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Bin Ding

Guoshun Gong

Xiaojian Chen

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# Key Problems to be solved in Supply Chain Collaboration Management

Bin Ding, Guoshun Gong, Xiaojian Chen  
School of Business, University of Science and Technology of China  
Hefei, Anhui, China  
dinbin@vip.163.com

## Abstract

Supply chain members of independent enterprises are different from each other in strategies. Conflict in benefits is inevitable. The supply chain management system (SCMS) based on information system usually emphasizes on the function of the information technology. To achieve collaboration management, four main problems must be solved: 1) Belief among supply chain members, 2) Motivations of supply chain members, 3) Allocation of interests among supply chain members, 4) Integration of supply chain information system. This paper intends to analyze these key problems, and put forward some resolutions.

Key words: Supply Chain Management, SCM, SCMS

## 1. Introduction

With the entering of the 21st century, the trend of social information, economic globalization and electronic business accelerates increasingly, and the enterprises face more vigorous market competition than ever. The competition among single firms is gradually turning to competition among supply chains.

In order to enhance the competition ability of the supply chain, it is most important to intensify the cooperation among members of the supply chain, through which we can make the operation of supply chain among members as smoothly as the operation of a business enterprise to meet final customers' needs with high speed and low cost. Numerous researches and practice on supply chain management indicate that it needs to establish a mechanism of credibility and cooperation among enterprises and a cross organization supply chain management information system to plan in collaboration, in order to realize supply chain collaboration management.

However, because the supply chain members are independent enterprises, and the strategy of each

enterprise is different from another, there must be inevitable conflict in benefits. But the supply chain management system (SCMS) based on information system usually emphasizes the function of the information technology, and neglects the further analysis of members' benefits, therefore, it often suffers from the boycotting of members in application. To achieve safe and perfect collaboration management, many problems need to be solved. Mainly there are four problems as following:

- 1) Belief among supply chain members
- 2) Motivations of supply chain members
- 3) Allocation of interests among supply chain members
- 4) Integration of supply chain information system

This paper intends to analyze these key problems, and put forward some resolutions.

## 2. Belief among supply chain members

Belief is the foundation of successful cooperation, and supply chain particularly emphasize belief among all members. According to game theory, if your partner distrusts you, and your best choice must be distrust. When all partners trust each other, the game process can have the best solution. If you trust others excessively, but others misuse your trust, it is easy to cause damage or loss to you. It is a long process from distrust to trust, which demands all the member's efforts.

In the real life, there are many distrustful phenomenon, for example, mutual blockade of market and technique information between enterprises; deceitful information to cheat others to acquire the advantageous position in negotiation, and make use of the loophole in the contract to coerce the other party. Once these phenomenon occur, the distrust atmosphere spreads everywhere as a plague does, which becomes the obstacle of cooperation of supply chain.

The reasons for distrust among members are different.

First, the law environment is an important reason. Under the morbid environment of law, management with credibility cannot get the protection from laws, therefore, a lot of enterprises adopt accurate measures, and it is difficult to establish trust. Second, the ideas of social moral ethics decide the trustful relation of the social members, and also affect that of enterprises. In a society with credibility, if someone presumes to breach the credit principle, he must suffer the rebuke from the social members. Finally, quality of leaders is an important factor. If the leaders have received good education, have strong sense of responsibility, and put the credit principle to an important position, thus it is easy to establish the relationship of trust.

It is not only the enterprises' duty to resolve the problem of trust, but also the duty of all society. To make laws perfect is a way to establish the moral standard of credibility. As a member of the supply chain, while cooperating with other members, on one hand it is necessary to establish a credit evaluation system, only cooperate with enterprises with high degree of credibility; on the other hand, it is necessary to implement the credit principle actively to influence cooperation partners.

### **3.Motivations of supply chain members**

Motivation decides behavior and further affects result. As the partners belong to different benefit corpuses with different strategy and operation mode, they also take different position in the supply chain. With the differences in management background, motivation and foundation, the partners in the supply chain show different behavior. The demand to participate in the supply chain needs to be deeply analyzed.

Every member in a supply chain must look after its own interests and its shareholders first and foremost. That is the fundamental nature of free enterprise, and the source of its strength. Then it is the interests of supply chain as a whole. It is impossible to request the member to abandon its own interests, but to obey the whole interests of the supply chain.

According to the position, members in the supply chain mostly have the following motivations:

Core enterprise. Each supply chain has a core business enterprise as a leader that contributes most values to the

supply chain, and it's usually the supply chain's organizer, planer and coordinator. At the same time, the core business enterprise is also an independent enterprise, which has its own goal of development. Because of its special position in the supply chain, it is easily self-centered, and tries to consolidate the position as group leader, and control the decision-making right of product and pricing. For achieving this purpose, it may try to baffle information circulation among members, and make use of the information's dissymmetry to control the whole supply chain.

Upstream supplier. Upstream suppliers' scales are quite different. The small-scale suppliers are usually in the subordinate position in the supply chains, expressing the obedience to the core business enterprise, extending the scale hard, and strengthening themselves in order to increase their own positions. For avoiding being controlled by a certain manufacturer, they serve many manufacturers at the same time to increase the selectivity of sales; therefore they would not like to build a very deep alliance with a certain manufacturer, preventing being abandoned by other manufacturers. As for large-scale suppliers (like the raw material producers), they supply many supply chains for mutually competing at the same time. Each supply chain's demand is not large enough to account for a very big portion. These suppliers care most about the demand change of the final consumers; therefore it is not easy to establish a close cooperation with manufacturers.

