



## Maximizing the performance of an organization by its supply chain

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### ABSTRACT

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Supply Chain Management (SCM) becomes so crucial and essential for organizations in order to succeed in any market, but is it always the case? Of course not! There are many examples of even large companies that failed because of wrong management of their supply chain, such as Webvan and Borders. From its conception, planning, and until integration and management, the supply chain must respect few conditions (the 3Ts that compose the effective collaboration) to insure efficiency and success. Considering the companies with the best practice of supply chain management, such as Nokia, Procter & Gamble, and Wal-Mart, strong collaboration and relationships with partners were always the reason behind their remarkable success. Therefore, the main concern of every organization that is looking to improve its performance should not be just the necessity of integrating and managing the supply chain, but what really matters is how to apply it in the right/efficient way.

### 1. Introduction

Measuring an organization's performance by only its generated overall value will not ensure its serenity on a market characterized by globalization and competition. Therefore, making a high profit should not be the only goal of companies that aim to remain on the market as long as possible by always being competitive, and that is what a fully integrated supply chain management (SCM) insures. Supply chain provides many advantages that increase the performance of a company (high income, competitiveness, and serenity). However, some companies failed even if they had an integrated supply chain. Nicolas Gaultier, a supply chain strategy consultant at Deloitte, once said that the supply chain is a challenge on a daily basis but it, can conversely, becomes a source of significant competitive advantage (Franck Stassi, 2014). Therefore, the goal of this study is to find out what makes a supply chain management successful in order to win that challenge and maximize an organization's operational and financial performance.

In order to achieve this research goal, we will go step by step in the most clear and comprehensive possible way. Starting by defining first the supply chain and presenting its role that will allow us to prove the importance of managing a supply chain and not just "the focal company" (Paulsson Ulf, 2018). Then, we will exhibit how to

integrate the supply chain management within an organization, before setting out the conditions of a successful SCM.

### 2. The supply chain and its role

According to Khairi Kleab (2017), even if supply chains have existed for so long, "most organizations have only paid attention to what was happening within their four walls". This statement was agreed by Chopra and Meindl (2013), who defined the supply chain by clarifying all the involved actors in it:

"A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves.", (Chopra & Meindl, 2013).

This definition shows that when a company manages its supply chain, means it is considering itself as a part of a group of companies, and also presents the goal of supply chain, which is fulfilling the demand in the right time, place and quality.

A comparison between companies with an integrated supply chain and companies without it, made by Carter

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Logistics<sup>1</sup>, shows the necessity of integrating the supply chain management by revealing its benefits.

This study describes the companies with non-integrated supply chain as having disconnected activities and functions, limited flow of information within the company, and suffering from difficult measurement and adjustment of operations.

In the other hand, the study mentions the three benefits that the companies with an integrated supply chain have:

- Flexibility: being able to adjust to different changes, such as customer requests, competitors' actions, and the events of the industry.
- Reduce waste: with a better design and planning of activities and functions.
- Lower costs: by being flexible, eliminating waste, and sharing costs with SCM providers.

At the end of their study, Carter Logistics had concluded that an integrated supply chain is a requisite strategy for companies that aim to become or remain competitive.

Thanks to this study, we get a clear idea about the advantages of adopting the supply chain' culture while managing a company.

Besides these three benefits/advantages, managing as a supply chain has a main objective, which was stated by Chopra and Meindl (2013): "*The objective of every supply chain should be to maximize the overall value generated*". These two researchers gave a synonym and a mathematical equation to the overall value generated mentioned in their statement, they referred to it as the "*Supply Chain Surplus*" and defined it as "*the difference between what the value of the final product is to the customer and the costs the supply chain incurs in filling the customer's request*". This equation can be presented as following:

$$\text{Supply Chain Surplus} = \text{Customer Value} - \text{Supply Chain Cost}$$

The researchers made it clear that to have a successful supply chain, the achieved supply chain surplus should be very high. And achieving a higher supply chain surplus will maximize the financial performance of the focal organization and all the actors involved.

The researchers proposed also an additional way to thrive the financial performance: by maximizing the operational performance, which will help the focal company to reduce the Supply Chain Cost. Chopra and Meindl (2013) explained that this second type of performance is all about "*finding the balance between responsiveness<sup>2</sup> and efficiency<sup>3</sup>*", in other words, it is about determining the level of responsiveness an organization aims to provide to its customer at the lowest possible cost.

