

Sharing of Information in Supply Chain Management

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Abstract- The sharing of information helps as a mandatory approach to the strength of the company or organisation and allowing the integration of the supply chain. Nowadays it has become more credible with the improvement of information and communication for the sharing of information. Today, there is a lack of information sharing within companies, which ultimately leads to the lack of care of the coordination of activities within the units of a company or organization. The main objective of this study is to investigate the effectiveness of the information sharing in the supply chain management and to increase the adequacy of the organization's results in the manufacturing sector. This study develops the advantages and the blockage of information sharing, which leads to a deterioration of the integration of the supply chain between companies, as the end result.

Key Words: ERP, EDI, QR, VMI, SCI, bullwhip

I. INTRODUCTION

In order to continue and compete in today's world of global economy, manufacturing sector powerfully needs to create, share and transmit up-to-date and correct knowledge and information. For spirited advantages, many companies have focused more on their supply chains and hence they have notion of ways to get better their supply chain management.

A supply chain is linked by flow of information, finance and material by the suppliers, producers, distributors, retailers and customers. There is a need for an intimate, relationship between supply chain partners and manufacturers for a long time. However, a systematic approach has been made to supply chain integration (SCI). With the increase in global competition, organizations are forced to think again about their approach to information integration. Supply chain integration can applied between different internal functions and departments, as well as in external trading supply chain partners in a company and organisation. Huo et al.[5] argue that external integration with customers and suppliers is simultaneously subjective by internal integration and relationship

commitment to suppliers and customers. They argued that internal integration enables external integration because company or organisations first via system, data, and process integration have to develop capability of internal integration and then appoint in significant external integration. Information sharing can be applied for internal and external integration among supply chains.

The true value of exchanging information within a supply chain can be defined by the fact that the benefits achieved by it which exceed the costs. These costs may include information systems investment and fees from customers or suppliers for providing the information. The coordination costs include communication and management costs. The latest developments in information technologies such as enterprise resource planning (ERP) and web technologies can dramatically reduce these costs. The sharing of information in a supply chain can give companies a number of advantages. For example, the products meet the demand of the consumer more accurately and changes in the market can be expected. The broad use of advanced information technologies in the supply chain, such as electronic data interchange (EDI) and web technologies show that companies have demonstrated the importance of integrating information. In fact, many supply chain issues arise because of missing information within partners in a supply chain. This study attempts to provide an overview of the supply chain management, the information sharing, the types of shared information and the advantages and barriers of common information in a supply chain.

II. SUPPLY CHAIN MANAGEMENT

Since 1990 there has been a growing interest in Supply Chain Management (SCM). Many unique definitions of SMC have already been published in articles and books; however, these can be explained in three main topics. Firstly, activities, then benefit; and finally, components and / or components. Each topic can be subdivided into sub-topics. Activities

include flows (i.e., material and information) and internal and external networks of relationships. While the benefits in value, efficiency and customer satisfaction can rise.

Stadler et.al. defines Supply Chain Management (SCM) as the act of exchanging material, information and financial information within organizational units to meet customer needs and thereby improve the overall supply chain.

A supply chain can be described as a set of organizations that can be involved in various processes and activities to produce products and services for the end customers, both upstream and downstream. A supply chain therefore consists of an organisation, suppliers, distributions and end customers. There are certain objectives to achieve in a supply chain management like improving customer satisfaction and service and increasing competitiveness. Supply chain management is also aimed at reducing costs and resources in product design, as well as increasing efficiency and effectiveness. SCM also focuses on reducing inventories and related costs, increasing profits and improving collaboration.

III. INFORMATION SHARING

The processing sector is making a major contribution to economic development. In order to survive in today's global economy, the manufacturers must definitely rethink their cooperation approach and thus offer opportunities for the sharing of up-to-date information within companies. However, the provision of software and hardware is not enough. Partners should have the willingness to participate in the information sharing. Nowadays companies do not operate alone; they have now been networked with many other partners.

The information sharing is used to distribute useful information for systems, persons or organizational units. In order to improve the results of the information sharing, the organizations should answer four main questions: First, we ask what we should share, then whom to share with, then how to share and at last when to share. The quality of responses will help to reduce redundancy, costs, and improve responses. The term "information sharing" can also be referred to as "knowledge sharing" or "information integration". There is a

variety of information in a supply chain, such as logistic, business, strategic, tactical, and more.

The impact of the information sharing on supply chains has gained in importance with recent advances in information technology (IT). In addition, some studies have been carried out to focus on the impact of information sharing on product quality. However, there is still room for further studies to clarify exactly how and which information should be shared and the positive impact on quality improvement.

Coordination and integration in supply chain management (SCM) have long been the concerns of the academic community and the business world. In order to survive in today's economy, supply chain partners must improve their competitive advantages by exchanging information. With advances in information technology, different network structures can be modelled in order to make the coordination within the supply chain partners even narrower. This partnership and coordination lead to a more advantageous and more profitable supply chain. The flow of information will increase, uncertainty can be reduced, and end users will receive products of higher quality at a lower cost in less time.

Within the framework of Pandey et al., the types of information to be shared are purchases and sales, product development, sales and forecasting, inventory status, market development, production costs, forward planning, technology know-how and order tracking.

