

The Supply Chain Management Implementation on Misurata Textile Factory (MTF)

Khaled Amer Ali Amer, and Mohamed Alamen Sharif

Abstract---In this study the analysis of the influence and development of Supply Chain Management (SCM) in Misurata Textile Factory (MTF) firm in Libya is presented. Some parameters such as Leadership, Supplier supply management, Vision and plan statement, Evaluation, Process control and Improvement, and Customer Focus, are analysed to establish if the current implementation of SCM systems on MTF is well organized. Based on the interview discussion with top management and middle managers of the firm, the findings indicate that the communication and knowledge transfer between the workers are limited, top management empowerment has not yet been implemented, the computerized information system does not exist due to its pursuit of immediate profits and short-term benefits. As a conclusion, current SCM implementation practices are not applied to the factory as the full package of the SCM implementation model. Therefore the firm could identify which areas urgently need improvement by using this model.

Index Terms—Supply Chain Management, Misurata Textile Factory (MTF)

I. INTRODUCTION

Supply chain management (SCM) has become a useful strategic tool for companies to achieve competitive advantage. This is the result of the improved and maximized use of the companies' resources towards the implementation of supply chain.

An extensive effort has been reported regarding SCM worldwide including tritacale study, for instance, Handfield, Nichols, (1998). On the basis of this cooperation, supply chain management is no longer a new term in business circles. According to Ben-Daya et al., (2008) it is the integration of key business processes from suppliers to the end user that provides products, services and information that add value, inter and intra organizational communication and cooperation focused on specific sets of customer centered activities. Wei-Shuo Lo, (2003) claims that SCM has been widely implemented throughout the world. Many firms have arrived at the conclusion that effective SCM implementation can improve their competitive abilities and provide strategic advantages in the marketplace.

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Several researchers (David S.L., Philip K., Edith S.L., 2001) also reported that SCM implementation has led to improvements in both supply and productivity, as well as competitiveness in only 20-30% of the firms that have implemented it. A study conducted by

Szulanski, G., (2000) indicated that a 90% improvement rate in employee relations, operating procedures, customer satisfaction, and financial performance is achieved due to SCM implementation. However, Elmuti, Dean, (2002) reported a 95% failure rate for initiated SCM implementation programs; Christopher. M. (1998) reported that SCM implementation has uncertain or even negative effects on performance. David S.L., Philip K., Edith S.L., (2001) indicated that achieving high product supply and pursuing successful SCM implementation are highly dependent on top management support. However, Gunasekaran, A., Patel, C., (2001) reported that there is no association between top management support for supply, supply and the level of product in cooperation supply and supply achieved. Many researchers suggested that effective product design can lead to the improvement of product supply and supply (David S.L., Philip K., Edith S.L., 2001), whereas Gunasekaran, A., Patel, C., (2001) reported that there is no relationship between systematic product design and the level of product achieved. Thus, conflicting research findings have been reported surrounding the effects of SCM implementation on overall business performance. It includes many different areas where it is possible for companies from all different business branches to improve their performance. In today's global market, more and more companies realize that the performance of their businesses depends largely on external collaboration and coordination across the supply chain. Fugate et al., (2005) as chain members are primarily concerned about their individual interests that may not contribute to the overall supply chain performance; their decisions may result in an inefficient network system with problems like high costs, compromised customer service and a weakened strategic position.

The aim of this study is to analyze the impact of the performance measurement and improvement of supply chain processes in the MTF firm in Libya and attempt to develop a SCM implementation model that can be used by Libyan manufacturing firms.

II. THE RESEARCH METHODOLOGY

Based on the current SCM implementation in MTF firm, this research aims at achieving the following research objectives:

To develop a SCM implementation model in MTF firm in order to guide Libyan manufacturing firms in implementing SCM. Thus, new knowledge related to SCM implementation in Libyan manufacturing firms can be derived. In this research, new knowledge is generated from the existing SCM knowledge integrated with specific characteristics, top manager, middle manager and the average score between them. After reviewing the existing SCM literature, it has become very clear that this research project is the only one that systematically examines the effects of SCM implementation in Libyan manufacturing firms. In addition, this research attempts to develop a SCM implementation model that can be used by Libyan manufacturing firms.