Downstream distributor. For the distributor, the consumer resources and the understanding of consumer requirements are its advantage in bargaining with manufacturer in the supply chain. Similar to the upstream supplier, the small-scale distributor is in subordinate position, but the large-scale retailer usually own its brand, a good image in the consumer mind, while its own strategy usually become an important baffling factor for its supply chain cooperation.

The motivation's influence on the supply chain cooperation is objective. It requires that members in the supply chain should pursue common goal with great similarity as well as few differences. If the targets differ from each other greatly, such enterprises cannot stay in a particular supply chain over a long period of time. At the

same time, the core enterprise should not regard itself as center, and take much care about general situation of the supply chain. The core enterprise should have the leader's bosom, concern and forgive, and set an example for its members as to benefit the development of the supply chain.

#### **4.Allocation of interests among supply chain members**

The supply chain is a value-added chain. It is a continuously value-adding process of raw materials through supplier, manufacturer, and distributor to final consumer, creating value for customer. Each member contributes to the increased value and the contribution is the member's input. As reward, members deal with certain price and allocate the profits. Under the traditional mode of operation, relation among members is only simply trading. Price is set by market competition. But under the environment of supply chain management, the members' relationship is cooperative and common developing relationship, creating customer value. Price is set by much more complicated factors which include inner cooperation factor of current supply chain, the market competition factor, and the problem of the whole benefits and partial benefits.

First, the internal benefits allocation of supply chain has no sound basis. Whole supply chain creates the value through collaboration. It is hard to distinguish how much an activity contributes; therefore the allocation of the added value(deal of price among members) has no scientific standard. Usually supply chain members set a market basis according to certain market rule, i.e. reasonable profits under normal operation. For the excess profits brought by cooperation (the cooperation makes cost lower, and should have excess profits), according to the both parties certain role, they set certain percentage of allocation. Under real circumstance, some supply chain members (particularly a leader of alliance) usually thinks they played a more important role in the value-added process, therefore, they hope to monopolize the exceeding profits, which easily causes the other members' dissatisfaction.

Second, the unreasonable allocation can result in the collapse of the supply chain. The principle of market

competition is the basic principle for business enterprises. There exists a problem. If the supply chain members compete fully and set certain price through negotiation, it is against the intention of the supply chain cooperation, and makes the small and medium enterprises in the disadvantageous position due to their position and information dissymmetry. This may force some members to turn to the other supply chain, and become the rivals.

Finally, the allocation of interests results a new problem of whether sacrificing the partial benefits to protect the whole benefits of the supply chain. For example, if the final consumer brings up a new demand, and the demand may represent the future development of the supply chain products. Therefore, the whole supply chain should positively develop new products to meet the needs of the future markets. However, in the process of new product development, members' investments may differ greatly, but the future benefits do not have big differences. There exists risk in the success of the new products development, and the performance of the product in the future market is not determined. For the members of big investment, whether to sacrifice their partial benefits and create benefits for the whole supply chain becomes crucial.

#### **5.Integration of supply chain information systems**

The thought of supply chain management develops with information technology, and it's an achievement of the information ages. Supply chain management system(SCMS) is a bridge connecting the supply chain members, as were a platform of communication, and a necessary tool for supply chain collaboration management.

Supply chain management the system (SCMS) derives from the basis of Enterprise Resource Planning (ERP). ERP is used for the management of a single enterprise, with functions of planning, purchasing, stocking, manufacturing, selling and finance. It tries to optimism the resources of business. After entering the ages of supply chain management, collaboration of Ultra-firms becomes

an important content of the supply chain, which cannot be realized in ERP systems. There comes the SCM software, used for the collaborative planning among business enterprises. Some business enterprises adopt the ERP systems, the others may use MIS or MRPII, then appeared several solutions:

The first is electronic commerce based on EDI. This method aims at the processing of ordering and purchasing, transforming information through EDI or Internet. The management scope is limited. The information of SCMS and enterprise inner management systems cannot link together well. EDI is the initial stage of supply chain management.

The second is ERP plus SCM. The members apply ERP system to manage internal business, and apply SCM to integrate the ordering, planning, purchasing and service with other members. The advantage of this method is that each business's internal management is not influenced, and the initial investment can be protected. The disadvantage is that data exchange between SCM and ERP is comparatively difficult in real time processing.

The third solution is the complete adoption of SCM. Each member adopts the same platform to share data completely. This method can realize supply chain collaboration management. The disadvantage is the limitation of functions, and only close members can use this solution.

Ultra-firms SCM needs to resolve the problems of shared information, communication, and integration with internal systems of enterprises. No ideal solution is available at present time. Because of the above-mentioned problems of trust among enterprises, motivations and benefits allocation, some members do not prefer the integration of information, they even boycott the SCM application. Therefore, each supply chain partner need to set reasonable goals for system construction, and adopt its own methods to realize integration of information system according to their distinguished circumstances.

## 6. Conclusion

The future competition is the competition among supply chains. We must utilize the whole function of the supply chain to realize management collaboration. In the

process of management collaboration, there are protruding problems of trust, motivation, allocation of interests and integration of information systems. Only by solving these problems can we make supply chain meet customers' needs better, create values for customers, and maximize interests of all members.

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