Research and Implementation of Supply Chain Collaborative Management Strategy in E-Commerce Environment

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Abstract: With the development of global competition integration and user demand internalization, enterprises are facing more uncertainties. The market competition is becoming increasingly fierce and the scope of competition is expanding. The competition in modern market has gradually evolved into the competition between global supply chain and supply chain. It is of great theoretical and practical significance for enterprises to study the supply chain collaborative management and its implementation strategies and technologies in the e-commerce environment for the rational application of e-commerce and the use of supply chain collaborative management to enhance the core competitiveness of enterprises. This paper mainly studies the content, implementation strategy and technology of B2B e-commerce supply chain collaborative management.

Keywords: supply chain collaborative management, hard collaboration, E-commerce

1. Introduction

As an inevitable product of network economy, e-commerce has set off a revolution in the economic field. Facing the tide of e-commerce, many enterprises are most concerned about how to solve the supply chain management problems through e-commerce. E-commerce provides opportunities for the coordination of supply chain, but also challenges the collaborative management of supply chain. There are two views on how to establish the cooperative relationship among the members of supply chain: (1) the view of constraint. This view holds that all nodes in the supply chain guarantee cooperation by various formal contracts. Once the contract is drawn up, all parties only cooperate in a way of trust based on their own interests. (2) Process view. This view holds that, due to the existence of a series of interactive relationships among the enterprises in the supply chain, the relationship between trust and cooperation is based on time, and the positive interaction strengthens the trust in each other; cooperation. In most cases, the two views are biased, and it is impossible to design a contract that can cover all the contingencies in the future. Therefore, the two parties who do not trust each other have to rely on the establishment of trust relationship to solve the problems not covered in the contract. So in most efficient partnerships, there are two options [1].

We think that we should improve the collaborative management of supply chain from three aspects: first, from the hard environment construction of supply chain; second, to formulate the hard contracts and systems that each member of supply chain must abide by; third, from the soft constraints to coordinate the supply chain. The first two aspects are called "hard coordination" of supply chain, and the latter is called "soft coordination" of supply chain. "Hard coordination" and "soft coordination" complement each other to achieve the coordinated operation of the supply chain.

2. Hard Collaboration in E-Commerce Supply Chain – Hardware Infrastructure Construction of Node Enterprises

Supply chain hard collaboration includes two aspects: (1) the construction of hardware infrastructure of each member of supply chain. (2) The hard contracts and systems that all members of the supply chain must abide. Because these two aspects are stable once established or have the characteristics of compulsion and poor flexibility, the supply chain coordination that the two sides work together to achieve is called supply chain hard collaborative management. Hard collaboration is the most important coordination management tool of supply chain, and it is also the most effective tool in the initial stage of supply chain management. It is necessary to achieve the optimal goal of supply chain.

Hardware infrastructure construction also includes two aspects: first, each member enterprise in the supply chain must have the infrastructure to meet the requirements of E-commerce. Second, the management information system of each member enterprise in the supply chain must be able to meet the needs of the coordinated operation of the supply chain, and the management information system must be able to effectively integrate the various functional modules of the enterprise, so as to realize the integrated and efficient operation of the supply chain.

The construction of enterprise network based on E-commerce is the main part of the hardware infrastructure construction of supply chain members, which mainly provides technical support for the coordination of the supply chain, ensures the smooth flow of information, logistics and business in the supply chain, and creates conditions for the synchronous action among all stages of the supply chain. The contents of its construction include intranet (enterprise intranet) see (Figure 1) and extra-net (enterprise extra-net). Only by connecting the internal supply chain and the external supply chain can the information in the supply chain be

transmitted synchronously, and the information can be shared in the supply chain at the same time [2].

