the purchasing and logistics operation has to change to be responsible towards the environment. This is how the term of "green logistics" had appeared.

The green logistics is growing slowly but surely and already some suggestions about how to develop a sustainable SCM were given by The World Economic Forum from the administrations way of working to the buildings architecture.

They propose, as we live in the 21st Century, to first computerize every papers generated by the logistics or purchasing activities; to reduce the packaging of products or to source it from a closer and reliable supplier ; to reduce the CO2 impact by choosing less contaminating means of transportation or to share transport with several companies so the environmental impact can be reduced and then to build green buildings, self-sufficient in energy for examples.

The matter, is that it represents a lot of changes that are not so easy to set in motion, and a lot of companies do not understand how important it can be. However, these changes can also be seen as competitive advantages, indeed in the global population the factor of sustainability has become a key factor in consuming and it can become another way to differentiate from the competition. In addition, most of the proposed


solutions are economically saving in the long-term. Of course, the changes will take time, but this is how the SCM should be oriented towards.

6 CASE STUDY: AREVA

6.1 Presentation of AREVA:

Every prices, figures, or percentage stated below are approximation, the precise figure were not given for confidentiality issues.

6.1.1. Introduction:



AREVA is a French Global Company created in 2001 and is today directed by Philippe Knoche. The company is operating in the energy sector, and mostly in the nuclear energy. Their principal activities are : uranium mining, concentration, refining, producing nuclear combustible, construction and use of nuclear reactor, transporting the energy, treatment of spent nuclear fuel, destroying nuclear installation and managing the radioactive waste. Even if the nuclear energy is still their core operation, Areva had recently enlarge its activities to renewable energies as wind, solar or hydrogen energy. Nowadays, the group AREVA controls more than 250 subsidiaries all around the world.

6.1.2. Activities :

AREVA corporation is organized into five main groups owing their five main activities.

Mining Business Group:

It covers the exploration, extraction and processing of uranium and the reclamation of sites after the production is done. They owe an important number of mines, the most important ones in operation are situated in Canada, Kazakhstan and Niger.

The Mining business Group of Areva is the largest uranium mining producers in the World.

The Front End Business Group:

This group combines activities associated with the conversion and enrichment of uranium and with the design and fuel production for nuclear reactors. The production capacities of the group is one of the world's leader and represents nearly one third of AREVA's consolidated revenue.

The Reactor and Services Business Group:

This part of the corporation brings together the design and the construction of the two main nuclear reactor systems in use in the World (pressurized water reactor and boiling water reactor). They also conceive naval propulsion reactors and research new systems. They offer the products and services needed for the maintenance, modernization and control of all types of nuclear reactors.

The Back End Business Group:

Offers end-of-cycle management solutions for used fuel : recycling, logistics, clean-up and site rehabilitation. They use technologies that meets the group's commitments to sustainable development.

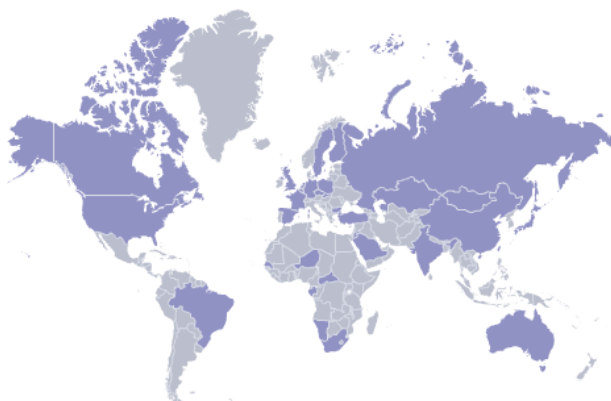
Renewable Energy Activities:

As the world leader in nuclear energy, AREVA is committed in developing solutions for energy production with less carbon impact. AREVA has a portfolio of operations in four renewable energy segments: offshore wind, bioenergy, concentrated solar power and energy storage.

6.1.3. AREVA in the world:

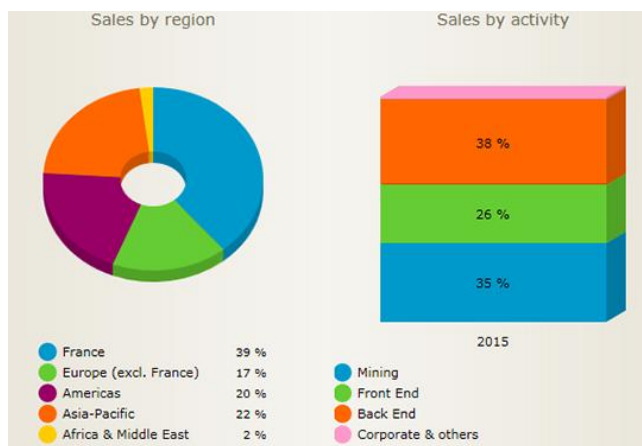
AREVA is the leader in the energy sector and is present on every continents. They have more than 250 subsidiaries around the World. They recently signed a contract in Japan and are building a partnership with China.

