Correlation Analysis Between Industrial Cluster and Supply Chain Alliance

LIAN Yuanqiang
School of Management, Yangzhou University, P.R. China, 225009
yqlian@yzu.edu.cn

Abstract: Based on introducing industrial cluster and supply chain alliance, this paper analyzes the commonness and difference between industrial cluster and supply chain alliance. Finally, this paper draws the conclusion that both of them are related to each other closely. Industrial cluster can supply wide foundation for building and adjusting supply chain alliance. Moreover, supply chain alliance can regulate the competitive and cooperative relations between enterprises in industrial cluster and promote the competitiveness of the industrial cluster. In practice, we can use the ideas of supply chain alliance to integrate and optimize industrial resources, organize the enterprises in industrial cluster, and strengthen its coordinative and cooperative ability in order to improve the efficiency and competitive advantage of the whole industrial cluster.

Keywords: Industrial cluster, Supply chain alliance, Relationship, Commonness, Difference

1 Introduction

The future competition will be the competition between supply chains, and will also be the competition between industrial clusters formed by different supply chains. Industrial cluster and supply chains are burned under the background of the economic globalization. They grow coexisting and develop jointly which can overcome some conflicts caused by insufficient resources, separated management and market demand diversification. More and more scholars think that the important factor of forming industrial cluster is to establish supply chain alliance relationship in cluster. We can through combining resources, lower costs in order to improve the competitive advantages of the whole industrial cluster. This text will analyze the relationship between industrial cluster and supply chain alliance in order to hold the true essences between them more accurately.

2 Briefly Introduction of Industrial Cluster and Supply Chain Alliance

Industrial cluster is an aggregation of the related enterprises and institutions in certain field and in certain place. It was proposed by Michael Porter in 1990 initially as a complicated system and a mode of industry development. Since 1990s, with the enormous change of the domestic and foreign industry environment that enterprises faced, in the western developed country represented by U.S.A., a new kind of enterprise organizational forms --Supply Chain Alliance (SCA) came forth vigorously. Supply chain alliance refers to strategic alliance formed by enterprises at supply chain. It is also a dynamic alliance composed by some independent organizations, such as suppliers, manufacturers, retail traders, retailers in order to realize the following strategic objectives of responding market rapidly, holding the object market and sharing the resources jointly.

Through this definition, we can find out supply chain alliance has reflected a kind of thinking of strategic integration of the resources based on enterprise core-ability. Supply chain alliance is an new enterprise organizational cooperative mode, It break the existing value chain structure, realize the restructuring and optimization of resources such as products, customers, technology, and logistics, etc., open up the new competition fields, and prevent resources from wasting. It has very important functions to reduce supply chain costs, raise response speed and efficiency, improve the products and service quality, and finally heighten the competitiveness of supply chain enterprises. Supply chain alliance is different from general corporative enterprises and the general economic organization. Its outstanding characteristics lie in the supply chain nodal enterprises breaking through traditional enterprise organizational boundary, establishing partnership relation each other, and finally realizing
the strategic objectives of enterprises through combining the resources inside or outside enterprises effectively.

3 Commonness Analyses of Industrial Cluster and Supply Chain Alliance

3.1 Both of them think cooperation and competition among enterprises are coexisting
Both of Industrial cluster and supply chain alliance think relationship between enterprises is cooperation and competition. Enterprises in industrial cluster have the competition in cooperating, is pregnant with cooperation in the competition again. The integrated cluster collaborative effects can be produced through this complicated cooperation and competition. The competitive advantage can be hold and improved only through cooperation and competition between enterprises. Competition makes enterprises promote the efficiency, improve product quality and innovation, but the excessive competition will lead to the labor condition worsen and cause obstructs to study and innovate. So, the development of industrial cluster should pay attention to competition and its equilibrium with cooperation. The aims enterprise construct supply chain alliance is to promote its own strategic competitiveness in the process of cooperating with dynamic alliance members. Competition and cooperation is essential to realize the purpose. The members of supply chain alliance are dispersive in geography, the competitive environment of different enterprises is inconsistent, its competitive parameters are variable and contention caused by face-to-face transact is lacking. So, the competitive degree between the members in supply chain alliance is lesser than in industrial cluster. However, the members in supply chain alliance often face the competitive pressure from enterprise outside the alliance, so, as a whole, supply chain alliance must also emphasize cooperation.

