

Effects of Malfunctions in Supply Chain Management on Company Revenues

Hasan Çiçek

Üsküdar University, Faculty of Engineering and Natural Sciences Department of Industrial Engineering, Istanbul-TURKEY

hasan.cicek@uskudar.edu.tr

Abstract- This paper presents issues related to the effects of malfunctions in supply chain management on company revenues and profits. Case study was carried out on a large scale company. The key staff were interviewed and the real data of the past 5 years were analysed. The results proved that if the management team do implement SCM properly the company's profit will rise significantly. Furthermore, it is shown intensively that through improvement projects, the existing failures could be eliminated and that improvement will lead to high revenue and satisfaction of shareholders.

Keywords: Supply Chain Management, Supply Chain Malfunctions, Third Party Suppliers, Profit Management, Top Management, Year to Date, EBIT

1. Introduction

Supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. This network includes different activities, people, entities, information, and resources. The supply chain also represents the steps it takes to get the product or service from its original state to the customer. Implementing Supply Chain Management (SCM) effectively enables a company to make profit. By appropriate SCM, it is possible to create value and build a competitive infrastructure for global competition. From the customer's perspective, SCM is the enabler of the company to produce and provide value-added products which are desired in the market. Malfunctions in SCM reduces the entire productivity of the company ending up with lower profits and even with a decision to change the operational sector. A company (which is named XXX to keep anonymous) was chosen to

investigate and analyse intensely with respect to the efficiency of SCM system. It was found that its profit was much lower than expected due to its improper SCM and thus it was addressed in detail.

The investigations started upon the request of a Turkish Textile Company based in Istanbul and took 4 months between December 2016 and March 2017 during which 20 full time days were spent for interviewing 22 managers and key staff, gathering the relevant data and analysing it. The analysis was about reviewing 'Real Data' of the actual past 5 years of the company. It was found with clear evidences that malfunctions SCM had been causing remarkable decrease in company's profit due to "waste", "lost sales", "higher costs in make and deliver" which were all originated from the poor supply chain management of the Management Team.

The main conclusion was that if the Management Team do apply SCM properly under training and guidance for a period, then the company's profit will rise significantly, which would also satisfy the shareholders. The recommendation was that the top management should make a clear decision for a step change within the company's supply chain including the Third Party Suppliers, and spend the required efforts for implementing project decisively in order to eliminate the existing failures, each of which were identified clearly and defined by separate procedures in detailed steps.

2. Literature Review

Many producers have been focusing on the effectivity of their processes and mass production since 1950's. On those years, product development was quite slow and restricted by the internal technologies and the capacity of the companies as indicated [1]. Ref. [2] Points out product demand was simply covered by the

inventories of finished goods and semi processed materials which required huge capitals. Information sharing between suppliers and customers was rejected at all due to its high risks [6], the first recognised definition of SCM was made by Bowersox, [5] who claimed that the physical distribution of the goods can be integrated within the parties outside of the company as a competitive advantage.

In 1970's Material Resource Planning (MRP) became popular underlining the importance of the SCM activities on the production cost, the quality, the customer service, and on the time of product development. In this era, the approach of "Total Cost Reduction" including the logistics rather than reducing the cost of a single part of the operation was emphasized. Companies focussed on the logistics in 1980's. From 1990's onwards, the intentions changed totally, companies started to consider the expectations of their customers and consumers in order to improve the relevant satisfaction levels involving all relevant sides (suppliers, 3rd party manufacturers, wholesalers, retailers, etc.) [6]. This whole network started to be named as Supply Chain Management [3]. From the mid 1990's onwards, the managers recognised that the materials and the services received from their suppliers have critical influences on their customer services as well as the costs. The new success criterion became the supply of products in a cost-effective manner to the customers and consumers at the right time, at the required quantity, and at the right place. Managers are now fully aware that the activities in their own company will not be sufficient to be successful. So, their material suppliers (upstream) and their wholesale/retail customers who provide the products to the end consumers (downstream) have to be managed together. In literature this is called "Supply Chain Management Era" [6], [7].