AREVA Presence

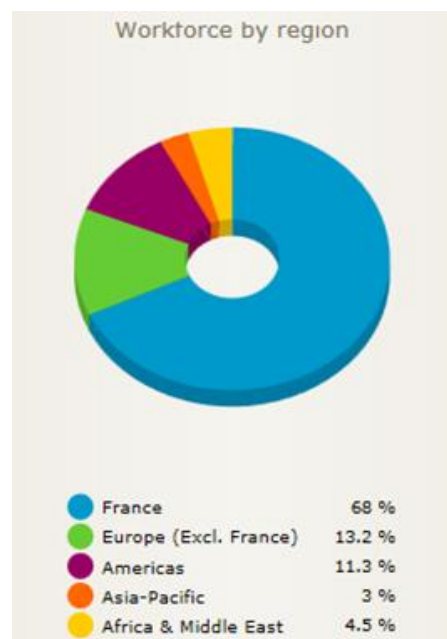


6.1.4. Key Figures (in 2015)

Sales Revenue : 4.199 Billion of Euros



Workforce : 39.761 employees



Presence in Finland:

Finland disposes of only few natural resources for energy, consequently 70% of the energy is imported. The nuclear is strongly important as it is the only way for the country not to be so dependent on importation. The nuclear power represents 27% of the country's electricity thanks to four reactors, in May 2002, the construction of a fifth nuclear reactor was decided by the government.

The Electricity Finnish Company (Teollisuuden Voima Oy) signed the contract with AREVA to build a Generation III+ Reactor -EPR project-, this will make Finland the first country to operate with this new kind of reactor. However, the construction has been revealed more complicated and is taking more time and money than it was supposed to.

6.2 AREVA's purchasing function

6.2.1. Purchasing policy

The purchasing function has a real strategic place in the company. AREVA has an important amount of needs in raw materials, spare parts, furniture and several services. As their purchasing function takes an important place in the company organization, they have settled a strong policy axed around four main principles :

- To analyze the market in order to build the best global suppliers panel
- To pilot all the processes involving suppliers
- To lead the suppliers in a constant aim of driving improvement
- To ensure the efficiency of the purchasing through performance control

6.2.2. AREVA's purchasing process

To explain the company purchasing process, the example of Loubère's Purchasing Process schema (given in the part 3.4.) will be taken and applied to AREVA's methods.

Identifying the needs: AREVA's needs are really specific. They are already controlling the mining and the exploitation of natural resources but they still need some raw materials, spare parts, and also services. In the case of the Finnish power plant construction, their main purchases were spare parts and construction pieces. Moreover, in order to follow their performance indicators, every order is anticipated between 2 and 4 months before the actual need.

Marketing approach and strategy: AREVA has a strict purchasing policy, and their strategy I elaborated towards their suppliers, they try at the utmost to elaborate partnerships with their suppliers.

Sourcing of suppliers: Their sourcing method is done via Public Bid Solicitation on e-market places. That is to say that through specific e-market places (specialized in the product/service needed), AREVA notifies to prospective suppliers a solicitation on the specified products. The Solicitation includes invitation-to-bid (means that not every potential suppliers might be interested, and those who are not can refuse), a request for proposals (where all the specifications of the product/services are indicated), request for quotations (prices and terms). Through this method, AREVA allows different kind of company to answer and small or medium companies have also their chance against multinational.

Evaluation and selection of the suppliers: With the answers of the bid solicitation, AREVA has to chose the "best" supplier, the one that will the best meet their requirements. To choose the supplier, they use the method called the "highest-bidder". The criteria to elect the "highest-bidder" are considered as the basic criteria: technical offer (specifications of products), the price and the estimated quality of the products. However, AREVA is enshrined in a environmental and societal respect chart. Consequently, AREVA has developed more criteria in the choice of their suppliers that includes Social environment of enterprises, the working conditions, the environmental commitment, and the experience of the supplier.

Negotiation: The company is buying highly specific products and the negotiation are most of the time about the technical characteristics. Negotiation for important products can take more than 6 months. Indeed, the financial issues involved in the purchasing are significant and the purchase cannot be done loosely.

Contractualisation and Execution of the order: The contractualisation is made with the chosen supplier and adapt to each one.

