Research of Linkage Mode Between Logistics Industry and Manufacturing Cluster

ZOU Deling, CONG Haibin
Business School Logistics Department, Zhejiang Wanli University,
Qian Hu Nan Road 8 of Ningbo City, Zhejiang Province, China, 315100
delingzou@126.com

Abstract: Industrial Cluster is a prominent world economic phenomenon, it is playing an increasingly important role in enhancing regional economic development and regional competition. On the one hand, to some extent, the cluster expands the product awareness, create brand; the other hand, because of the vicious competition, the advantages of cluster are limited in a certain extent. Therefore, it is urgent to explore a suitable new mode of manufacturing cluster development. The development characteristics of Ningbo manufacturing industry cluster are very significant in the country, but the organizational mode of family workshops makes the cluster effect difficult to play. In this paper, making Ningbo as research object, taking the methods of field research and theoretical analysis, proposing the mode of collaborative procurement platform and integrated logistics and business, analysising the implementation method and conditions of two modes in-depth, not only fill the blank on the theory of joint development between logistics and manufacturing cluster industry, at the same time, provide new guidance to promote the logistics and the manufacturing industry of Ningbo.

Keywords: Manufacturing Cluster, Logistics Industry, Linkage Development, Mode

1 Introduction

In the study of literature, existing research are limited to the linkage development between logistics and manufacturing, it is a few of study from the perspective of industrial clusters, only the Peng, benhong and Feng Liangqing (2010) relate in symbiotic mechanism between Modern logistics industry and advanced manufacturing that modern logistics and advanced manufacturing industry is a mutually beneficial cooperation. In the case of limited resources, the logistics outsourcing will promote the coordinated development between them, and proposed the basic path to improve symbiotic development. Other studies are from the perspective of the linkage development between logistics industry and manufacturing sector. Ningbo is a port cities, The development of manufacturing industry is very fast, and its manufacturing industry showed strong cluster form, the potential demand to logistics services are more. However, because of the logistics activities are decentralized, making the outsourcing of single business has low advantage or inferior, over time lead to all or part of logistics activities built-in; the other hand, due to logistics service level is low ,it is hard to meet the manufacturing requirements on logistics services, making manufacturing companies built-in the non-mainstream business that should be outsource, from the perspective of the professional division of labor, it is inefficient resource allocation of social performance. Therefore, how to achieve effective linkage between the two to achieve win-win situation, is a further growth path to achieve rapid economic development in Ningbo.

2 Analysis of Status of Ningbo Manufacturing Cluster Logistics

2.1 Analysis of development status of Ningbo Manufacturing Cluster

2.1.1 Manufacturing Clusters is labor-intensive traditional industries in Ningbo City. From the view of manufacturing industry products, the type of economic development focuses on labor-intensive traditional industry. The production of this commodity has a common characteristic: quick results with less investment, low-technology, big market demand, low cost replacement. Therefore, in
Ningbo, industry derived from the traditional labor-intensive has been vigorous developed. The most competitive products are labor-intensive, relying on large SMEs and rural enterprises, using low labor and land resources, scope to people's entrepreneurial spirit and competitive advantage of manufacturing clusters, participate competition in interregional and international division, which is based on the resource endowment of Ningbo, to create a unique way of industrialization.

2.1.2  SMEs as the main of the manufacturing cluster
Survey, the majority of Ningbo manufacturing industry are more medium and small enterprises, because of geographical approaches, many small businesses form regional industry through the social division and specialization cooperation, form micro small-scale production and macro large-scale patterns to obtain benefit of specialized division of labor and external economies of scale.

2.1.3  the primary factor endowment can not be sustained
In essence, manufacturing cluster development of Ningbo is only the initial stage of cluster development (massive economy), the characteristics is that it has plenty of cheap labor and land and other primary elements, but In the area of substantial and sustained investment of human and capital elements, the advantages are not strong. These features make the regional economy difficult to get rid of the constraints from high input, high consumption, high emission and low efficiency of growth in the short term, continuing gather leads to the “congestion costs” would further undermine its competitiveness, primary advantage of clusters will be diminishing.

2.1.4  the industry chain has not yet formed, logistics cost is high
In Ningbo most of manufacturing cluster have not yet formed a complete industrial chain, industrial chain is only equipped with all the nodes. And all aspects of industrial chain are undertaked by themselves, especially in the situation of low level logistics services, the most of logistics activities in industrial chain have done by themselves, or just a single activity is Outsourced to logistics enterprise. In spite of deeply understanding the significance to focus on core products, it is always so hesitant to make decision that slows down the formation process of the industrial chain, business logistics costs are too high.