### 3. The integration of supply chain

After seeing all the advantages of having a supply chain within an organization's management and how it can maximize its financial performance, it is time now to present how an organization might integrate the supply chain.

For any organization, there are three phases to follow in order to integrate the supply chain (Chopra and Meindl, 2013):

- Supply chain strategy or design: according to Professor Richard Wilding<sup>4</sup> (2008a), each business has different levels of strategies, starting by a high-level corporate strategy (where the mission and the activities of the company are decided). Below this level, there is the competitive/marketing strategy (where the company decides how it will sell its products on the markets that it choose during the first strategy level). Then in the third level, we have the supply chain strategy, which has to be developed jointly with the previous level (because the marketing function clarifies what drives value and the supply chain strategy must be put together and designed in order to add that value). We must mention also that a supply chain strategy is made for the long term with an uncertain anticipation of the market conditions. It is during this first phase where the company should determine its level of responsiveness and efficiency that we already mentioned in the previous discussed point.
- Supply chain planning: the period for this phase is a quarter to a year. During this second phase, a company will decide about: which markets will be supplied from which locations, the subcontracting of manufacturing, the inventory policies to be followed, and the timing and size of marketing and price promotions. These decisions are considered as operations policies that will be used for the last phase.
- Supply chain operation: the time horizon in this phase is weekly or daily, so there will be less uncertainty about the market conditions, especially about demand. During this last phase, firms will allocate inventory or production to customers' orders, set a date that an order will be filled, generate pick lists at a warehouse, allocate an order to a particular shipping mode and shipment, set delivery schedules of trucks, and place replenishment orders.

Based on these three phases, the integration of supply chain reduces uncertainty and as a result optimizes companies' performance. So, with all what we have

<sup>1</sup> Carter Logistics is a public and globally owned logistics powerhouse with clients located around the world since 1957.

<sup>2</sup> Chopra and Meindl (2013) define Supply Chain Responsiveness as the supply chain's ability to "respond to wide ranges of quantities demanded, meet short lead times, handle a large variety of products, build highly innovative products, meet a high service level, and handle supply uncertainty".

<sup>3</sup> Chopra and Meindl (2013) explain that Supply Chain Efficiency is "the inverse of the cost of making and delivering a product to the customer". To make it clearer, let us represent it this way: when the supply chain cost increases, the supply chain efficiency get lower, and vice versa.

<sup>4</sup> Richard Wilding is the president of the Center for Logistics and Supply Chain Management, at the Cranfield School of Management, United Kingdom, and recognized expert in Logistics and SCM.

presented so far about how supply chain is crucial to maximize the operational and financial performance, why, according to Chopra and Meindl (2013), there were companies that failed even if they had an integrated supply chain such as Webvan and Borders?

#### The case of Webvan

The failure of many online businesses such as Webvan can be attributed to its inability to design appropriate supply chain or manage supply chain flows effectively. Webvan designed a supply chain with large warehouses in several major cities in the United States, from which groceries were delivered to customers' homes. This supply chain design could not compete with traditional supermarket supply chains in terms of cost. Traditional supermarket chains bring product to a supermarket close to the customer by using full truckloads, resulting in very low transportation costs. They turn their inventory relatively fast and let the customer perform most of the picking activity in the store. In contrast, Webvan turned its inventory marginally faster than supermarkets but incurred much higher transportation costs for home delivery and high labor costs to pick customer orders. As a result, the company folded in 2001 within two years of a very successful initial public offering.

#### The case of Borders

Borders, along with Barnes & Noble, dominated the selling of books and music in the 1990s by implementing the superstore concept. Compared to small local bookstores that dominated the industry prior to that, Borders was able to offer greater variety (about 100,000 titles at superstores relative to fewer than 10,000 titles at a local bookstore) to customers at a lower cost by aggregating operations in large stores. This allowed the company to achieve higher inventory turns than local bookstores with lower operating costs per dollar of sales. In 2004, the company achieved sales of almost \$4 billion with profits of \$132 million. Its model, however, was already under attack with the growth of Amazon, which offered much greater variety than Borders at lower cost by selling online and stocking its inventories in a few distribution centers. Borders inability to adapt its supply chain to compete with Amazon led to a rapid decline. By 2009, sales had dropped to \$2.8 billion and the company lost \$109 million the same year.