III. AN OVERVIEW OF MISURATA TEXTILE FACTORY (MTF)

Wool textile complex for woven and tufted carpets, knitted garments, and blankets at Misurata can be considered as one of the Libyan biggest companies in the recent years, its major strength being in classic products; Lab ad "80% wool, 20% polyethylene"; wall carpets; double thickness carpet and woolen garments such as sweaters, pullovers, gloves, and scarves. A contract was signed on 23/7/1979 between Libyan government and a group of German companies to build this factory in a space of almost 10.5 hectare in the city of Misurata, about 200 km from the capital Tripoli. The factory started its real production stage in September 1983. The aim of the factory was to utilize the wool, which is available in huge quantities in Misurata and the nearby cities, and it does not cost much money to cover the northern and southern cities. The first phase of the factory cost 30 million Libyan Dinars "LD" (approximately US \$ 123 million). The factory is located near the coast to facilitate export activities by sea into international markets.

The factory makes different types of products for which wool is the main raw material. The factory has staff headcount of about 2270 as shown in Table 1

TABLE 1
HEADCOUNT AT MTF SOURCE: "MTF" MARKETING CATALOGUE 2011.

Number	Nationality
310	Foreign (India, Turkey)
720	Arab (Tunisia, Morocco, Syria...)
1130	Libyan

Buying And Ordering The Raw Materials

1. The factory buys its raw wool directly from farmers and sheep projects that belong to the government. These projects are in the middle region of Libya, which Misurata is a part of, and can be considered as rich source of wool compared with other parts of Libya.

2. The factory satisfies its needs for plastic, polyester, PVC, plastic pipes (on which carpets are rolled) and Gout file locally from other Libyan factories such as Abukmash Petrochemicals; Ras-lanoof Poly-propylene factories, Soq-alkhames and Al-swani Plastic factories. These elements are always available in huge quantities because they mainly come from oil.

3. The factory imports glue, cotton files and special liquid for making thickened glue (which is used in Ajme carpet manufacturing). These elements are imported from Europe. However, to avoid the shortage of these imported materials the factory always keeps extra amounts of them for emergency cases. The following Table 2 shows the required raw material in 2011.

TABLE II
THE REQUIRED RAW MATERIAL IN 2011
THE SOURCE: (OTHMAN A. O. 2011)

No	Item	Amount	Unit	Price per Tone
1	Raw wool per year	6.260	Tone	750 LD
2	Gout file per year	130	Tone	130.000LD
3	Cotton file per year	70	Tone	210.000LD
3	Mokit carpet file per year	500	Tone	2 million LD
5	Triko file per year	90	Tone	530.000LD
6	Poly propylene file per year	250	Tone	300.000LD
7	Nylon file per year	200	Tone	350.000LD
8	Glue to cover the woven per year	1.260	Tone	—————

IV. RESULTS AND DISCUSSION

SCM IMPLEMENTATION

This subsection presents the weak areas of the factory's SCM implementation and the reasons leading to these weak areas depend on the assessment tool. The weak areas identified could be used by MTF to further improve its SCM implementation; they were regarded as potential improvement possibilities. Note that the identification of these weak areas was on the basis of unbiased, honest, and fact-based judgments.