Measure of performance: AREVA is thriving for performance, and in order to follow a continuous drive of the efficiency all the products and services purchased are sub-

mitted to a drastic control of performance. But not only, the performance of the supplier is also evaluated on criteria such as the quality of product and services, the respect of the terms and the quick solving of critical case.

6.2.3. AREVA's Purchasing

- Importance of purchasing for AREVA:

Quality issues:

As said, the purchasing function hold a great strategic role for AREVA. Indeed, the purchasing function for AREVA is the warrantor of their project's success.

The quality of the products bought must be always outstanding and that is why the choice of the supplier and the purchases is critical for AREVA. In fact, one faulty spare parts or raw materials can lead to really poor consequences.

Financial Issues:

As the main bought products are high-technology, specific or tailor-made product their costs can reach huge amount. For AREVA, the purchasing turnover represents approximately 50% of their global revenues. That means that half of the sales are invested in purchases.

In addition, one purchase can amount to millions of Euros. Consequently, the purchasing function has a complex cash flow regulation, one mistake could have bald results for the company's accounting.

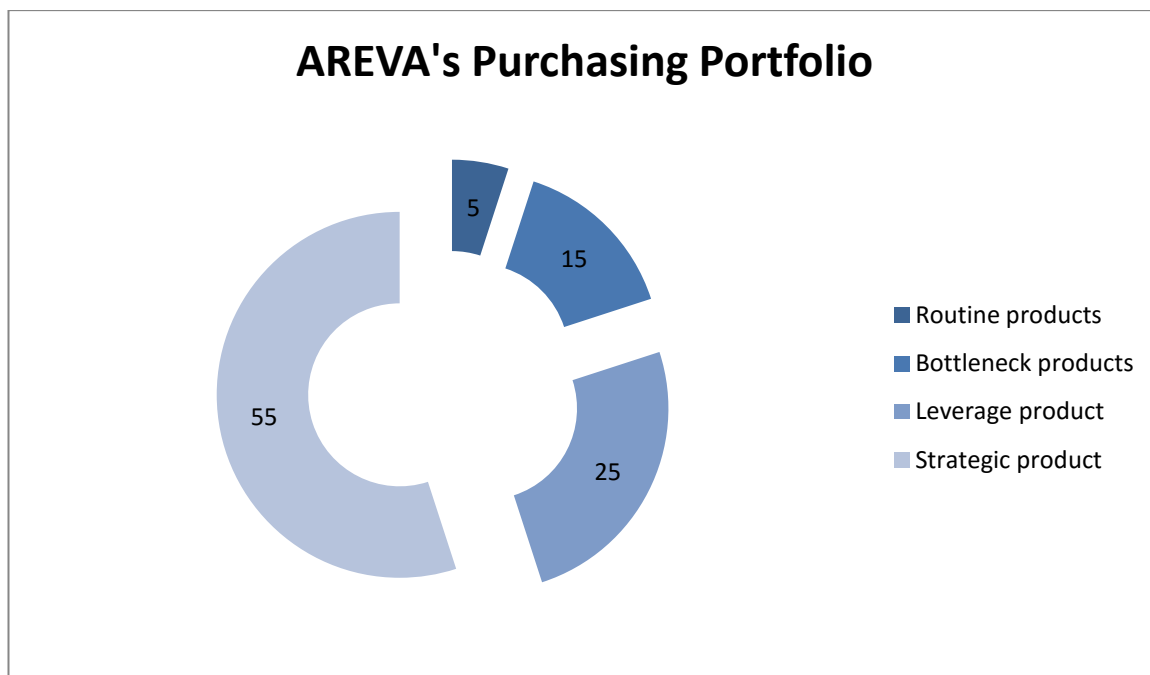
Company Societal Responsibility:

For AREVA, developing their CSR and enhancing its policy is a priority and the purchasing function is consider as the main actor to do so.

AREVA is improving its CSR policy through the choice of suppliers that need to share the same CSR as they have: respect of working condition, financial solvency, respect of the environment, etc.

- AREVA purchasing portfolio:

To enlighten AREVA's purchasing portfolio, the Kraljic Matrix (stated in part 3.5.) will be use.



The Routine Product (with no purchasing risk and low financial impact): They represents approximately 5% of the Purchasing turnover. It is mostly office furniture or phone services. Those purchases are basically not important and do not have any issue for the company.

The Bottleneck products (Not so expensive but risky): For AREVA, the bottlenecks products are mainly some special raw materials that they do not dispose of. The cost of the raw materials is not specially high but the number of supplier is reduced, it means that AREVA does not have so much negotiating power. Their costs is about 15% of the total purchases.