Intranet refers to the internal network of an enterprise constructed by Internet technology. It is based on internet protocol, web technology and equipment. It can provide web information services and database access services. Compared with Internet, which emphasizes the interconnection and communication of network, intranet emphasizes the information exchange and collaborative work within the enterprise [3]. This kind of function is particularly important for enterprises that are becoming more and more large-scale and decentralized. It can transmit information to every corner of the world in a timely manner. Without crossing mountains and seas, and without more costs, it can achieve the internal collaborative work of transnational and cross regional enterprises. Enterprises use Internet technology to build intranet, connect employees, partners and customers, and provide external advertising, technical support and other services. At the same time, they also make full use of the information resources provided by the Internet. Internally, they are used for internal business processing, information exchange, information sharing, information acquisition, online communication, online discussion and so on.
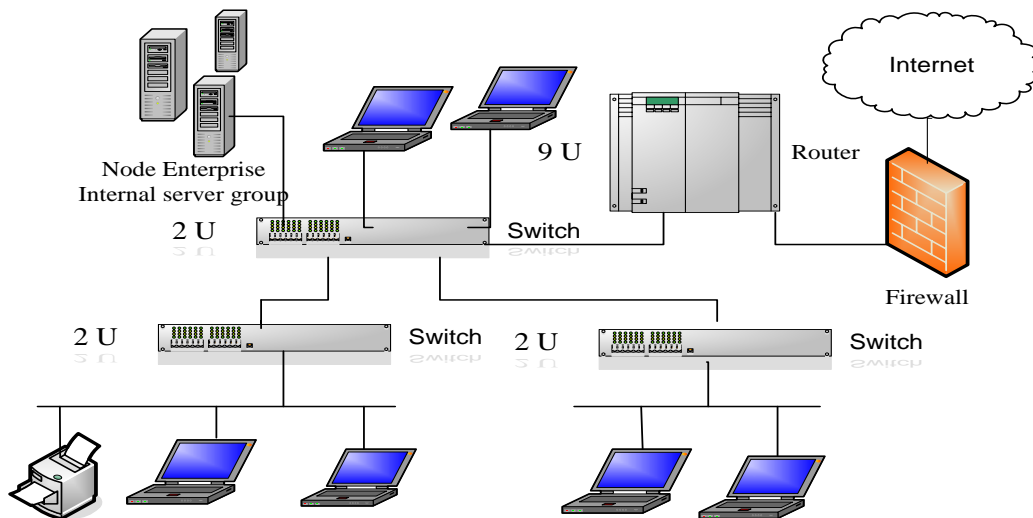

Figure 1. Intranet formed by a node's internal lan.

Extra-net is the extension of Intranet and another application of Internet. Extra-net uses Internet network construction technology for inter enterprise system, which is generally called enterprise extra-net (extra-net). It enables enterprises to connect with their customers and other enterprises to achieve their common goals and interactive cooperation network. Expand the intranet by adding external links to some major trading partners, which are not limited to members of the organization, but can go beyond the organization, especially those suppliers and customers who want to establish contact with it [4].

By using extra-net, the supplier can understand the inventory of a product and the demand of a stage, and improve the supply efficiency. Distributors deliver sales to enterprises in a timely manner so that they can understand the market and competitors more quickly. The differences and connections among Internet, intranet and extra-net Figure 2 lie in: Internet is the collection of network foundation and various applications including intranet and extra-net; Intranet emphasizes the connections among departments within the enterprise, and the business scope is limited to the enterprise; extra-net emphasizes the connections among enterprises, and the business scope includes trading partners, partners, retailers, consumers and Certification body. It can be seen that Internet has the largest business scope, followed by extra-net and intranet.
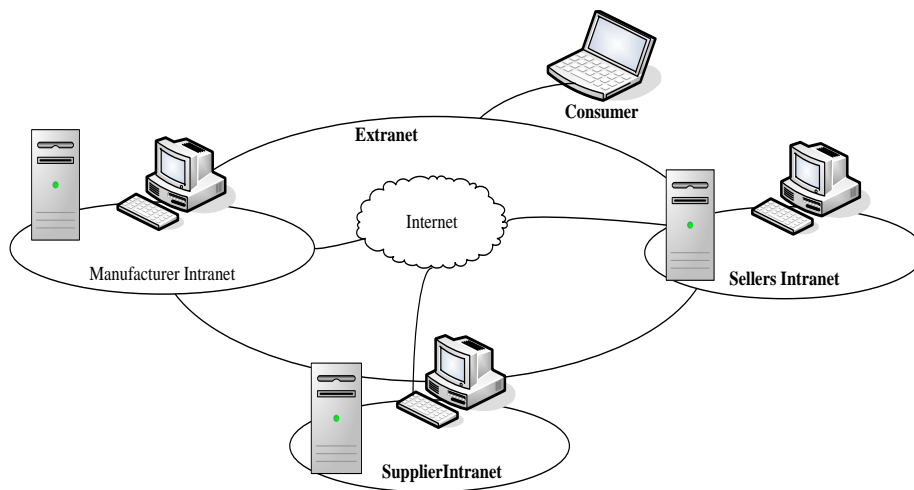
Figure 2. Relationship of internet, intranet and extranet.

3. Integrated Supply Chain Construction Based on Internet/Intranet

When an enterprise connects its employees, suppliers and customers through intranet, extranet and Internet, it will inevitably experience a series of changes in business activities, such as procurement, transaction negotiation, payment, after-sales service, etc., which almost cover the entire business process of the enterprise, making the enterprise, suppliers, customers and There will be a more dynamic relationship between partners, which will make the traditional supply chain integration model face a severe test [5].