A. Leadership

There was strong evidence that top management empowerment had not been implemented in the firm. The MTF was centralized and hierarchical, and there was a strong tendency for employees to do things according to what they were told. They tended to wait for guidance from top managers or supervisors at all times. Thus, employees did not take any risk or responsibility if things went wrong; otherwise, they would be punished or fined. If things went wrong, employees tried to seek excuses to protect themselves in order to avoid being fined or criticized. Employees did not want to take any risk by doing things without permission. Top management did not pursue long-term business success but focused instead on annual business success, which was their most important goal. Top management still viewed SCM as less important than product supply and cost. In addition, top managers often organized discussion meetings after supply problems or delivery problems had happened; how to prevent problems from happening was not given sufficient attention. Top managers were reluctant to accept or implement employee suggestions if money was needed for their implementation. The factory's many problems occurred due to its focus on immediate profits or short-term benefits. The results shown in Figure 1 are based on the interview. They found that the top management empowerment had not been implemented in the firm. The first column lists the addressed areas that may affect leadership satisfaction. A

number between “0” and “10” is used to score leadership satisfaction level. The number “0” means that leadership is extremely unsatisfied with the area and the number “10” indicates they are extremely satisfied with the area.

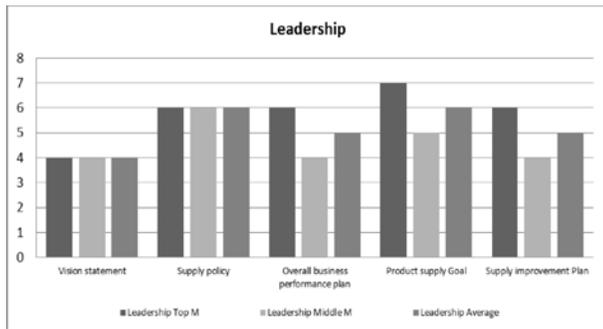


Fig. 1. Leadership

B. Supplier Supply Management

Long-term partnership between MTF and its suppliers had not yet been established. MTF had a special policy of rewarding purchasing personnel who could purchase products without immediate payment or less immediate payment. This was due to the shortage of capital. Otherwise, MTF could not have sufficient materials to maintain normal production. Such practices caused the problem that the firm would have to pay more in the future. If the buyer cannot pay immediately, the purchasing price is always higher. One interviewee said that it was very difficult for MTF to organize production. For example, after a contract was signed, the customer generally paid approximately 20% of the product's selling price in advance. After receiving the product, the customer would pay another 70% of the payment. The remaining 10% was used as a guarantee deposit. If the product had supply problems, the customer would use the deposit for delay, and so on. Thus, the firm did not have much money available to purchase products from suppliers. In total, MTF owed its suppliers approximately 10 million LD. MTF always received complaints from its suppliers. Due to the lack of partnership with suppliers and as well as mutual trust, MTF had to implement strict non-value added incoming inspection. Purchasing price was the most important factor in selecting suppliers, with supply chain falling behind the price. Such a practice indicated that MTF selected such a supplier that could provide the lowest price for suppliers. In a few cases, purchased products could not be accepted technically. For example, qualified suppliers of gears carpet rolls at 6 dinars per meter could be provided if the buyer paid immediately. However, MTF selected a supplier that could provide the service at the price of LD 3.5 per meter and did not ask the firm to pay immediately. Thus, it is not difficult to imagine what happened to the factory's supply chain. Since it considered price the first priority in selecting suppliers, supply problems inevitably happened during the process of production and in the operation of the final products. In fact, many of factory's supply chains occurred due to poor purchased products. The results shown in Figure 2 are based on interview. They found that the firm did not have much money available to purchase products from suppliers. A number between “0” and “10” is used to score supplier supply management satisfaction

level. The number “0” means that supplier supply management are extremely unsatisfied with the area and the number “10” indicates they are extremely satisfied with the area.