3.2 Both of them are institutional choice to overcome market and internal organization failures
The distinct character of industrial cluster and supply chain alliance is the flexibility of internal mechanism is not losing while large-scale production realized. The members of cluster and partners of supply chain alliance not only keep its own initiative independence but also cooperate in the particular field complementarily, and their relation at chain value is relatively free. They can cooperate horizontally with the enterprises at the same level, as well as can cooperate vertically with supplier or sailor enterprise. We know that industrial cluster and supply chain alliance all are middle organization located between pure marketing organization and pure hierarchy organization from Williamson middle organization theory. On the one hand, they coordinate marketing failures through hierarchy organization; On the other hand, they overcome internal diseconomy caused by over high internal organizational costs through market exchange mechanism. In this way, they are steadier than market and more flexible then hierarchy structure inside enterprise. So, both of them are institutional choice to overcome market and internal organization failures, this is their greatest common points.

3.3 Both of them demonstrate the network economic and external economic effects
Scott think, industrial cluster is vertical division result of enterprise, with the manufacture operation range shrinking after enterprise division, its income and performance may be increased progressively. The advantage of labor division is network effects. Usually, the bigger the participating division network is the higher system productivity is. With the reducing of information costs and exchanging costs and producing of new knowledge, manufacture will become outside-produce constantly, enterprise division will run in vertical and level direction, finally, the cluster market capacity will expand continually. The relative industry of alliance members aggregating expands the labor division of cluster. With the labor division network enlarging constantly, industrial cluster will demonstrate an increasing network effects. Supply chain alliance is a kind of network type administration structure based on labor division economy, Manufacture process will decompose vertically along the technological node of supply chain, this make division become further more meticulous, and then the network size of trade become wider and wider. Meanwhile, industrial cluster and supply chain alliance all have external economy function, including external scale economy and external range economy. It is extremely difficult for enterprises to obtain external economy just rely on the
accumulation of its own resources, but through industrial cluster or supply chain alliance different enterprises can carry out division, cooperate, exchange or authorize in the process of technology, products, funds or market, etc. In this way, enterprise can obtain definite external economy rapidly while improving its overall competitive capacity.

3.4 Both of them belong to agile flexible manufacturing system
Most of enterprises in industrial cluster are operating with small-scale production, it can quickly respond to market changing. Enterprise can quickly switch from one technology to another technology because of its lower assets specificity degree, lower production transformation costs and lower work changing costs of labor, etc. This agility can help industrial cluster realize flexible production. In addition, Supply chain alliance can take flexible reaction into its manufacturing system through logistics standard and EDI technology in order to realize different production process linked seamlessly. This flexible manufacturing system not only can specialize in small production but also can realize flexible mass production. It is because of the introduction of supply chain alliance mechanism enable the large enterprises can calmly deal with the uncertainty of environment.

3.5 Both of them utilize the mechanism of dynamic network construction and innovation
Industrial cluster is a very complex system, including not only enterprises but also a large support system. Supply chain alliance is formed on the basis of its own core strengths of alliance members. Various value chain parts of alliance can be increased, adjusted or merged according to the market changing. Although both of their features of utilizing network constructing mechanism is different, but with non-core business outsourcing and e-business applications, network development trend is an indisputable fact, and this two strategies can achieve complementary advantages and integrative development in the future network trend.

4 Differences Analysis of Industrial Cluster and Supply Chain Alliance
Although industrial cluster and supply chain alliance have many similarities, but their differences between them are also obvious, mainly the following aspects:

4.1 The differences of System constructing
First, the requirements in enterprise strength and development scale of new members jointing industrial cluster and supply chain alliance is different. In clusters, the barriers to entry or exit is low, the scale requirements for members is modest. Its scale can be a large or a small, even can be a new enterprise from scratch in cluster. The main body of industrial cluster is small and medium-sized groups specialized in similar industries. Their specialization characteristic is more obvious. However, in supply chain alliance, the barriers to entry and exit are relatively high. It is not only requires the members own a certain scale and strength, but also their scale and strength can be matched to some extent. The main body of supply chain alliance is various enterprises located in supply chain, its vertical complementary characteristics is more stronger, and may have a great large dominant enterprise, the relation between members mainly be linked with contracts, specially emphasize the organic integration of supply chain members.

Second, the spatial location requirements for members of industrial cluster and supply chain alliance are also different. Industrial cluster is mainly concentrated close to the space. It is a strong local regional network and geographical concentration. However, supply chain alliance is a results caused by modern enterprise competition in the globalization environment with the information and communication technology developing. The requirements to spatial location is not high, it can be a cross-regional even a global network.

