

Problematic Issues in Implementation of Supply Chain Management in Iranian Automotive Industries

¹Malihe Manzouri, ²Mohd Nizam Ab Rahman

Institut Kajian Rantau Asia Barat (IKRAB)
Universiti Kebangsaan Malaysia,
43600 Bangi, Malaysia

¹manzouri@eng.ukm.my, ²mnizam@eng.ukm.my

Haslina Arshad

Faculty of Information Science and Technology,
Universiti Kebangsaan Malaysia,
43300 Bangi, Malaysia
has@ftsm.ukm.my

Abstract— The problematic issues in applying Supply Chain Management (SCM) in Iranian automotive organizations were considered in this paper. The data needed was gathered through a survey questionnaire which was distributed to 300 Iranian's automotive organizations and a total of 70 replies were usable. Lack of information, need to expert employee, and need to new equipment were recognized as important problems among those organizations.

Keywords- Supply Chain Management Implementation; Difficulties; Iranian automotive organizations

I. INTRODUCTION

Traditionally, the forward flow of materials and backward flow of information were the representatives of SCM. Through a practical overview, the concept of supply chain emerge from some alterations in the area of manufacturing, such as the increase of costs, decrease of resources and product life cycles, and the globalization business [3]. Moreover, Meehan and Muir [5] emphasized that in spite of emerging benefits from SCM some barriers prevent companies to apply successful supply chain. For example organizations which still consider themselves as individuals in a SCM cannot work effectively with other chains. And also, Fawcett et al. [4] believed that cultures and configuration of organizations are barriers to close working relationship among the companies. Moreover, different companies in a supply chain desire to emphasize alternative features of supply chain which make them face problems in creating integration inter- organization [10]. Conducting a survey across the Swedish manufacturing firms [12] indicated that sharing information and financial problems are the most common problems across those organizations when tried to apply SCM.

On the other hand, although correct and complete information sharing provides effective SCM among link partners, organization of IT tools is not free from problems in term of SCM implementation. Furthermore, other researchers believed that lack of investment, differences in trading partners, capacities, lack of confidence, and information sharing failure are the most important difficulties in using information sharing across the organizations [9, 1]. However, these problems affect on IT process but other parts of the supply chain will be also affected by them. Therefore, it is essential, for the managers to understand which barriers are more deep- rooted and

destructive than the others which are also called driving barriers to be tackled on appropriate time [7].

II. RESEARCH METHOD

The discussions held between supply chain professionals and the related literatures have led to the design of a questionnaire which deemed to be the most appropriate method of data collection. SCM abilities and problems developed by Halldósson et al. [6] and Mentzer et al. [11] were changed upon designing the questionnaire's items on difficulties and expeditor issues. Classification of questions was based on the structure of the organization, people relationship, external factors and information technology. Industrial scope was limited to automotive companies which is one of the largest industries in Iran. The questionnaire started off with simple and easy questions and got a little more complicated at the end. The main question of the questionnaire was the SCM implementation problems which were organized by several options from which the respondents had to make choices. Additionally, the cover letter explained the notion of SCM in brief and the aim of survey which was funded by UKM University.

This survey managed via Email and dispatch directly. In the first stage, the three-page questionnaires, a cover letter, return envelope with stamps was distributed directly to 100 manufacture companies. In the second stage, three-page questionnaire was emailed to all 200 manufacture companies. A total of 32 questionnaires were failed through the email and there were 34 responses. E-mail follow-ups were sent to the rest of the companies that did not responded and there were 9 more responses to the second emails. Among the direct dispatches, there were 27 responses. The effective response rate was 70/268 or 26.1 percent.

A. Description of respondents

The respondents included not only all manufacture companies which already have implemented SCM but also those which have not been applied yet. In this study the results of those organizations which already applied SCM in their organizations were considered. Although the arrangement factors of companies' size are different among countries, the number of full time employees, annual sales turnovers and organization investment factors are the same. Participants in this survey were not willing to share the data of their annual sales turnovers and organization investment.

In this regard, the number of full time employees was used to arrange the size of the companies in this study. Authors provided more accurate classifications of organization's size based on an increase the number of employees in each category that leads to an increase in the amount of fund and organization investment (Figure 1).