SCM is a critical process model for the companies since it had a combined role for cost reduction and quality improvement. There are three main flows in SCM, which are: material flow, information flow, and fund flow, as indicated [4]. SCM's main goals can be summarised as follows: Improve the satisfaction levels of customers and consumers; reduce the conversion time; reduce the inventories and their cost; reduce the errors in production; reduce the operational costs; and increase the company profit. The communication and information sharing among the parties involved in Supply Chain Management became critically important to be continuously improved in order to be competitive [8].

The role of SCM on manufacturing performance is always being interesting area, some scientists have carried some work on this issue.[10]. Sustainability is so important for all companies. The Management task is to realize this issue [11].

Another area that SCM is affecting the companies is the financial side. If the financial situation gets worse, the companies can no longer survive [13]. The uncertainties may face companies, there has been work on impact of SCM on uncertainties for manufacturing companies [12].

3. Methodology

This study presents a case, in which SCM is investigated in detail for a company and the results are documented. The study started with some visits to a textile company where the principles were discussed about work to be carried out after sincere requests from the management of the company, whose customers were all reputable EU Retailers. After agreeing, more visits were made in order to interview all the key staff regardless of their positions in the organisation and some relevant data was requested from each one of them. All the requested data were required to be completed for the last 60 months. After recommendation, the company assigned an experienced manager to be the contact person and as the project coordinator, who would collect the requested data from those people interviewed and provide them for the study directly in one hand.

The collection of the data took nearly 9 weeks prior to analysis. After reviewing all the data received and several conclusions and recommendations were derived accordingly which was also being used for the presentation. The presentation made to a group of people that consisted of all the managers and the owners. The audience tended to show reactions at various degrees for each and every conclusion when they first heard those. When the evidences were shown them derived from their own data.

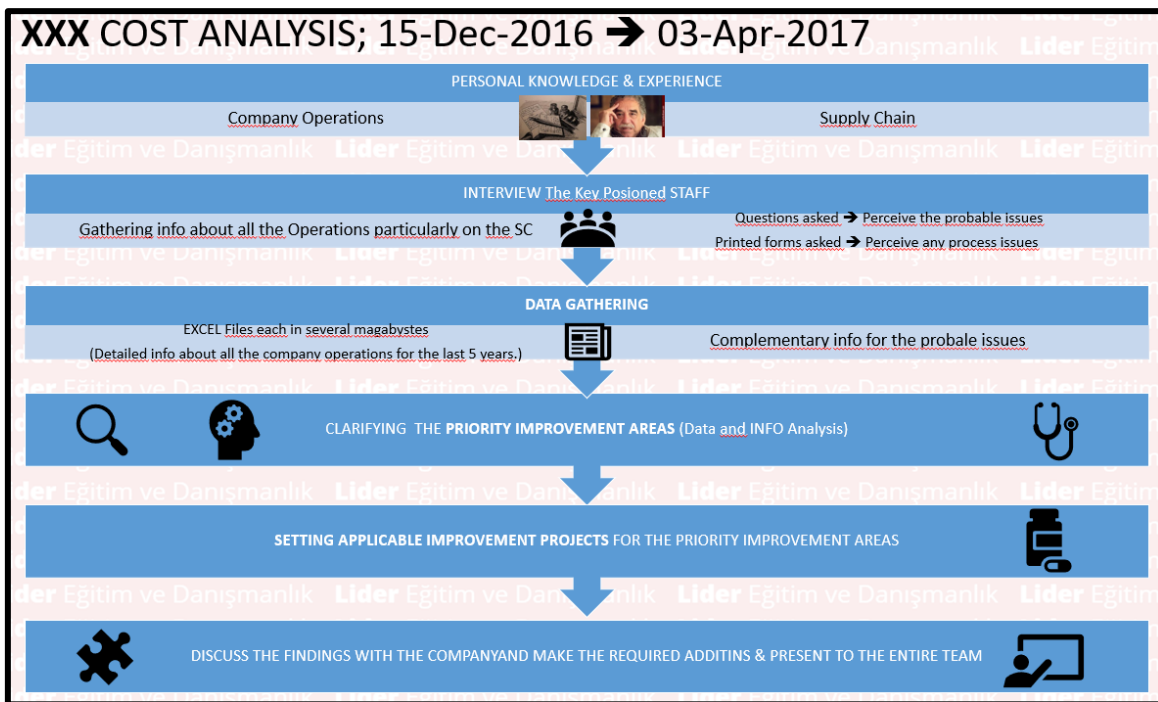


Figure 2. The methodology used

supporting our conclusions, the audience calmed down and started to consider the ways to overcome the issues. Furthermore, the recommendations were made in several projects to be carried out at a coordinated time scale which may be fully completed within a half year of time. After discussing those for approximately four hours, findings were all accepted, and the people promised to each other to do those work collectively. Despite to the fact that findings were blaming the company for poor SC Management, the stubborn facts used to convince them based on their own real-data were undeniable which were the main contributor in reaching to the result that the company became cheerfully ready to overcome the issues underlined.