Polanyi and Sen classify knowledge into two classifications: explicit and implicit. Explicit knowledge is, as the name implies, friendly knowledge. It can be set in numbers, words, diagrams, and formulas. Implicit knowledge is unspeakable knowledge. It is knowledge that is based on experience and can therefore be truly subjective and indescribable. As it can be implied, explicit knowledge is more tangible and easier to share and express. However, the researchers believe that the sharing of implicit knowledge is also included in the information sharing as well as explicit information.

Min et al. Represents the information sharing as the core of supply chain collaboration, this means that the information sharing needs to be paid more attention. A bond between two independent

members in supply channels is referred to as a supply chain partnership. It is formed by increasing the levels of information sharing in order to reduce the overall costs and inventories.

A. Types of common information in the supply chain

There are many different types of information that can be shared within a supply chain, including logistics, business, strategic, tactical and so on. Some known types of information can be categorized as: 1) Inventory information; 2) sales data; 3) sales forecast; 4) order information; 5) Product Capability Information; 6) usage information for new products; And 7) Other information. Partners like sharing inventory information most. This avoids the occurrence of storage and warehouse repetitions. It also reduces the total inventory and inventory costs so that more accurate forecasts and decisions can be made. Sharing sales data can eliminate layoffs, provide real customer demand, and reduce the loss through lack or oversupply of innovative products. Partners in a supply chain make forecasts independently. By sharing sales forecasts, better predictions are made, which can increase the competitive advantages of the supply chain. Sharing order information would lead to a rapid identification of the bottleneck in a supply chain, which increases the quality of customer service. The flow of product capability information can support the delay in possible shortage gaming behaviour and avoid possible causes of the bullwhip effect. Information on new products can be shared to enable suppliers to deliver goods in time if manufacturers receive the real demand from retailers. There are also other types of Information such as quality information, status reports on freight progress information, function parameters of the supply chain, plan etc.

B. Benefits of information sharing

Many researches have been conducted to determine the advantages of information sharing in company and organisations and organizational units. This Study investigates some of these benefits like,

1. Inventory reduction and efficient inventory management
2. Increasing visibility (significant reduction of uncertainties)

3. Improved resource utilization
4. Building and strengthening social bonds
5. Quick response
6. Better tracing and tracking
7. Cost reduction
8. Early problem detection

Sharing of information between partners of the supply chain can bring a number of benefits to the industry. Among these advantages, Tang et al. shows the potential benefits of information sharing for manufacturers in two ways: either an expected cost reduction or a reduction in storage. According to Zhao et al. manufacturers are able to reduce the inventory costs by 5 to 35 percent if the service level can be maintained or increased to the retailer.

As additional information becomes available within a supply chain, partners can benefit from this improved visibility to change existing plans or formulate future operations. For example, the sharing of demand information for each of the supply chain partners enables accurate predictions based on real demand.

In a supply chain, partners can get perfect information about themselves, but may not be as perfect information about the other partners. Uncertainties may arise due to this lack of information about other partners. If partners have the ability and willingness to share information with other partners, uncertainties can be significantly reduced. The bullwhip effect can be caused by the lack of information asymmetry in decentralized systems. The flow of information within supply chain partners leading to a centralized system with significantly less uncertainty can significantly reduce or even eliminate the negative effects of the bullwhip effect.

Mourtzis identified the advantages of the manufacturing network for SMEs in four key areas: 1) efficient inventory management through better communication, 2) cost reduction in order management through efficient communication, 3) better utilization of resources workload and 4) increased productivity and profit through more efficient completion of orders

Through the sharing of information can be created between the different parts within the logistics network, or the management of the supply chain trade associations. The sharing of information within a supply chain causes a great improvement in business connections, such as cross-docking and a quick response (QR), vendor managed inventory (VMI).

According to Marshall and Bly, builds the information sharing and strengthens relationships and social ties between recipient and donor information. Organizational efficiency and performance are two other advantages of the information sharing.

C. Obstacles in information sharing

Sharing information within a supply chain can find certain challenges. Among these barriers there are confidentiality of shared information, incentives, reliability and costs of information technology, cartel regulation, timelessness and correctness of shared information, and finally the development of skills that enable companies to use shared information in an effective manner.

One of the main obstacles to the personal sharing of information may be concerns about the confidentiality of information. A reliable network for the individual should share information. The partners of the organization lack the mutual trust that can prevent the sharing of information. Use IT applications to simplify the sharing of information but learning to use IT systems for the individual in a supply chain has shown that it takes time and energy. An inefficient and user-friendly system would have a negative impact on the sharing of information that would lead to less sharing of information and knowledge.

IV. CONCLUSION

In this study, the importance of integrating information in a supply chain has been developed. Information sharing can be a considerable number of advantages for the manufacturing sector, such as reduced inventories and efficient inventory management, cost reduction, increased visibility (significant reduction of uncertainties), significant reduction or Elimination of the bullwhip effect, better utilization of resources, increased productivity and organizational measures to achieve efficiency, improved services, building and

strengthening social ties, early detection of failures, Fast response times, reduced cycle times and better tracking and tracing, pre-market timing, advanced networks and optimized capacity utilization. On the other hand, there are some hurdles to information sharing as well. As already mentioned, organisations are required to make the best use of advanced information technologies for the sharing of information in their supply chains to increase their competitive advantage and survive in today's global economy.

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