These two cases show the negative impact that the supply chain could have on organizations' performance if it was not well mastered. In the first case, it was a wrong conception of the supply chain that could not compete in the industry. The second one illustrates the failure to adapt the supply chain to changing environment that damaged

the performance. So, what are the conditions of a successful supply chain?

#### 4. Successful Supply Chain Management

In 2004, Deloitte<sup>5</sup> carried out a global study with a panel of 421 executives from industrial and distribution companies that generate over \$100 million in turnover (Franck Stassi, 2014). This study compared between leading companies in the supply chain sector and less efficient ones.

The study revealed that 79% of organizations with a very efficient supply chain generate a turnover growth higher than the average of their sector (vs. 8% for companies with less efficient supply chain performance) and superior profitability.

This statistic explains clearly the importance of implementing an efficient supply chain inside a company. So, we had already seen that integrating supply chain and managing it is crucial for an organization in order to improve its performance, but we had also seen that it's not always the case, the integration of supply chain or its management could went wrong sometimes. So, what is the right way? How to manage the supply chain in an efficient way?

According to professor Richard Wilding (2008b), managing an efficient supply chain, means applying an effective collaboration with partners within the supply chain by adopting the 3Ts rule (Transparency, Time, and Trust).

During one of his interviews, this professor advised the companies on how to manage their supply chains in a way that guarantees their success. He presented the 3Ts rule as the perfect way: **transparency** means that the company should be able to schematize its supply chain on a piece of paper that everyone can understand in order to have a clear vision on what is happening inside that chain. This schematization has to be based on **time** as the main dimension or measure of all the activities in the chain. The professor mentioned that with a higher level of transparency between the players/actors of a supply chain, a solid confidence will be built in order to develop **trust** in the company's inter-organizational relationships, which require a long term investments of efforts because trust does not occur instantaneously.

There are many successful companies, which have efficient and strong supply chains, thanks to their effective collaboration, such as Nokia, Procter & Gamble, and Wal-Mart.

#### The case of Nokia

One of the most famous cases, the most mentioned in management sciences' research, is the fire caused by a

<sup>5</sup> Deloitte is the brand under which tens of thousands of dedicated professionals in independent firms throughout the world collaborate to provide audit & assurance, consulting, financial advisory, risk advisory, tax and related services to their clients.

lightning in a microchip plant belonging to Philips group, located in Albuquerque, New Mexico, USA.

According to its 2016 annual report (Philips Corporate, 2016), Royal Philips (known as Philips) is a Dutch technology company headquartered in Amsterdam, the Netherlands. It specializes in the fields of electronics, health and lighting; the company founded in Eindhoven in 1891 by Gerard Philips and his father Frederik, is one of the largest electronics companies in the world: 82 production sites in 22 countries, sales and service points in around 100 countries and 105,223 employees.

On March 17, 2000, lightning struck, causing a fire easily contained by the sprinkling of water triggered by the fire smoke, contaminating millions of chips, almost all the plant's inventory.

On March 20, 2000, Philips called its main customers to tell them the bad news, underestimating that cleaning would only take about a week. Two weeks after the fire, Philips admitted that it would take longer than expected to resolve the problems at factory level, which only reopened six weeks later. Six Months later, production yields only reached 50% (Solomon Nicole, 2013).

At that time, Philips was the executive supplier of radio frequency chips for Ericsson and Nokia. It is for this reason that these two companies were affected simultaneously. However, their reaction to this incident was very different.

– For Ericsson:

Ericsson, and according to its official website (Ericsson Corporate, 2019), is a world leader in the supply of ICT, Information and Communication Technologies solutions, founded in 1876 in Kista, Stockholm, Sweden, by Lars Magnus Ericsson. 40% of global mobile traffic is routed through Ericsson networks. It has customers in more than 180 countries to whom it offers software and infrastructure services that enable the communications industry and other sectors to improve their businesses.

