

Position and Role of ICT in Supply Chain Management (SCM)

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Abstract: Today, supply chain management is as a principle underlying the implementation of electronic business world. The purpose of this article is the review of supply chain management issues and after expressing its concepts, its relationship with e-commerce and its role in general information technology has been studied. This paper tries to clarify the main concepts of supply chain management position in the development of information technology, especially electronic commerce.

Key words: information and communication technology, supply chain, supply chain management, information systems

INTRODUCTION

Now by emerging technological leap with regard to its impacts, the information technology on supply chain management is even more glaring. Electronics Supply Chain is a set of external business processes, which processes within the enterprise unit also binds. In this chain, processes and interactions electronically controls and it's implemented by the Internet information through the supply chain, and it flows to fast in all directions and it provides the possibility of continuous feedback, fewer errors and incorrect calculations and faster responses. Supply Chain Systems are, a collection of separate and independent economic entities that is interested to most in their local objectives toward the global system performance. (CA.silva l 2009). Nowadays supply chain systems create a new network in collaboration and challenging to different groups by dynamic systems such as supplier failure and demand uncertainty by entering in to matching course and supply chain intelligence. (2004 & H. Stadler GP Cachon, S Netessine) Information technology has capability to deliver more up date information on inventory with demand and provides supply chain. Proper circulation and proper transfer of information can make the process more efficient and more efficient to operate. Information management and proper coordination between the partners led to an increasing impact on the speed, accuracy, quality and etc. (Hadi 1388).

A case study of the potential benefits of IT and its role in supply chain management, are Cisco companies. During the company's report in 2000 stated that has been able, through the reconstruction of internal operations and integrating processes with suppliers and customers through web-based tools, to save five hundred million dollars. Currently 90 percent of Cisco's sales are online. Intel also replaced hundreds of receiving and performing responsible orders by the automatic applied software for processing the orders online during tool. Celestica the company is one of the largest manufacturers of electronic services and it used a Web-based software to communicate better with their supply chain members, and it could use information technology to improve the respond to customers effectively improve. One goal of substantial information technology is, employing the economic development organizations and services. E-commerce anything with the information and communication technology (CT) for the implementation of business goals between agencies or organizations and includes the consumer. Also E-commerce is about the Internet for technology for transferring and changing the methods of implementing organizations processes. (Mahmoud dorodchi & navid nik mehr Mehr 1386)

Methods:

In this section we have a brief overview of information technology definition, supply chain definition, history and definitions of supply chain management in different views.

• Information Technology

It is a combination of the communication achievements, methods and strategies for problem solving and

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governance capabilities with computer knowledge that included of topics, related to science and computer technology, computer design, implement information systems and its applications. Information technology is a combination of traditional knowledge and communications technology in order to storage, processing and exchange any data, whether text, sound, image and etc. Information technology includes all forms of technology for creating, storing and using different forms of information, including: business data, voice conversations, moving pictures, data and multimedia and etc. Information technology is a branch of technology by using the hardware, software and network ware, and it creates the possibilities of studying and applying and processing the data: storage, manipulation, transmission, management, controls and statistical data makes it possible automatically. (Hadi 1388) The purposes of Information technology in supply chain are included providing entity and clarity of information, decisions based on the chain and providing general information and collaboration between supply chain partners. (Mahmoud dorodchi & navid nik mehr Mehr 1386). One of the most basic information technology applications, its use in services.

In a supply chain used of some information about the following two objectives are used:

- 1) Coordinating activities related to production, storage, positioning and transport.
- 2) Forecasting and planning in order to estimate future demand and how to respond.

Accurate and accessible information and updates, leading to supply chain coordination of various activities and careful planning and efficient in various fields including: Demand Planning, production, purchasing and planning material and transportation needs. Also information on the strategic planning goals in a supply chain, including development of the regions and new markets that create new facilities, success in the market is favorable, is used in abundance. (Mahmoud Drodchy and Nick promises Persian date Mehr 1386)

• Supply Chain

In general, the supply chain is formed of two or more organizations will be formed that are officially separated by currents such as materials, information and financial flows are related to each other. These organizations can be the Board that it produces materials, components, final product or service such as distribution, storage, wholesale and retail. In other definition, supply chain and the flow of goods into raw materials stage to the final state and the information flows associated with them. (Hadi 1388).