The Leverage Product (Expensive but not risky): For AREVA the leverage products are all the spare parts use for the construction of the power plant. As special material are requested for the construction, their cost can be really expensive. However they can be found easily. AREVA aims to negotiate more on these products as it is the category of purchases where the savings can be greater.

The strategic product (Expensive and with great issues): For AREVA the strategic products represents more than half of the purchasing turnover. It Is for instance reactor pieces, high-technology machines. Those products are most of the time tailor-

made for AREVA and the technology used is rare. This explain their costs but also why it is risky: those products represents the heart of the nuclear installation.

- AREVA's purchasing strategy:

AREVA had implemented two main strategies for their purchases.

First the competitive bidding, owing the company, the competitiveness is the guaranty of financial equity and performance but also of continuous amelioration and modernization of the products. This strategy permits to put the suppliers in competition . As a result, the prospective suppliers give their best solutions and terms to obtain the bid. This method give the opportunity also to compare a large choice of suppliers quickly and have better prices that can still be negotiate afterward.

Then the strategic partnership: Indeed, AREVA aims to install a win-win relationship with its most important suppliers. They try to involve their suppliers at the utmost in their company process and cycle of production. This is a performance-shared strategy, that is to say that the supplier is nearly integrated into AREVA, both companies are connected and transparent to each others.

Thanks to this strategy AREVA wants to avoid the risk of dependency between strategic supplier and important buyers as the partnership helps to have a regular commercial relationship. In addition, a partnership favors and eases the negotiation, especially in case of litigations.

Moreover, the co-operation between AREVA and its suppliers allows to better apprehend the totality of the purchasing costs including logistics costs, technical supports, course program (for the use of certain machine), after-sales services and so on.

6.3 AREVA LOGISTICS FUNCTION

AREVA core operations are around creation of energy, and they have decided to concentrate on their five main activities. By consequent they decided to outsource their logistics activities to a third part logistic provider.

6.3.1. The logistics provider:

The logistics provider is MAINCO-TN International, it is a multinational company created 25 years ago and specialized in supply chain management for big companies such as AREVA. They are also operating for RENAULT, PHILIPS, etc.. MAINCO is working with more than 200 partnerships and has a turnover of more than 30 millions of Euros in 2015.

6.3.2. MAINCO's activities for AREVA

MAINCO is a provider and adviser for SCM operations, they study and create special layout in order to optimize the logistics platforms, they study the different flows and cycles to make amelioration.

Exploitation of logistics platforms on industrial sites: MAINCO has build the logistics platform on the nuclear power plant, thanks to the proximity they can deliver a quick procurement and also more competitive prices.

Stock Management: MAINCO is in charge of the regulation of the stocks and of the supplying of the material.

Technical Expertise: MAINCO is specialized in SCM of technical products. They extend their logistics activities to the control and verification of specific products such as spare part of the reactor.

Operational help for the wastes: MAINCO handle the managing of the nuclear waste and the securing of their transport. They manage the ins and outs of raw materials, take care of the destroying of the waste.

Specific Handling: They intervene in case of complex logistics operations to ensure an optimal security.

6.3.3. AREVA's logistics strategy:

Their strategy is to completely outsource their Supply Chain Management to a professional. Doing so they ensure their logistics operations in good hands and can concentrate on their core activities.

7 SUGGESTIONS

7.1 Pros and Cons of AREVA's organization

7.1.1. Purchasing pros and cons

Pros :

Supplier digital portal: AREVA disposes of a digital portal regrouping all its suppliers. It is through this electronic portal that every information between AREVA and its suppliers are shared. Thanks to this portal, the suppliers can have access to every AREVA's needs or demands that are addressed to them on-time, they share their information instantaneously and the portal is also used so the suppliers can post offers. This system allows AREVA to have all its suppliers regroup in one database and to communicate immediately with every of them.

Enhancing of suppliers' relationship: with the integrated or "accredited" suppliers, AREVA improves its commercial relationships. Moreover, they have access in a transparent manner to all the information of their suppliers and vice versa.

Increasing their negotiating power: As AREVA is committed into its suppliers relationships, and by doing so they also increase their negotiating power. Indeed, the more they are linked the more they are important to each others. Thanks to the accreditation of suppliers, AREVA's purchasing volume is getting bigger, that is to say that from the suppliers' point of view, AREVA's purchases are taking a significant share in their turnover. Then AREVA can use this as a negotiation tool and has access to larger possibilities.

Share cost: with the integrated suppliers, AREVA is sharing the external costs of purchasing as transporting, stocking, handling, after-sales service etc. This allows AREVA to make some significant scales economies.