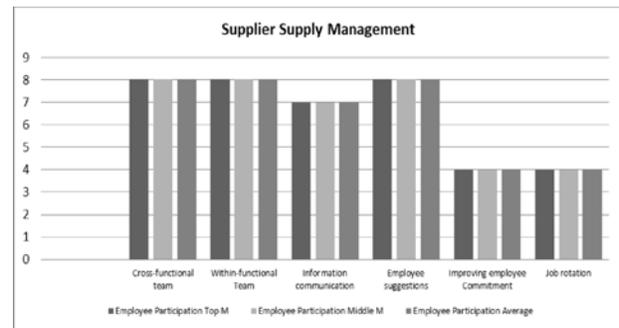


Fig. 2. supplier supply management

C. Vision and Plan Statement

MTF had a long-term vision statement that had been drawn up several years ago. However, many employees were not clear as to what the vision statement was. In fact, MTF did not use it as a guide in formulating its business strategies. In this regard, the general manager did not have a clear long-term vision. The reason for this was that the general manager had been appointed by the administrative to run MTF on a short-term basis, based on a contract. If he performed well, he would stay in the position longer. The decision made by the department in this regard was highly dependent on factory's annual business performance. Therefore, the general manager focused on yearly business performance rather than long-term business success. His target was to accomplish the yearly business performance indices assigned by the administrative department. To do so, MTF had a yearly policy statement to guide it in doing business. These yearly policies varied year to year depending on its internal and external environments. Before these policies were in force, they had to be approved by the workers' congress. The yearly policies were well communicated to employees at different levels. MTF did not have long-term overall business performance plans. Instead, it had only yearly strategic business performance indices and supply goals, which were formulated based on the assignments set up by the administrative department. This was because top management placed too much emphasis on short-term objectives. Although these plans were also presented to the workers' congress for discussion, they would not be changed since they had been set up by the department. MTF did not have specific plans regarding which levels of employee and customer satisfaction should be reached. MTF actually drew up its supply improvement plans in terms of supply problems that it had. The information used in making the plans was mainly from customers' complaints and its different departments or workshops. It was evident that supply improvement plans were easily implemented if little money was required; it would be problematic if much money were needed. In this regard, MTF did not provide sufficient resources for implementing supply improvement plans. The primary reason for this was that MTF tried to achieve cost reductions to maintain its profits. Thus, MTF general manager could survive. The results based on interview are shown in Figure 3. They found that the many employees were not clear as to what the

formulation of vision and plan was and the firm did not provide sufficient resources for implementing supply improvement plans. A number between “0” and “10” is used to score vision and plan statement satisfaction level. The number “0” means that vision and plan statement are extremely unsatisfied with the area and the number “10” indicates they are extremely satisfied with the area.