At the end of the nineties, the Swedish company Ericsson was one of the big international actors in the mobile phone industry. While Ericsson's phones may have been the best, its supply chain management certainly was not, because even though microchips were an essential component of its next generation of mobiles, Philips was its only supplier and no alternative source had been identified in order to simplify its supply chain.

At the beginning of the event, believing that the fire was not likely to cause a serious problem, Ericsson decided to wait without any reaction. Ericsson's cell phone division manager Jan Warby was not informed about the seriousness of the problem until early April. At this point, and without having other supply options, it was clear that the production of Ericsson's mobile phones would be interrupted (Solomon Nicole, 2013).

Results: Ericsson lost several months of production, resulting in \$400 million of sales. There were also the \$200 million business interruption costs, paid by the insurance.

Finally, the company decided to leave the mobile phone business as an individual brand, which gave Nokia the opportunity to consolidate its leading position on the European market, and it merged, in April 2001, with the Japanese giant Sony electronics to survive (Janssen Robbert, 2010).

– For Nokia:

According to Nokia's 2016 annual report (Nokia Corporate, 2016), the company was created in 1865 by Fredrik Idestam and Leo Mechelin in Espoo, Finland. It has five groups of activities: mobile networks, fixed networks, IP/optical networks, applications and analyzes, and Nokia Technologies. Thanks to these five groups, the company has a global presence with operations in Europe, the Middle East, Africa, Greater China, North America, Asia-Pacific, and Latin America. In 2016, the company mentioned in this report that it has made sales in around 130 countries, it has around 101,000 employees and it has research and development facilities in Europe, North America and Asia. It also announced, during the same year, its agreement with the manufacturer HMD Global that took the license to use the brand Nokia in the sector of mobile phones.

Concerning the problem of Philips, and unlike Ericsson whose leaders were informed of the fire after several weeks, the Finnish company Nokia chose to inform immediately the most senior leaders of the firm. Pertti Korhonen (crisis manager at Nokia) also mentioned this culture: *"we always prefer to spread bad news as quickly as possible; we are not trying to hide the problems"* (Yossi Sheffi, 2005). This manager decided that the situation needed further investigation and began a process of collaboration with Philips on the recovery efforts, suggesting that two Nokia's engineers flew to Albuquerque to help Philips. These two noted on the spot that it would take weeks to restore the factory and restart production (Andersen and Schroder, 2010).

Nokia's team quickly saw the availability of other sources for the pieces they use, by redesigning the existing handsets in order to use different chips. Three of the five pieces could be purchased from other Japanese and American suppliers, but two pieces are sourced only from Philips (Chegg Study, 2017).

The president of Nokia, Cor Bostra, spoke directly with the CEO of Philips and demanded to know the details of the other Philips factories. Nokia's team had dug in the capacity of all these factories and insisted on capacity reallocation. Crisis manager Korhonen mentioned that their objective was simple: for a short time, Philips and Nokia would operate as one company in order to produce those two components (Kouvelis et al., 2012).

The Finnish actions got good results: a Philips factory in Eindhoven would supply 10 million chips, while another one in Shanghai would work to free up more capacity for Nokia's needs. The 30 engineers sent by Nokia had

devised new means to increase the production at the Albuquerque factory, by an additional two million chips. Thanks to its actions, Nokia was able to avoid this event and continued to deliver its products to its customers on time, which let it achieve its sales goals. Therefore, a good management of the supply chain (good collaboration, good management of the purchasing of raw materials by having alternative sources and not an only supplier) could always ensure a good performance for an organization even during negative circumstances.

### The case of Procter & Gamble

According to its official website (Procter & Gamble Corporate, 2019) and its 2016 annual report (Procter & Gamble Corporate, 2016), Procter & Gamble (P&G) is a multinational American company founded in 1837 by the British American William Procter and the Irish American James Gamble, whose head office is located in Cincinnati, Ohio, United States.

This company is one of the leaders in the consumer goods sector, providing superior quality and value products to its consumers around the world, and operating in approximately 70 countries with 105,000 employees. Its products are sold in more than 180 countries by supermarkets, grocery stores, pharmacies, baby stores, electronic commerce, club stores, drugstores, distributors and high frequency stores, and they are consumed by almost 5 billion people.