The methodology used in this work is summarised in Figure 2.

3.1. The Time & Steps of Work Carried

Out

The total duration of the work was 15 weeks. The first meeting was in December 2016 and the agreement signed for starting the project. After the key positioned staff determined by the management, the interview was done for 22 persons. This interview took nearly 2 months. As one of the requests was to assign a Coordinator

who would provide the data needed for this work. The Coordinator provided all the data required by mid-March 2017. Analysis of data continued up to the end of March 2017. After reviewing output of the analysis, a meeting with the top management was organized. The meeting carried out and results were shared with them. The steps of work are outlined in Figure 1.

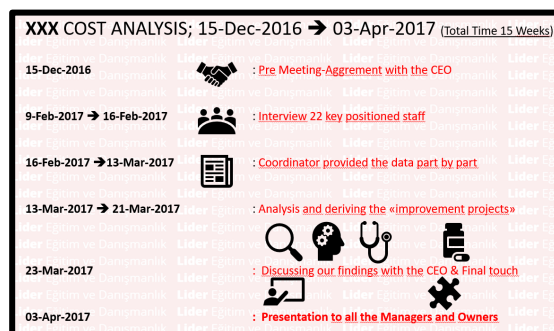


Figure 1. The steps of work

4. Discussion

The length of service years of the staff is short in general but quite experienced when the textile sector is considered. Most of the staff (47 %) have been working between 0-5 years, 29 % over 5 years , 20% over 10 years and 4 % over 20 years as shown in Figure 3.

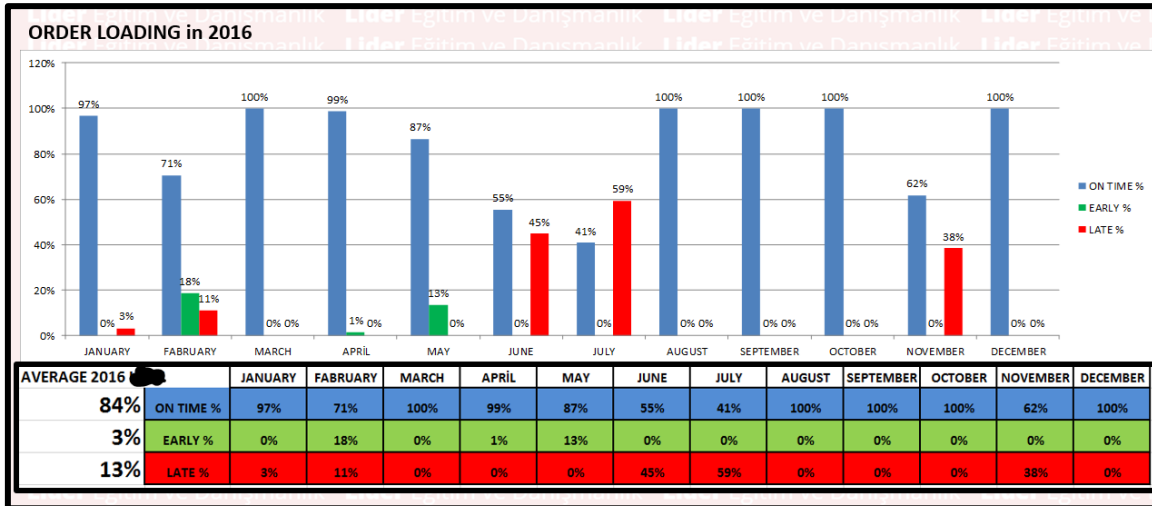


Figure 5. Total costs

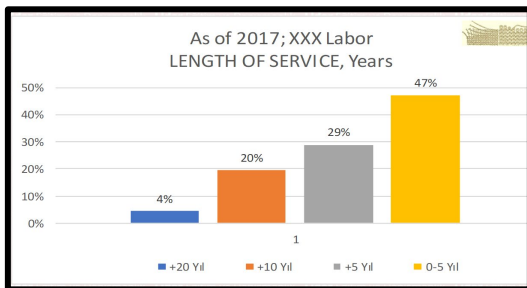


Figure 3. Length of service in years

The cost distribution of the company is relatively stable however there is a slight increase in the cost of third parties while the overheads have some decrease as shown in Figure 4.