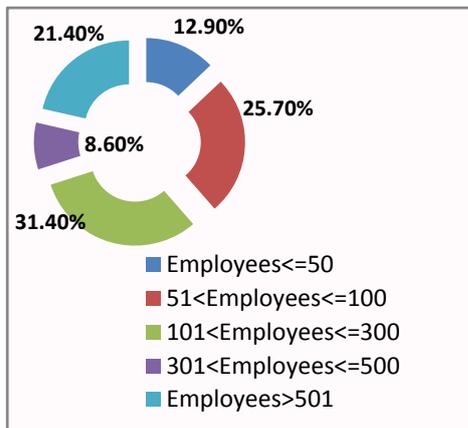


Figure 1. Size of companies

III. RESULTS

The results of this survey revealed that 31.4 percent of those Iranian automotive industries which participated in this study were applied SCM in their organizations. Among those organizations which did not apply SCM yet, 22.9 percent have reported that “have a plan” to implement SCM in their companies in future. Moreover, these results have identified that the size of organizations has influence on implementing SCM. Thus the biggest companies have more applied SCM than other organizations.

In addition, these results identified that there were some problems which might have prevented Iranian automotive organizations from applying SCM successfully (See Table 1). The most important problem (Figure 2) for these organizations was the lack of information as the highest rated value problem that caused serious difficulties during implementing SCM. In this study, lack of information means not only the lack of proper information but also lack of the sharing and visibility of appropriate information. SCM is based on the flow of material and information within and across the firms. Information should be shared to make the level of inventory, distribution, production, demand and order across the chain clear. All tires can plan and predict their future activities according to accurate and timely information which is shared across the chain. Forasmuch as organizations count on the information as their power and status, they do not tend to share their data to the other members of a chain. These results clearly revealed that Iranian automotive organizations more concerned about the technological problems rather relational issues during implementing SCM. They highlighted the lack of expert employee as the second level of problems and the lack of proper equipments as the third. In addition, managing the warehouse and product stock was also paid attention to as an

important issue beside the financial problem and increasing the designing time which are ranked as the fourth. On the other hand, Iranians reported that their production, distribution and tooling systems face difficulties during applying SCM but in contrast to other difficulties these are not very complicated. Although these organizations did not rank the financial problem as the high, many of the problems which they are facing are the consequences of financial inefficiencies in their organizations. Consequently, these organizations are affected by the internal problems rather the external difficulties which were significantly concerned about the lack of information, need to expert employees, need to new equipment, increase product stock, waste of money, increasing designing time, increasing production time, waste of time, increasing distribution time, and increasing tooling time ranked from highest to lowest respectively.

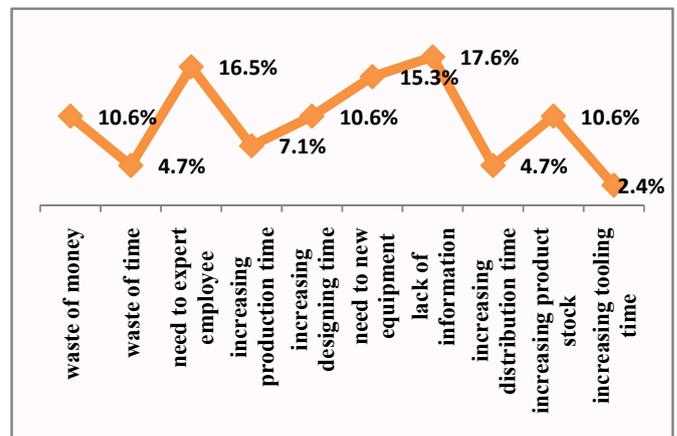


Figure 2. SCM difficulties (Each number indicates the Percentage of each problem from all observed problems)

IV. DISCUSSION

Sharing information across the chains will bring about many changes such as an increase in the process visibility, and improvement in forecasting in order to reduce the bullwhip effect phenomenon. Lack of appropriate prediction of customer's orders affects many SCM implementation activities such as increase and decrease in product stock, inefficiency in production schedule, and disorganizing of distribution system. In the same way, the increasing in inventory, production and distribution schedule among Iranian's automotive organizations might be the consequences of lack of proper prediction about the future order in these organizations. Reviewing the related literature revealed that these inefficiencies are rooted in lack of appropriate information sharing across these chains. Similar to Iranian automotive industries lack of information created many difficulties among other supply chains such as New Zealand organizations [2], Swedish manufacturing firms [12], Chinese industries [13], and UAE industries [14]. Therefore, information sharing is an important issue which should be paid attention to by managers during applying SCM in their supply chains.