In addition to these transfers flow of materials is including current financial information. (Hosseyh Rahman Seresht 1387) In two decades, 60 and 70 AD, the organizations tried to increase their competitiveness powers in order to standardize and improve their internal processes it could produce goods with better quality and less cost. That time the prevailing thoughts was that strong engineering and design and produce a coherent and coordinated operations, market demands and prerequisites to achieve a result is achieved more market share. That's why the organizations all their efforts seemed to focus on increasing performance. (Hadi 1388). In the 80 decades with the diversity in the expected patterns of customers, organizations were increasingly interested to accepting the flexibility in production lines and develop new products to satisfy customers. In 90 decade, with improvements in production processes re-engineering and deployment patterns, managers found that many industries continued presence in the market for only improving the internal processes and capabilities in the company's flexibility is not enough, but parts and materials suppliers must also produce materials with the best quality and lowest cost producers and distributors of products should also create closely relationships to development of production markets policies. With such attitudes, approaches of supply chain and its management was created. On the other hand with the rapid development of information technology in recent years and its widespread use in supply chain management, management of many major chains are doing with new methods. (Hadi, 1388) More concise and comprehensive explanations that could show supply chain management is included: supply chain management: Supply chain management integration has effect on supply chain activities and information flows associated with them by improving the chain of relationships, for Achieving competitive advantage. Therefore, the term of supply chain management is a process of integration of supply chain activities and information flows associated with it, by improving and coordinating supply chain activities in manufacturing and product supply. Therefore it's subjected to a unique organization within the framework of these definitions, the network must be considered as both suppliers and distribution channels. Definition for the supply chain are included the information systems management issues, troubleshooting, and resource procurement, production scheduling, order processing, inventory management, warehousing and customer service. Operational level, supply chain management for determining the storage levels of the logistics centers are depending on the demand or the size and number of products produced by suppliers to feed manufacturers and even the simultaneous delivery of planning to reduce transport and environmental effects. (JM, Cruz2008)

- Five function for Supply Chain Management

Performance 1: Structure of Supply Chain Partners

Supply chain design is based on the strategic factors and customer attention and needs to design the supply chain, so that it covers the range of available products, services, new products or customers section. Based on the knowledge of the final product in the supply chain. It means that in the long term, quality products for more competition, you must find the development and improvement. Also, supply chain integration will determine the level of competitiveness of the organization.

Performance 2: Implementing participatory communication:

This section refers to necessary kinds of participation. This performance develops the supply chain communications external factors outside the company's participation. Any changes in the supply chain should be informed for partners and it performs in whole chain.

In this section, backup processes, supply chain operations are expressed:

- Organizing practices and the role of changes in the supply chain changes.
- Participatory process to redesign the supply chain.
- Performance assessments and their role.
- Supply chain management position within the company's performance.

Performance 3: Designing the supply chain for strategic profitability.

Supply chain management requires to effective participation of external of Factors Company. But the relationships of every company to other external company can create the difficulties. It is necessary to notice some following issues about partners:

- Center competition: supply chain management and selection of target partners what is the impact on competitive goals?
- Motivated partners.
- Structure partners.

Performance 4: Information Supply Chain Management.

The role of information systems in supply chain reforming should not be ignored. This section shows the role of technology in the supply chain. System changes should cover the processes and strategy changes of companies (reforms).

- Elements of supply chain systems.
- Technological innovation.
- Use the software associated.
- Problems in the implementation process.

Performance 5: reduce supply chain costs:

The main index of supply chain improvement, reduced charge. These efforts have been done for strategies and efficiency policies. 4 main costs of cost creation are:

- Changes procedures internally and externally.
- Despite incomplete information.
- Lack of clarity supply chain process for decision making.
- weakness in the design production (Mahmoud Dorodchi 1386)
- Information System

Information systems are defined such as it: ((System Information between two or more companies facilitates the information flows and it's saving)). Supply chain information systems can be put necessary information accurate and timely in supply chain members. Also, the information exchange between customers and members of the supply chain offers. (Industrial Marketing Book Online Sh Gilani nia). Supply chain management in the form of its new branches is a one of emerging management that it progress and develop day to day and it is seeking ways to reduce the more cycles of products and services and the effectiveness and efficiency. Survival requirements in business environment are the use of information technology and information systems as one of the most important examples. Organization uses of information systems to support its goals, these goals include: increasing of profits, reduce costs, the increase in customer satisfaction and sharing the information. Also, information systems can integrate demand planning, production forecast demand of raw materials, processing orders, allocate inventory, fill orders, transport services. It firmly says that one of the main tasks of information systems is sharing information as a key factor for the supply chain system. (Book Industrial Marketing Shahram Gilaninia)

Supply Chain Management works simultaneous along with and it is included in the supply chain information flow. The relationship between components is of two-way information flow. Information between organizational units in the past was based on paper documents and this information in many cases was unrealistic and it is a long with errors. With the concept of raising the supply chain, supply chain members understand the importance of information and information technology was essential. Accurate information available when the various activities leading to supply chain coordination and careful planning and efficient in different fields of application are needs Planning, production, purchasing and planning material and transportation. Also information on the strategic planning goals in a supply chain, including development of the regions and new markets, create new facilities, the desired success in the market there is wide use. Detailed information can be operational decision making and planning as much too high efficient but may obtain this information and installation cost information systems that providing this information is very heavy.