2.2  Development of Ningbo Manufacturing Logistics Cluster
2.2.1  Dispersion of the logistics activities
The logistics essence of Ningbo manufacturing cluster is main of SMB logistics, but due to the Restraint of resources and strength, SMB has no ability to build its own platform of logistics Network, it is difficult to operate logistics by themselves, often need to outsource logistics as a whole. But in fact the real business will be fully outsourced logistics number of businesses are not many, and in its logistics activities, the purchase order, transport, packaging, warehousing, distribution, circulation and processing sectors are still scattered all over the responsibility of the logistics departments, can not implement a complete supply chain management.

2.2.2  the object of logistics focus
It is strong similarities in the procurement of raw materials, transportation and product sales, distribution and other logistics activities in the Manufacturing cluster of same area. Although individual enterprise logistics activities is small, lots more, and most enterprises have their own warehousing and distribution facilities, logistics activities are decentralized, but the market volume is large region and beyond the entire cluster, logistics activities are concentrated and frequent, the demand of logistics is great, the development of logistics industry is not lack of basis.

2.2.3  logistics'orientation and network
Manufacturing cluster contains a industry Chain with significant overall flow direction, from raw materials enterprises of upstream to final products companies of downstream, and thus its logistics also showed strong directional; the other hand, the Clusters division is so high that each unit enterprises forms horizontal and vertical linkages with the surrounding business, showing a vertical and horizontal cross-collaboration network, which has demonstrated its logistics network of remarkable.
3 The Need of Joint Development of Ningbo Logistics Industry And Manufacturing Clusters

3.1 Joint Development makes manufacture greater and stronger
The manufacturing cluster in Ningbo mainly focus on the processing and manufacturing sectors, the competitive field mainly focus on labor-intensive processing and are all at the bottom of the global value chain. It is lack of skilled workers and the technological level is low, the majority of cluster products are mainly in the middle and low level in the cluster. In 1992, Taiwan's Acer Group Chairman Stan Shih proposed the concept of "smile curve" (Smile Curve), with an upward opening parabola to describe the added value in all aspects of the manufacturing process of personal computer. The closer the two ends of the parabola, the higher value-added products, the more benefits can be brought to the enterprise, while the income is relatively low if the company is in the middle stage. From the current situation in Ningbo City, the industrial development is mainly in the middle of the lower value-added stage.

3.2 Cooperative development makes competition and cooperation within the manufacturing industry cluster
Barriers to entry the manufacturing cluster in Ningbo are low. There are a large number of enterprises and distribute in the low-end of value chain, convergence positioning and homogeneous competition are particularly prominent. On the other hand, due to the homogenization of price competition, will be easily caught in "non-cooperative game." This development makes the manufacturing industry cluster not only can not be added to the global division, but also difficult to Integrates and extends value chain within cluster. and finally lead to the decline of the manufacturing cluster. Linkage with the logistics industry, can integrate industry chain of the manufacturing cluster, achieve a high degree of inter-firm relations of cooperation and collaboration, then form regional specific competitiveness of industry clusters.

3.3 Joint development promote to create a complete industrial chain
In Ningbo manufacturing cluster, some have not yet formed the industrial chain, industrial chain has formed part are also still in infancy, it has not yet formed a complete industrial chain, makes the
competitiveness of enterprises of manufacturing clusters not be enhanced agglomeration advantages of cluster are not better play.
Though the development of Linkage with the logistics industry, creates new industrial type, optimizes cluster structure. Nature of the modern logistics industry is the third industry, it is product of the division of labor and highly developed specialization, it is a new industry with technology-intensive and high value-added. Therefore, though linkage with modern logistics industry, it can optimize the industrial structure of manufacturing industry clusters, create a complete industrial chain, promote regional economic development.