Cons:

Communication: The communication between AREVA and its suppliers is exclusively done through the digital portal, this can lead to some communication gaps. Indeed, if the supplier or AREVA itself is not connected they can miss information. Even though all the information are supposed to be share on the portal, everyone is free to chose the information he really wants to share or not.

Less reactivity: All the purchasing process is registered, stay the same and is constantly repeated. This is a good thing because it means that the supply is automatically done but it has a huge disadvantage. It leads to a decrease of the reactivity, indeed in case of unanticipated demand or urgency, the supplier is not well-prepared.

7.1.2. Logistics pros and cons:

Pros:

Concentrate on core activities: AREVA is already taking care of five different activities that are really specific. By outsourcing its logistics operation, AREVA gives to itself more time to work on its real trade.

Added-Value: As the whole logistics operations is made by professional it decrease the risk of technical failure. In addition, the work done by specialist gives an added-value to the product and malfunctions are avoided.

In-place: MAINCO makes a point on installing logistics base on its customer's location. This is a real advantage as it draws near MAINCO and AREVA and enable a quick management of the operations.

Cons:

Dependency: AREVA is outsourcing its whole Supply Chain Management, this brings to a high dependency on the third-part MAINCO. In fact if MAINCO fails AREVA this would put AREVA is some inconvenience.

Cost: Out-sourcing can be really costly, and in this case it is expensive. In fact, the third-party in taking care of every operations and also maintenance works. As it is a

specialized logistics provider in complex products they charge their service at a high cost.

Co-ordination: This one of the biggest matter with outsourcing. AREVA is facing difficulties in coordinating MAINCO, itself and its suppliers at the same time.

7.2 Suggestions:

The suggestions are given in order to solve the matters revealed in their purchasing and logistics management. They are ideas that has been discussed with AREVA.

Communication problem: The communication between MAINCO, its suppliers and itself s a recurrent matter for the company and can lead to misunderstanding, delays or other. This problem exists only because there are not any direct communication between the suppliers and the logistics provider. The idea would be to include MAINCO in the digital supplier's portal so they would be aware of the order in progress and would also be able to communicate directly to AREVA's suppliers. This will avoid AREVA being a middle-man and released them from transmitted information from their suppliers to their logistics provider.

Reactivity problem: the reactivity is also a problem in case of urgent order or unexpected demand. The source of this matter is also partly from the lack of communication but not only. Indeed, neither the suppliers or MAINCO are prepared for urgency. One of the solution would be to set up a common Electronic Data Interchange between AREVA, MAINCO and the suppliers. This will allow the three parties to check in immediate time the stock, the consumption, the needs, the orders, the delivery, etc.. that are in progress. Thanks to an EDI, the suppliers would be aware of AREVA's needs, and be able to calculate and anticipate a possible stock-shortage.

Dependency: AREVA is at the moment highly dependent on its logistics provider that takes care of the wholeness of the Supply Chain Management. This dependency could be decrease if AREVA would take part in some of the logistics activities. Some possibilities have been discuss such as:

- Controlling the maintenance: AREVA has technicians in its workers that would be able to operate the maintenance of the machines, panels or specific products.
- Stock-Management: The purchasing function could take care of the stock regulation and supplying
- Management of the waste: At the moment it is MAINCO that transports and destroy the waste of the company. However, AREVA would be able to do it as they also have a subsidiary specialized in it.

This would mean that MAINCO will be mainly in charge of transport, handling and special handling and warehousing, and AREVA would at the same time reduce its logistics costs and control some of the operations.

8 CONCLUSION

Throughout this Thesis we learn that the Purchasing and Logistics functions have taken, through years, the important and strategic roles that they were meant to.

During the thesis, the different possibilities of strategies are developed as a mean to gain competitive edge at an international level but also to improve the intern performance in the company. Once the Supply Chain Management is well-settled, a company will be able to apply an effective strategy.

Then, we also note that several strategies can be applied but not all of them are certainly efficient for every companies. In fact there is not one successive strategy that can be enforced to every enterprise. At the contrary a purchasing and logistic strategy needs to be held according to a corporate strategy and taking in account every stakeholders for the company. It is only in this way that the company can find the best strategy fitting its needs.

The example of AREVA is taken in the thesis because AREVA, with its long experience, is a global company that succeeded in being the leader in their sector. A part of their success is due to their purchasing strategy, turned towards their suppliers. But we discover also that they still have amelioration to be done.

The recommendations given or AREVA were discussed with the company are must not be taken as an example for every company but as an example of how to adapt a purchasing strategy to have the most efficient one fitting a enterprise.

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