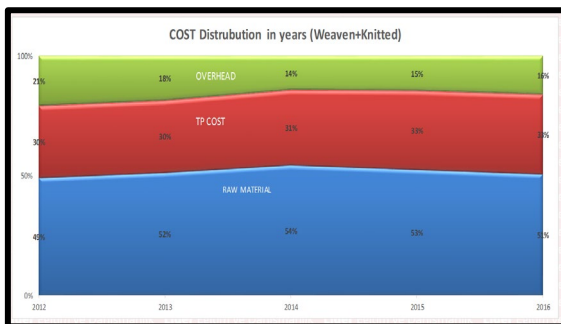


Figure 4. Cost distribution in years

The profit (EBIT) of the company has always been around %5 within the last 5 years and the largest cost contributor was supply chain being around %85 of which the TP a contract cost is %82. The total sales & marketing costs including the obligatory discounts due to service failures is around %7. The company would normally expect to have an earning at least %10 before interest

and taxes, and a major barrier to reach this is the unnecessarily high cost of production as shown in Table 1.

Table 1. Various Cost Percentages

	Branded Retailer BR's Supplier	XXX (we)	XXX Average 2012-2016
Profit (ebit)	10	10	5,4 % (Target → may be %10)
Supply Chain	65	85	85,2 % (target may be 80 % max)
(Production)	(45)	(75)	81,9 % (down to 75% may be investigated)
Sales & Marketing-discount	25	5	6,7 % (Target → may be % 5max)

XXX supply chain was consistently suffering in service (%84 only) that must have had implications either on the price they pay to XXX or on the discounts they claimed or both. Despite low service, the company always produced %2.5 more than the order since they wanted to cover the expected quality failures but this percentage was definitely much higher than those failures, and they had to sell those products into the local market by the “company discount shop” near to their establishment in Istanbul. The total cost of transportation, custom and agency is also high being around %5 as shown in Figure 5.

XXX SC should look at these examples : What can Supply Chain Management do?

- ◆ **P&G (Proctor&Gamble)** estimates it saved retail customers \$65 M (in 18 months) by collaboration with retailers resulting in a better match of supply and demand.
- ◆ Estimated that the grocery industry could save \$30 billion (10% of operating cost) by using effective logistics and supply chain strategies
 - A typical **box of cereal** spends **104 days** from factory to sale
 - A typical **car** spends **15 days** from factory to dealership
 - Faster turnaround of the goods is better?
- ◆ **Laura Ashley** (retailer of women and children clothes) turns its inventory 10 times a year five times faster than 3 years ago
 - inventory is emptied 10 times a year, or an item spends about 12/10 months in the inventory.
 - To be responsive, it relocated its main warehouse next to FedEx hub in Memphis, TE.
- ◆ **National Semiconductor** used air transportation and closed 6 warehouses, 34% increase in sales and 47% decrease in delivery lead time.

XXX Average 2012-2016

%84 OnTime → (loss in service) → **%16 loss may be brought close to 0.**

%2,2-3,0 Over production loss → **%2,5 loss may get close to zero.**

3,6 Weels Inventory (may reduce to 3 weeks max.)

5. Results

The first area is SC. A total of 21 contract suppliers were used to make a large number of varieties which caused service losses and high inventories. The total cost of transportation, custom and agency is also high. SC needs some development and to enhance the skills and knowledge particularly to understand cost accounting, and support/contribution to innovation and sales operations. Waste should be on focus first in model-design and then in production. Table 2 lists possible improvement areas.