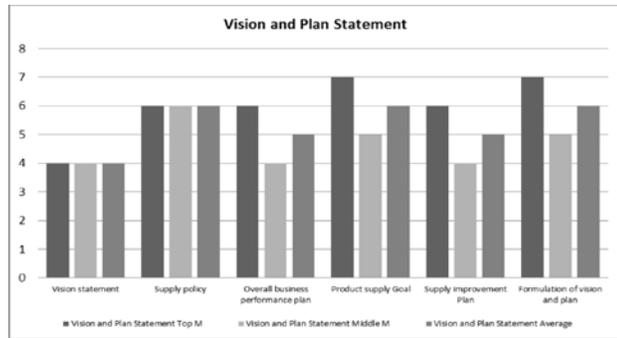


Fig. 3. vision and plan statement

D. Evaluation

The SCM implementation model was used in evaluating the factory's SCM implementation practices and overall business performance. The author conducted the evaluation guided by the assessment tools. Although MTF tried to improve a number of job-related facets that might affect employee satisfaction, the employee satisfaction level as a whole remained unclear to some extent. In fact, MTF did not evaluate its employee satisfaction and did not have employee satisfaction data. In this regard, the issue of employee satisfaction did not receive much attention from MTF. This was because it was easy to recruit new employees from the labor market. Furthermore, MTF already had a redundant workforce, which it considered a heavy burden. Competitive benchmarking with its major competitors was not conducted by MTF. Thus, SCM implementation and overall business performance of its main competitors remained unclear to a certain extent. Thus, MTF lost opportunities for further improvement of its supply of products and services. In fact, this practice had actually not caught top management's attention. The data on appraisal costs and prevention costs were not available. The firm mixed these two types of supply costs with its normal overhead expenses. Thus, it was not clear as to how much money was spent on appraisal and prevention. It is no doubt that MTF spent a great deal of money on various inspection activities, as it had approximately 30 specialized inspectors. Many inspection activities were actually non-value added. In fact, the availability of appraisal costs and prevention costs was valuable to MTF in formulating effective improvement actions so as to reduce these costs. MTF did not have an integrated computerized information system for collecting, processing, analyzing, disseminating, and storing relevant information. Information technology remained at a primitive level. Thus, it was difficult for different departments and workshops to share their information. Its major information flow was through handwritten documents. Therefore, working efficiency was low and some problems occurred due to the poor information system. MTF did not have such a computerized

information system in place due to its pursuit of immediate profits and short-term benefits. Based on the evaluation, the current situations of the factory's SCM implementation and overall business performance were obtained. The evaluation results as showing in Figure 4 indicate that the different scores with columns depend on specific characteristics, the first column lists addressed areas that may affect Evaluation satisfaction. A number between “0” and “10” is used to score evaluation satisfaction level. The number “0” means that evaluation are extremely unsatisfied with the area and the number “10” indicates they are extremely satisfied with the area.

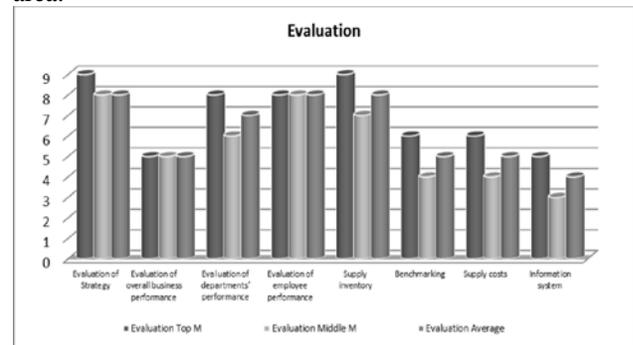


Fig. 4. evaluation

E. Employee Participation

Employees did not have any intention of reporting their own working problems because they were afraid of being fined or laid off. As a result, MTF lost many opportunities for supply improvement. In fact, employee working performance was highly related to monthly pay. If employees had their own working problems, they would be penalized according to the factory's penalty rule. MTF did not implement the system of job rotation as many working posts required operators with special qualification certification to do. Such regulations were stipulated by relevant governmental agencies. For example, operators cannot operate cranes without qualification certification. Due to the money limitation, it was impossible for MTF to send many employees to different special job training activities. Therefore, employees lacked multi-disciplinary skills. Based on the interview the results are shown in Figure 5. They found that the improving employee commitment and job rotation were not clear as to what the cross-functional team and within-functional team was and the firm did not provide sufficient resources for worker's congress. A number between “0” and “10” is used to employee participation satisfaction level. The number “0” means that employees participation are extremely unsatisfied with the area and the number “10” indicates they are extremely satisfied with the area.