For example, Dell's direct sales model proves that enterprises can bypass distributors and wholesalers to contact end consumers directly [6]. Ge lighting division accepted electronic quota application form from intranet through an online procurement system called TPN post, and then bid to the world through extra-net to expand the scope of suppliers in the supply chain to the world, which reduced the procurement cost of the Department by 30% and reduced the procurement personnel by 60%.

More and more enterprises gradually realize that under the e-commerce environment, the key to the competitiveness of the supply chain lies in the effective use of information technology to integrate the internal supply chain with the external supply chain, so that the integrated supply chain can reach the global optimal state. In recent years, with the rapid development of Internet/Intranet technology, the traditional supply chain integration mode has undergone profound changes. The integrated supply chain model built on Internet/Intranet is shown in Figure 3.
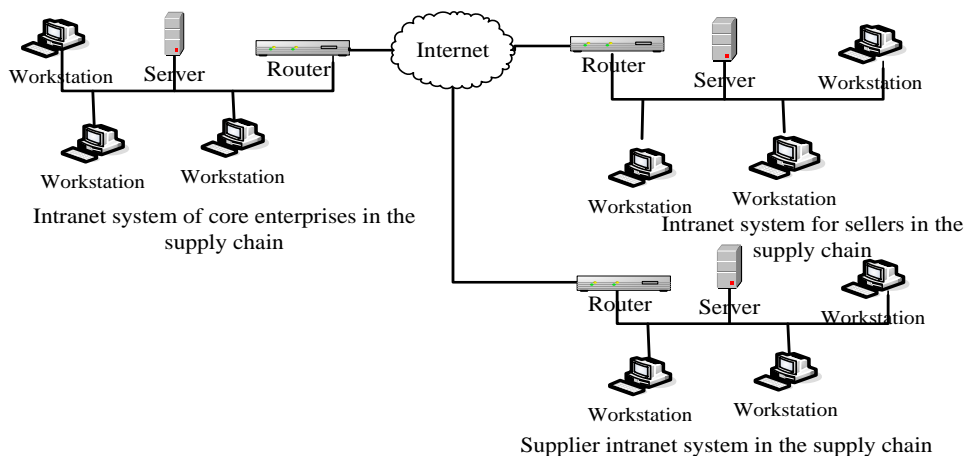

Figure 3. Integrated supply chain model on internet/intranet.

In the model, the purchase, sales and even finance of node enterprises are all carried out on the Internet, so as to make the enterprises connect with the world to the greatest extent. This kind of connection mode also changes the way that enterprises deal with business. Business processing is no longer based on MIS or other application systems of two-tier client/server (C/s) architecture, but through three-tier browser/Web server/database(B/w/D) structure of the intranet to deal with, which not only ensures the smooth flow of information within the enterprise, so that the operation of the internal supply chain is more smooth, but also enables enterprises to low-cost in the global scope with other enterprises or end consumers to exchange information quickly [7]. Efficient and secure intranet is the necessary

condition for enterprises to build integrated supply chain in this period.

At this time, the entity delivery and capital flow in the integrated supply chain are undertaken by professional transportation and financial intermediaries, and the status of traditional wholesale, distribution and other intermediate links is gradually replaced by these intermediary service providers. Information flow has become one of the most important flows in the supply chain. If we consider the direction of information flow and capital flow and the management and coordination mode of supply chain, the supply chain at this time more reflects a network mode based on the coordination center, which is composed of multiple links. Internet is the coordination center of this "network".

Through the Internet, on the one hand, the direct dialogue between consumers and producers becomes possible, and enterprises can accurately and timely grasp the demand information of consumers; on the other hand, the role of consumers has also changed from passive to active, the market has changed from the old production driven mode to the consumer centered consumption driven mode, and the demand pull has become the leading coordination mode of integrated supply chain. In addition, the fast and convenient information flow further promotes the (just in time, JIT) production mode, and the Vendor Managed Inventory (VMI) in the chain is greatly compressed.

4. Summary

The node enterprises in the supply chain coordinate through the Internet, and the demand of the final consumers directly leads to the production activities of the enterprise. Professional transportation and financial intermediary replace the original intermediary link, and Intranet becomes the necessary condition for the enterprise to participate in the integration. As the Internet is an open public network, which greatly reduces the information cost of enterprises in the integrated supply chain, small and medium-sized enterprises are in the same position with giant enterprises in information acquisition and processing. The scope of supply chain integration has been extended to all enterprises in the world, and each node member after integration is a real global enterprise. At the same time, consumers participate in the production process of the enterprise, their demand information directly guides the production activities of the enterprise, determines the type, style and quantity of production products, on-demand production and mass customization are the main production mode of the integrated supply chain in this stage.

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