Using the potential development of IT can increase the cooperation of supply chain partners in order to deliver products to consumer more efficiently. Information technology allows supply chain partners to have the function as a single entity may have. Interestingly, the idea of using information technology to cross boundaries in order to improve company performance is not a new idea. In the past, in the year 1956 Farstr suggested that the information transfer reduce the demand distortion in supply. In 1966 AD Kaufman stated that the improved performance occurs when a company of information technology companies to be used across the border. Overall information technology improves the integration between supply chain members. Also, the purposes of integration, planning and coordinating between institutions of supply chain are achieving the optimal solution. This paper has tried to study the effect of information technology on supply chain collaboration perspective. (Mahmoud Drodchy and navid nickmehr (Mehr 1386)

The term of supply chain management represents the task of integrating organizational units along a supply chain and coordinating material flow, information and finance to fulfill customer demands with the aim of improving competitiveness of a supply chain. Therefore, integrating networks and coordinating flows of materials, financial information are two main constitutes of supply chain management. So we can say that building on the two pillars of supply chain management integration and synchronization is based. Also discussed integration, issues such as choosing suitable partners for collaboration, cooperation between the organization and leadership within the organization and discuss strategies for being aligned partners are involved in speech. In discussions during various synchronization in the supply chain, IT Management, one of the topics that are important, the issue of ICT is to represent the supply chain is important. (Mahmoud Drodchy & Navid Nikmehr, Mehr 1386)

Effective factors can effect on supply chain in adoption of information technology and the adoption of information technologies. Before discussing the factors affecting acceptance of the concept of information technology in supply chains necessary to mention that accepting or adopting the word, taken from the word adoption is a broad concept that covers concepts like creation, is developed and implemented. General factors affecting acceptance of information technology in supply chain include:

1 - The extent of organization

Studies have shown that organizations that have more breadth in terms of having more willing to accept funds is information technology.

2 -success rate of Organization

Also, studies have shown organizations that have lower performance than organizations that have a better performance, try your strategy based on accepting the information technology. So successful organizations less incentive for supply chain technologies are accepted.

3 - Effect of partners in the chain

One of the environmental factors that affect on the organization decisions, influence business partners is in a chain. Pressure in the supply chain partners, can be effective upon acceptance of information technology.

4 - Uncertainty

As already mentioned uncertainty in supply chain management are the main issues that the main factor causing it is, the lack of accurate and complete information for decision. Advanced information technologies within organizations or between supply chain members have been integrated, allowing faster sharing of information provides a more accurate. Therefore likely to adopt and acceptance of information technology in organizations that are faced with more uncertainty, more.

5 - Senior management support

Senior management roles in running the organization and applying information technology in organizations is important. Senior management support in organizations can be having a positive effect on the acceptance of information technology in organizations in a supply chain. (Mahmoud Drodchy & Navid Nikmehr, Mehr 1386)

Research findings:

In today's global competition, in regard to the need for high quality and fast response to customer demands, and involving customer in sharing information in supply chain process it is inevitable to the addressing the need for small and medium companies to supply chain management according to the process of global trade. In fact we can say that a strong information and communication technology, provides the capability to transfer data more up date in regard to demand and inventory in the supply chain and appropriate flow of information is caused the process acts more effective And more efficient. Considering the importance of supply chain information, we can conclude that because of many the existing inefficient supply chain, lack of information accuracy and adequacy of information systems that supply and are responsible for processing information, is.

Conclusion:

Rapidly changing technology in today's world, especially in the production cycle and supply chain industry, change it more ineffective and inefficient. Thus redesign supply chain management processes to enjoying the many benefits technology benefits the organization will gain. One of these information benefits is when the data among different companies, between various data types and different structures are shared differently. Factors in the acceptance of information technology in supply chain, play a role such as the size of the organization, the success rate, uncertainty, pressure of and other supply chain partners as well as senior management support organization. Supply chain systems, today has create course match and supply chain intelligence, a new network collaboration features and across different groups to deal with dynamic systems, such as suppliers fail or uncertainty of demand. In regard to importance of information in supply chain, it concludes that the causes of existing inefficient in supply chain are non reliable information and inability of information systems in processing and providing the information. Supply chains are nothing but a collection of several companies to provide a service or product, and this collection in order to perform its activities, needs to information communication and the relationship between companies is not a new problem, but creating this Communication through information technology and knowing necessary systems for vital information exchange and adoption of information technology and can lead to improved performance is the total chain. In fact we can say that information technology and strong communication, the capability to transfer data more update with the demand and inventory in the supply chain and good flow of information also causes the process performs more effective And more efficient.

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