

## Analysis and Improvement of the Inbound Logistic Process in an Eletronics Company of the Automotive Business

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### 1. INTRODUCTION

This paper presents a case study carried out at Bosch Car Multimedia Portugal, S.A. Bosch is an electronic company located in Braga, northern Portugal, which focuses most of its industrious efforts in the production and development of multimedia systems for the automotive industry. Amongst its products, special importance can be given to auto radios and navigation systems. The main objective of this work was to analyse and improve the inbound logistics process of the plant, thus eliminating the high variability observed in the delivery performance rating and reducing costs related to transportation and storage. Methodologies and tools used throughout this project included internal process revision, in the scope of the Bosch Production System (BPS); and concepts such as Supplier Development, Supply Chain Integration and communication focus, in order to enhance relationships with suppliers and service providers, and increase their service level. As a result of these approaches, key indicators in the procurement process showed clear improvements, both on supplier performance and costs reduction.

### 2. BACKGROUND

Although supply chain management has been undertaking special focus in the last few decades, to the point of being considered a key to a successful business (Simons, Norma; Economou, Michele, 2002), worldwide companies still have a high margin of progression ahead of them. The search for excellence put companies on the path of specialization, liberating tasks and roles on production and services for the market, allowing new companies to establish. With the impact of globalization, the market went from local to global, making it possible for a company to contract a service in the other side of the world. This situation, although having a highly beneficial potential, also bears risks: by alienating services and parts of the production, companies may lose the control over quality and service level. In order to avoid this, a close relationship should be developed, involving suppliers and service providers as much as possible and making them understand the depth of a company's quality philosophy, goals and its working methods. Integration in the supply chain will also tear down barriers between companies and help in finding camouflaged problems which could be absorbing consecutive investments, in failed attempts of solving the problem.

This is, of course, a difficult goal since it faces a very traditional way of interacting in the markets: pure negotiation. Every company in the marketplace has different goals and working methods, and so do suppliers. As presented by Michael Porter [1980, as cited in Mintzberg (2009)], suppliers are one of the 5 forces that influence the competitiveness of the market. They have their own objectives and it is far easier for them to keep this track of their own rather than to invest resources to understand and cooperate with a client - unless a perfect understanding of the profits of these actions is given. In this sense, it is essential to demonstrate unmistakably the benefits of this new strategy, in order to motivate the supplier and avoid their lack of commitment in the establishment of a partnership (Handfield *et al.*, 2000).

### 3. METHODS

Bosch Car Multimedia Portugal, S.A. represents only a piece of the puzzle on a long supply chain, and in order to achieve customer satisfaction and have a high service level, the company has to guarantee the highest quality of its products and a perfect schedule while receiving raw materials, producing and shipping its final products to the clients. One mistake can represent not relevant costs but also a breach in the confidence on the company, damaging its image to the market.

In order to positively answer all the factors and requirements, it is necessary to ensure the maximum productivity from every stakeholder in the upstream side of the supply chain. However, the high variability observed in the delivery process was endangering this objectives, forcing the company to spend extra financial resources in special freights to guarantee raw material and components for production, and even then, to have a high safety stock of these materials.

In order reduce this variability, several measures were adopted: firstly, a revision was made to the internal processes in order to identify the major reasons for failure within the company, especially in order to avoid some of these to be accounted to external players. This revision eliminated redundant tasks and drew special attention to other important points, as the fact that the influence of certain companies (such as the ones in the transportation business) was being underlooked.

Once this revision was carried out, and its main resulting actions implemented, focus was brought to external processes and the interaction with the relationship with external actors. Having the company goals and philosophy as background, but also considering the importance of presenting real and palpable advantages to the suppliers, the following ideas were set as the basis of the project:

**Suppliers' evaluation and improvement:** The company presented a clear model for supplier's performance evaluation, with the proposal of improvement joint actions in order to increase productivity. It was also ensured availability of resources in order to help suppliers improve in a structured way and with recognised know-how. These actions can be directed not only to operational failure but also to quality issues.

**Flexibility:** Reinforcing, next to the suppliers, the importance of being better prepared to face and react to relatively small, short term changes without reducing the service level, through the demonstration of the benefits achieved with the sales increase.

**Relationship, communication and integration:** The basis for a strong and cohesive relationship were set, based on mutual benefits, respect and understanding, as well as enhancing communication between parts. A new vision was introduced over the supply chain, accounting not only the suppliers as being responsible for the incoming products but also considering transport companies and storage facility services has having a deep influence in the inbound process.

#### 4. RESULTS

The change of paradigm on how to face relationships and communication along the supply chain allowed a quick improvement of the major Key Performance Indicators of the procurement process. In this sense, the delivery performance indicator average increased 13% in only 6 months, to a service level of 85%. This reduced the variability in the whole inbound process, which had direct consequences in other two indicators: the safety stock was reduced by 25%, and the number of special freights (used to guarantee raw material for production in case of delay) was reduced by 20%. Alongside with these indicators, communicational improvements allowed better understanding of the company's problems by the supplier, enhancing involvement and thus increasing productivity and saving time in day-to-day work.

#### 5. CONCLUSIONS

The results obtained allow a rich view of the importance that an integration based approach in the supply chain can have. By creating partnerships and building communicational bridges between the many stakeholders in the supply chain, a company drifts away from the rigid negation politics and allows synergies to be created. A better understanding between parts can be achieved as long as both sides are motivated and can spot the profits of getting involved in such a project, since it is evidently explained that the increase on the sales of one company will represent a direct boost on its suppliers businesses and reputation.

#### 6. REFERENCES

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