4 Analysis of Linkage Mode Between Logistics And Manufacturing Cluster Development of Ningbo Style

4.1 The collaborative procurement platform mode
4.1.1 meaning
Collaborative procurement platform is to serve small and medium enterprises in the manufacturing cluster, according to the real-time information of the enterprise. Through the procurement center platform, unifies transport and distribution the materials and parts, centralized storage management. The members in the cluster are the distribution logistics procurement alliance partners that they are mutual trust and equality, risks and benefits shared.
4.1.2 function
In this mode, the purchasement and supply of the enterprise in the manufacturing cluster can be done by collaborative procurement logistics center. Enterprises pass the plan of raw materials purchasement or master production schedule to the logistics center through the network platform; the logistics center collects common needs of enterprises, and make predictions and procures Collaboratively from suppliers; the raw materials are unified stored by logistics center, the inventory are managed and controled by the center; after real-time requirements of enterprises issued, logistics center classifies goods according to the demand of enterprises, plans delivery route, send different needs to their temporary warehouse or production line.
4.1.3 conditions of Implement
First, improving the services level of logistics. Survey found that for manufacturing company, the reason for hesitation in outsourcing the logistics business is mainly because that the limited level of logistics services can not meet Series requirements of enterprise. To ensure normal operation of businesses, manufacturers are unwilling to strip out logistics activities, forming the development basis of logistics industry, no market basis, the logistics industry profits are greatly restricted, difficult to increase logistics costs, improve level of logistics service. To some extent, it forms a vicious circle. Therefore, raising the level of logistics services plays an important role to the smooth operation of the mode of procurement logistics.
Second, the strong links between cluster enterprises. In this mode, we need to set up appropriate institutions to manage, but its members come from different companies, under certain circumstances may arise differences opinion and not unified, in order to ensure the smooth progress of manage work, requires cluster enterprises to establish a wide range of contacts in various ways to form the pattern of "a prospering loss for both sides". In addition, information should also be ensured effective flow within the cluster, form information symmetry to prevent the emergence of speculation in some business, it is not conducive to the development and improvement of competitiveness of cluster in the long-term.
4.2 The mode of business integrated logistics center

4.2.1 meaning

Business Integrated logistics center depends on logistics park, centralize the manufacturing products within the cluster to Logistics Park for fairs and logistics activities, forms Shop in front of Warehouse, product display for sale and logistics integrate, that is, the mode is that after the sale of goods, logistics is operated simultaneously.

4.2.2 function

One hand, this mode provides a sales Channel for cluster company, by setting shops/exhibition hall, forms a multi-format, multi-level and senior marketing platform, to attract domestic and foreign buyers; the other hand, to provide a unified storage function for the cluster enterprise, after the transaction to go through the output of logistics services immediately. The operation of mode is shown as below:

Cluster enterprises sell their products through the regional logistics center in the business integrated logistics center, use the concentration advantages of professional market to attract domestic and foreign buyers to purchase and store the products in the storage logistics areas of the logistics center. When buyers purchase a variety of goods displayed in the fairs zone, the sales information is entered into the public network platform. According to information of purchased, payment and inventory of goods provided by public information network platform, the logistics businesses in storage logistics arrange logistics activity. If the existing stock is enough, they will immediately arrange assembling, logistics, transportation; if not, they will plan to transport according to the contract between purchaser and business.
4.2.3 conditions of Implement

To achieve the objectives of integrated logistics operation, companies must do the following basic tasks:

First, optimize the supply chain. It is necessary for logistics management to overcome the boundaries of an enterprise, extend to the entire supply chain, implement the logistics integration, enterprise must pay attention to the design and management of supply chain. By integrating the supply chain, establish long term partners relationships with the company that strength, good reputation and high levels of information technology, streamline the number of business partners, optimize supply chain system.

Second, the reconstruction of business processes. Business integrated logistics requires to associate logistics activities between related companies, carries out systematic management. in the process of integrated logistics management, enterprises have to redesign the processes inter-enterprise business. By changing the structure or construction, the information and knowledge flow, to design a set of logistics service process to produce the best products in the lowest cost and fastest speed to meet demand of customer, improve the performance of major indicators as speed, quality, cost and customer service operations and other in the business logistics significantly.

Third, build information platform. Modern logistics is developed based on the modern information technology and the Internet. As the logistics information activities cover a wide variety of information, therefore, logistics management depends on the information system strongly. Integrated management requires a close working relationship, needs to master the real-time status information to facilitate the overall decision-making, these are all dependent on a strong logistics information platform. Within the enterprise, establishes local area network of enterprise and Web-based logistics information system platform, so that independent information systems can be connected, exchange and share datas, to achieve communication and sharing of information Synchronous between departments. Through the information platform, enterprises can share the schedule of manufacturing, raw material supply and
market demand and other important operational information at the same time that makes the integration of trade and logistics possible.

5 Conclusion

The manufacturing cluster of Ningbo is big, more and comprehensive, with a larger space for development, but it is not strong. As the practice of secondary and tertiary industries separated development in Zhejiang Province, outsources logistics of manufacturing and joints development with logistics industry is a trend. Which specific mode will be adopted, directly related to the joint development results. In this paper, cooperative purchasing and logistics business integration mode are proposed, and fully elaborates the meaning, functions and the implementation of conditions of two modes, provides a powerful guide and reference the joint development between Logistics Industry and Manufacturing Cluster.

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