For the third consecutive year, since 2015, P&G is ranked second after Apple in the Masters category, which belongs to the list of the Top 25 Supply Chain Management in Europe, produced annually by Gartner<sup>6</sup>. Companies are qualified for the Masters category if they kept their place in the top 5 rankings for at least 7 of the past 10 years. This category is made to highlight the achievements and capacities of those who remain long-term leaders of the chain in the Top 25 (Gartner Corporate, 2017).

P&G's global supply chain organization touches its brands at every stage, from the supply of raw materials, manufacturing, quality control, distribution, to retail. More than 60,000 P&G employees compose its global supply chain, which includes more than 80,000 suppliers, more than 130 production sites and more than 200 distribution centers (Trebilcock Bob, 2015).

Despite the success of its supply chain, by being ranked among the top supply chains worldwide for years, P&G has never stopped investing in innovation and collaboration with its partners to improve the performance of its chain. As an example of those investments: always in the context of its goal to be reactive and to accelerate more the time to respond to the requests of its customers, P&G asks its suppliers to create "**supplier villages**" next to their factories. Therefore, suppliers will respond more quickly to P&G demand (Trebilcock Bob, 2015).

This case proves that effective collaboration can be adopted in order to ensure high level of an organization's performance.

### The case of Wal-Mart

According to Wal-Mart's 2017 annual report (Wal-Mart Corporate, 2017), the world leader in the retail industry recorded great numbers such as: each week, more than 260 million customers visit its 11,695 stores, which exist in 28 countries and its e-commerce sites in 11 countries. The group has 2.3 million employees worldwide.

Despite its large number of employees and worldwide existence, Wal-Mart's supply chain is its main strength as expressed by David Glass, the ex-CEO of Wal-Mart, "*Our supply chain management is one of the keys to our success. If there is something we do better than others, it is our supply chain.*" (Elodie Marien et al., 2010).

We can also describe the supply chain management of this company by its significant collaboration with all the actors that are involved in its supply chain. Wal-Mart views its employees as associates and its customers as neighbors and friends (and that is how they are mentioned in its annual report), and it has partnerships with other companies, governments, and non-government organizations to solve complex problems that no company can solve alone (Wal-Mart Corporate, 2015).

In 2005, Hurricane Katrina and the big floods that remained after its passage, affected several regions in the United States. The Wal-Mart affected stores by this disaster were closed, but this did not affect its supply chain and its activities, which once again confirms the strength of its supply chain management. Wal-Mart was ready to face any risk no matter how serious it could be, even a natural disaster, by hiring the public relations firm Edelman to help to anticipate, prepare and manage complex and urgent situations.

Wal-Mart began its donations to the victims of Katrina with \$2 million, including \$1 million to the Salvation Army and \$1 million to the American Red Cross. These donations were followed by a third of \$15 million to the Bush-Clinton Katrina Fund.

Wal-Mart's superb supply chain management and distribution systems had enabled the company to deliver relief to the victims (\$3 million in goods and in-kind donations) where The Federal Emergency Management Agency teams could not.

The company paid the salaries to its employees in closed stores, and for those forced to flee their homes due to the hurricane, they were hired at their new locals. Wal-Mart was one of the first to reopen their stores in the flooded areas.

According to Scott Ryan (2015) and Horwitz Steven (2015), Wal-Mart was seen as a real hero (the Washington Post wrote that: *Wal-Mart is considered a model of*

<sup>6</sup> Gartner is a research and advisory company since 1979.

logistical efficiency and rapid disaster planning), unlike FEMA which was so criticized in this period (the Wall Street Journal said: *FEMA could learn some things from Wal-Mart Stores Inc.*).

This last case proves that having an efficient supply chain management could increase the company's performance even in bad and negative situations and not just in normal and ordinary ones.

## 5. Conclusion

This research aimed to show that adopting the supply chain management is not the only requirement in order to increase the organization's performance. What is important is how the SCM will be adopted by this organization.

The supply chain management should be efficient to avoid a failure situation as happened to Webvan or Borders, and insure successful achievements as was it the case for Nokia, P&G, or Wal-Mart.

To make the long story short, a successful supply chain requires an effective collaboration (based on the 3Ts) between all the actors of that chain. However, those actors should work a lot on the "Trust" between them, because, as mentioned earlier, it is a long-term investment of efforts, but a rewarding one!

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