TABLE 1: PROBLEMATIC FACTORS AMONG AUTOMOTIVE INDUSTRIES

Problematic factor	Description of variable
Lack of information	This factor is included information quality (accuracy, adequacy, conciseness, credibility, and timeline) and information sharing (trust, deep and intensity)
Need to the new equipment	New equipment is referred to new infrastructure for applying SCM such as the IT infrastructure, production systems, inventory adjustment system, distribution systems, and all other activities requirements.
Need to the expert employee	Employee should have proper knowledge about the notion of SCM (strategy, planning, implementing, obstacles, problems, advantages, and etc) to implement SCM.
Increasing product stock time	The new method of inventory adjustment (arrangement methods, bar coding systems, and etc) might take time to be established rather than old techniques.
Increasing production time	The strategy and planning of production might be changed during applying SCM and it takes time to be set up.
Increasing designing time	SCM implementation requires changes in the structure of products design and it takes the time to be established.
Increasing distribution time	Very often old methods of transportation such as scheduling and transportation systems should be changed by the new techniques and rules of transportation and distribution.
Increasing tooling time	Many current systems of maintenance and tool making should be improved during applying SCM.
Lack of time	SCM implementation needs to change and many current projects take time to be completed and there is not any appropriate time to allocate the SCM implementation.
High cost	SCM implementation needs to hire expert employee, to prepare new equipment, IT infrastructure, and many other requirements which need fund.

Even though technology provides many helpful instruments for organizations, they are very inadequate and harmful as a substitute for human resources. Although Iranian automotive organizations were not marked relational issues as a major difficulty in their supply chains, the fact is

that the lack of information and lack of expert employee which were recognized as the highest ranking difficulties across these chains are the consequence of relationship problems. Indeed, trustworthy relations in a chain make it possible for partners to share their knowledge and information across the chain to cover many deficiencies in their organization. Iranian automotive organizations have reported that SCM implementation takes a lot of time and money to be implemented which viewed SCM implementation more expensive than it was expected. One clarification for this problem might be that these organizations are beginner in implementing SCM and thus have yet to recognize how expensive implementation may ultimately be. Similar to Iranian automotive industries, Tanzanian [16], Scandinavians [6] and Indian [8] companies have faced financial problems when tried to implement SCM in their organizations. Moreover, financial problem impede organizations to prepare appropriate requirements such as the new infrastructure, hiring expert employee, conducting training courses, and applying IT for implementing SCM successfully. This difficulty not only affects all aspects of SCM implementation from upstream to downstream in term of flowing material but also affects the flowing of information across the chain.

In addition, the comparison between the rate of SCM implementation in Iranian automotive industries and the rate of problematic issues which are observed, revealed that (Figure 3) not only with an increasing in the rate of SCM implementation but also with an increasing in the size of organizations, the rate of problematic issues is increased across these organizations. It is surprising that the biggest organizations which have more fund and equipments were faced with the more difficulties. However, it is noteworthy that the largest organizations have more experience in apply SCM than smallest organizations and they are more aware of the problems concerning SCM implementation.

Meanwhile, automobile is a luxury and expensive product and many customers tend to change some of its parts according to their interests which force automotive industries to pay more attention to Research and Design (R&D) systems. In this regard, managing the R&D system is recognized as a problem in Iranian automotive companies which need to be paid attention to during applying SCM. Like Iranians, UK organizations [15] identified that managing the R&D system can create difficulties during implementing SCM. Despite all those problems that were identified by Iranian automotive organizations, top managements decision were not recognized as a problem to implement SCM rather supported their firms to prepare the necessary requirements to apply SCM successfully. Likewise, Halldósson et al. [6] highlighted that without top management support SCM might fail.

V. CONCLUSION

Lack of information, need to new equipment, and need to expert employee are recognized as the most important

difficulties among those Iranian automotive organizations. Moreover, without appropriate equipments and knowledgeable workers SCM takes more time and money to be implemented. Although those organizations did not consider the lack of time and financial problem as the high level of problematic issues, many difficulties in their companies are emerged from lack of financial support such as hiring the expertise, preparing the equipments, and modifying the old work flow. Although automotive industries did not consider the relational problems specifically, lack of information is rooted in the inappropriate relationship among partners which do not have trust each other to share their information. Subsequently, the problems of SCM implementation were not base on merely a single problem, rather on various hierarchical levels of many barriers. That is, organizations will not be able to solve their problems by focusing only on one aspect of SCM limitation, as these problems are required to be considered on all aspects. Consequently, these key areas were important for managements to invest on and to get training on to be successful in implementing SCM in their organizations.

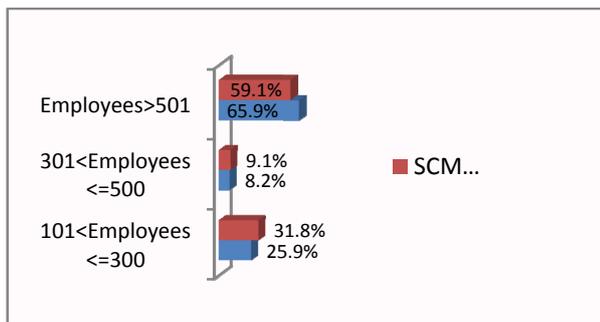


Figure 3. SCM Implementation and recognized problems

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