Third, the motive to joint industrial cluster and supply chain alliance is different. The motive enterprise joint cluster is the barriers to entry and exit is low, less investment, lower transaction costs and is very easy to find customers, raw material suppliers and professionals. However, enterprise to adopt supply chain alliance is the following motives: to cope with global competition rely on all
members’ strength, to share the large cost of R&D, to co-develop the market and so on. The contractual relationship and alliance will be dissolved after obtained competitive advantages.

4.2 Differences of systematic management strategy
First, the means to maintain long-term relations between enterprises is different. In cluster, each enterprise is an independent legal entity, its business activities are not bound by the other members, often transact equally through market. So its combination is loose, and the integrated overall cluster concept is weak. However, in the supply chain alliance, the relation between enterprises is often established and obtained through cooperative alliance formed in the way of agreement, rights and interests alliance formed in the way of capital investment or strategic network formed in the way of associations or chamber of commerce. Their relation is close to each other, and the alliance integration is strong.

Second, the strategy unity in the business development is different. Although both are belong to middle organization located between pure market and hierarchy enterprise, the locative position is obvious different. Supply chain alliance trend to pure hierarchy organization, however, industrial cluster is closer to the pure market organization. Therefore, the business target of enterprise in cluster is guided basically by marketing invisible hand, it is very difficult to have a unified business strategy and objectives; However. The members in alliance often use mutual stock rights participation and resources penetration to form interest relevance and enterprise culture cohesion, so its business strategy and objectives have unity.

Third, their strategies to obtain external economic effects are different. Industrial cluster obtain external economic effects through specialization, public resources sharing and lower costs; However, the enterprise in supply chain alliance emphasize its own core competitive business, outsource its non-core business to competitive company, promote its supply chain efficiency in order to achieve external economic effects. The cost to entry and exit supply chain alliance is higher than industrial cluster, so, the participation and scope of supply chain alliance is limited and narrower.

4.3 Difference of system operating mechanism
First, their information communication mechanism is different. Mostly industrial cluster is aggregation of small and medium-sized enterprises which are specialized in similar industry. It is a local network, rooted in local culture and has similar geo-culture. The knowledge and information are widely distributed in cluster region and its transmission channels between enterprises are informal. However, supply chain alliance is a cross-regional even global functional network chains, its exchange of information is a cross-cultural communication. Usually, there have a core dominant enterprise in supply chain alliance. Supply chain node members exchange information in regional or global network through modern electronic ways of e-business, EDI and LAN or internet, etc.

Second, their mechanisms of innovation motives are different. The innovation of industrial cluster is from the competition and cooperation in the whole region. Because the main of cluster network is small and medium-sized enterprises located in similar industry, consciousness of competition and innovation in cluster is stronger. However, innovation in supply chain alliance mostly is dominated by core-enterprise and cooperated with partners. The main of supply chain network is node enterprises in industrial chain specialized in respective profession. Therefore, there have less competitive pressure inside chain, easy to have the “free-rider” behavior, so, its innovative pressure mainly from outside competitors.

Third, their emphasis of competition mechanism is different. Industrial cluster pay more attention to the importance of competition, and think competition is the source of cluster vitality. However, supply chain alliance emphasize the importance of cooperation, and it want to reduce transacts costs through close cooperation with chain members or other complement enterprises. Therefore, the numbers of enterprise supply chain alliance require dos not want to be a lot, but want to minimize the number of suppliers and have a long-term business partner relations with good cooperative members. Of course, supply chain alliance also needs the alliance to have an open and dynamic in order to remain its competitive vitality.
5 Conclusion

We can see through the above analysis that industrial cluster and supply chain alliance has stronger commonness but also have some differences, both of them can be an organic coupling. Industrial cluster can provide wide foundation for constructing and adjusting supply chain alliance through coordinating human resource, technology, funds and innovation based on relative industry in cluster region. Moreover, supply chain alliance can regulate the competitive and cooperative relations between enterprises in industrial cluster through its flexible organizational structure and operation mode. This will enhance the competitiveness of industrial cluster. Therefore, we should deeply analysis the relevance between industrial cluster and supply chain alliances, use the ideas of supply chain alliance to integrate and optimize industrial resources, organize the enterprises in industrial cluster, and strengthen its coordination and cooperative ability in order to improve the efficiency and competitive advantage of the whole industrial cluster.

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References