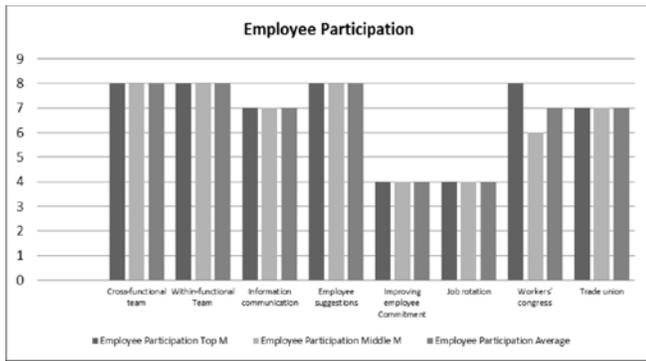


Fig. 5. employee participation

F. Customer Focus

MTF did not fully conduct market investigation. For example, designers hardly went out to collect information for improving product design due to the lack of money. Designers also rarely visited customers in order to understand the performance of their products on site. Thus, information sources used for product design were very limited. Designers only made use of customer complaint information and customer requirements specified in contracts for designing products. Customer expectations, future requirements, and competitors' offerings remained unclear to a certain extent for designers. How to delight customers was not the focus of designing products. MTF did not have customer satisfaction information on the supply of products and services from its competitors. Thus, customers' views on the factory's competitors were unclear. In fact, such information would have been valuable to MTF in further improving its supply of products and services. The first column lists addressed areas that may affect Customer Focus satisfaction. Based on the interview the results are shown in Figure 6. They found that the market investigation and customer satisfaction survey were not clear as to what the supply warranty was and the firm did not provide sufficient resources for customer information system. A number between "0" and "10" is used to score Customer Focus satisfaction level. The number "0" means that customers focus are extremely unsatisfied with the area and the number "10" indicates they are extremely satisfied with the area.

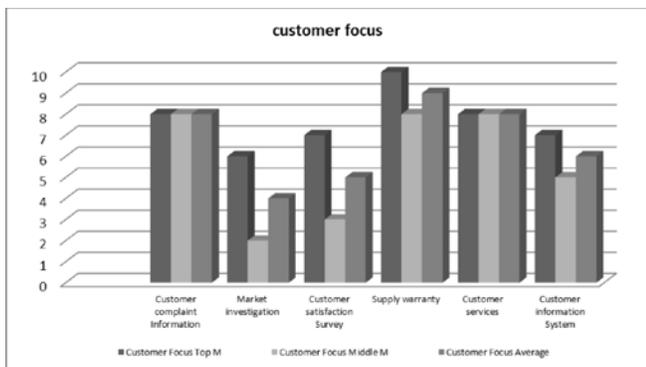


Fig. 6. customer focus

V. CONCLUSION

This model shows that the application of these SCM practices in combination can lead to improvements in overall business performance. In order to assist users in applying this model in practice, the processes of its use and the guidance of formulating the improvement plan are presented.

Based on the evaluation, the strengths and weaknesses of the factory's SCM implementation were identified. The factory's current SCM implementation practices showed that in the SCM implementation the full package was not used as a model. It is better to say that this factory only implemented a part of SCM. The weaknesses of the factory's SCM implementation provided opportunities for MTF to improve its SCM implementation. The factory's deputy general manager agreed that MTF would implement this improvement plan in practice. Thus, it can be concluded that this SCM implementation model can be used to evaluate the factory's SCM implementation, identify strengths and weaknesses therein, and assist the factory in formulating the improvement plan. Therefore, the SCM implementation model developed in this study is applicable to this factory. What is more, this SCM implementation model can be used in other Libyan manufacturing firms. In fact, the case study was conducted in only one Libyan manufacturing firm. The case study further shows that this SCM implementation model can be used to benchmark firms' continuous improvement, self-assess their supply improvement efforts, and measure their progress over time. Through using this model, firms can quickly identify which areas urgently need improvement. Thus, resources can be allocated more wisely. In fact, SCM implementation is a systematic approach. No universal standard of SCM implementation exists. A firm should not follow the practices presented in this SCM implementation model strictly; when they start using it, they should combine their uniqueness with the practices of this model and consequently develop their own models and ways to excellence. Their own measurement systems can better fit their situations. This case study also provides an example of how to use this SCM implementation model in practice. Firms that want to use this model can take this case study as an example. In fact, implementing SCM is a continuous improvement process. It is a never ending journey. Implementing this model does require patience, tenacity, and commitment from people at every level in MTF. It will take some time to see the effects of implementing this model. These results show that the factory's SCM system is not perfect but that has an ability to improve and do so indefinitely and this is exactly where the truth of the following quote lies: "there is always room for improvement it's the biggest room in the house."

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