Table 2. Possible Improvement Areas for the XXX Company Operations

XXX COST ANALYSIS; The 5 Areas need improvement				
1) Supply Chain				
2) Design-ARGE				
3) Marketing				
4) MIS				
5) QA				

The second area is ARGE (R&D-Research and Development) for which XXX is proud of being strongest. However, they do not support the contract producers. Modelling is critical to eliminate unnecessary fabric waste (example of last year: %1.3 reduction was possible). Free samples are not recorded properly therefore the relevant cost is always above the budget. R&D (ARGE) is not fully competent to foresee the quality of the fabrics available (example a major loss of last year due to the low price accepted but the fabric bought had to

be changed with a much costlier on effort quality requirements.)

The third area is marketing department that should have reliable benchmarks in order to reduce the unit costs. They only rely on the comments of their customers. They can make reductions in the cost of the collections and the free samples they provide. Knitting and weaving departments have separate teams for Quality Assurance, Buying & Design. Those teams can, at least, partly coordinate for some tasks and customers in order to increase their efficiency.

The fourth area is the “management information system” in place but not in real use. Only few people such as marketers use the system for adding data in. None of the third-party producers insert the data of what they produced. All the info is passed by either fax, mail or on the phone. Some of the info is inserted into the system by the ones who received it, but no one really knows why they have a system of MIS what will be the uses of it.

The fifth area is the quality assurance. XXX company needs to have an internationally accredited Quality Management System (QMS). Otherwise each and every customer will require separate efforts to be convinced as it is the case actually.

5.1 The Improvement Projects Identified

After analysis made, 18 improvements projects were identified. Eight of them are relating to Supply Chain Management even this clearly shows how important

Table 3. Possible Improvement Projects

XXX COST ANALYSIS; The 18 IMPROVEMENT PROJECTS →		
1.	SC01	Reshuffle the SC to work on TANDEM basis (orders given in advance of 4 weeks and 4 months).
2.	SC02	Set a new system for an effective war against WASTES.
3.	SC03	Make separate «benefit/cost» analysis for each and every third party producers.
4.	SC04	Investigate and define what are needed to reduce the custom-agency costs by %50.
5.	SC05	Define what will be the contributions of SC to cost accounting, design and sales. Announce the responsible people for those tasks.
6.	SC06	Complete the job descriptions of everybody in SC.
7.	SC07	Being OT delivery target is %100, reset all the targets correctly.
8.	SC08	In coordination with SC05, SC06 and SC07 projects, define the training needs.
9.	DS01	Modelling department should also focus waste-control with a proper mechanism to be formed.
10.	DS02	Sewing R&D should be provided to the TP producers by a mechanism to be formed.
11.	MK01	Investigate and set benchmarks in order to control the unit cost of marketing.
12.	MK02	Define how the Buying, QA and design teams of the Knitted and Woven departments can work together.
13.	MK03	Sampling and collection costs should have a cost reduction target for 2017.
14.	MIS01	After data insertion training given, every body should have a written and signed commitment.
15.	MIS02	Every body should do his/her reporting (preferably by MIS).
16.	QA01	Eliminate the fabric losses in Woven Department by increasing quality assurance activities.
17.	QA02	Woven & Knitted Departments should establish together an internationally accredited QMS.
18.	MIS03	Third party producers should be trained to insert data into the MIS of XXX.

SCM is for this company. The details of the projects are shown in Table 3.

6. Conclusion

The support provided to a Turkish company who serves international customers based in the EU. This was a good example of an effective cooperation of a university and the industry. The XXX Company became aware of their improvement needs given in clear numbers. The detailed proposals made to them as a project-charters (team leader plus the members, what they are expected to do, duration of the projects, expected workload of each member, etc.) for those 18 improvement projects.

Although there was a huge potential (c.a. 5 million TL → c.a. % 2.1 % of the annual gross sales; %5 of the annual EBIT with figures of year 2016) either by saving and/or increasing the efficiency of the organisation, the proposed target made them a target of half a million TL until the implementation of the which will projects are complete. They were willing to realise the proposals made, and it's wonderful to recognise this. It was agreed to take part for consulting the XXX Company in the follow up for the next 12 months. This can potentially be explained in a new paper proving the importance of SCM even further.

It is recommended the top management should implement the improvement projects in order to avoid existing failures which will lead to rise in revenues and profit.

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