

MANAGING THE LOGISTIC SUPPLY CHAIN IN CREATING CLUSTERS

Anna Wiśniewska-Salek

Częstochowa University of Technology

Abstract: Contemporary logistics is based on a supply chain, thanks to which the product is finding its way to the customer in the fast time. The conception notices the chain three sides: suppliers, the producing company and the end final recipient which are directly involved in a logistic process. Managers of companies dealing with managing the supply chain noticed also possibilities of the cost cutting, and hence the efficiency improvement and the better customer service i.e. the efficiency, which ultimately gives the opportunity to improve its competitive position in the global market. Resulting benefits from managing the supply chain with their integral role of the logistics allow implement appropriate amendments in structures and individual strategies of enterprises. One of the opportunities of development is the formation of regional clusters which are gathering trade entrepreneurs of the given region. Small and medium-sized enterprises (SME) very often don't have developed a strong competitive position in the scale of the country and adequate logistic infrastructure, therefore aren't having a chance on international markets. Creating trade organizations providing possibilities for getting foreign markets, through the cooperation with other enterprises on the plain of e.g. managing the logistic supply chain in the international scale are opening the doors for enterprises of the SME sector to the economic and technological development causing the rise in the economy of the given region.

Keywords: clusters, logistics, supply chain, economic development.

1. Introduction

The way which contemporary supply chains are functioning is based on the economy as well as peer pressure exerted by the competition. The appearing of new markets in form of open materials sources, supplies of work and the sale, development of computer and telecommunications technologies, through the faster flow of information are constitute a few factors of the driving force for logistics. Others related to cost pressure reduction, forcing the ongoing savings on individual processes inside the establishment and increase of competition, where maintaining a high position depends not only on the quality and price but also on maintenance processes [8.].

Continuous changes in the environment and the expectation to logistics, which connects the realm of supply with the sphere of distribution, causing the emergence of new trends, which should include the development of global logistics strategies, focusing production, the centralization of stocks, the growth of importance of the postponement principle, and the location principle. The defining the strategy trends, should be adapted to placed through local market requirements simultaneously taking into account the relations that take place between the production and distribution, and growth trends in the centralization of management .

Manufacture of certain products in one production plant in order to specialize and trends in the reduction of storage and centralization of stocks, must depend on the need to supply to all local markets as well as the placement of stocks close to the place of production or the buyer. In turn, the possibility of limiting elements or basic products to achieve a high degree of diversification of products offered to the customer should strive to a level where configuration and finishing of the final product may be on the local market. The growing challenges of the market leading companies to streamline processes and increase the integration of both horizontal (within the same supply chain) and vertical (creating a logistical supply chain.) The degree of integration influences relations occurring between participants of the chain, lack of buffers and inhibition in flows between the cells is characterized by a strong integration (which is presented Figure 1.), the poor integration of fosters lack of continuity in the implementation of contracts and clearing of concentration on the movement of products.

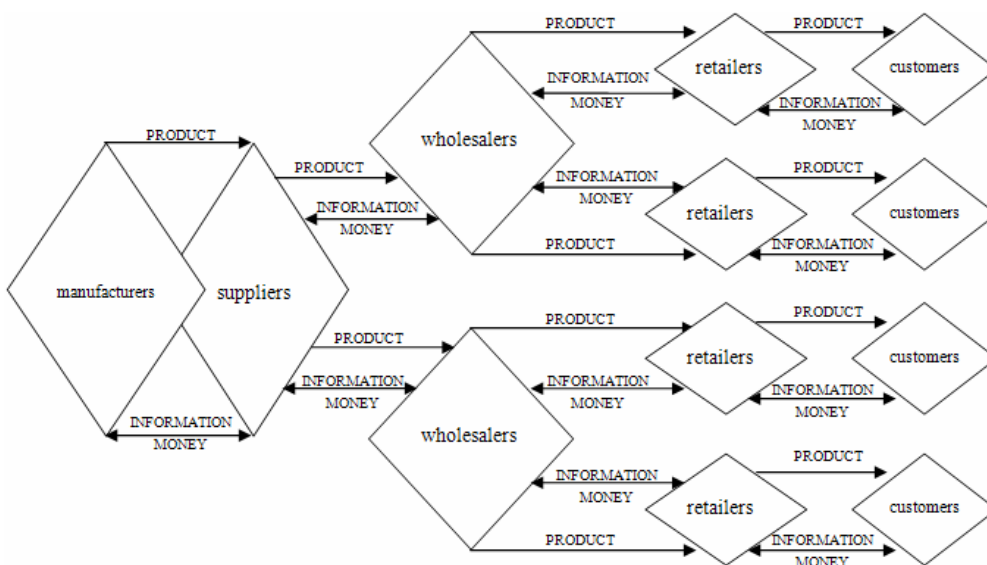


Figure 1. Process integration in supply chain

Source: own work based on the [1.]

Integration in the operational area, based on harmonization and standardizing the information and products in such a way, that all cells are able to operate under the same rules, without unnecessary formalities. In turn, a strong integration on planning level, allows access to information including a current customer demand and production capacity throughout the chain to the same extent. There is also the role of the so-called supply chain leader, which is not abusing his position is able to "insist" actions on partners desired for the whole chain and has the sufficing driving force in order to fulfill the common goal. Enterprises of the chain form area which doesn't require the resignation from the rivalry, but they are deprived of antagonistic relations. The integration improves the efficiency of the chain, through better understanding of customer needs resulting from the market knowledge, effective response to the changes obtained by the rapid flow of information in the supply chain. Frequent rotation and adequate supplies, reduce customer service costs, high quality and adequate circulation of cash and increasing the productivity of assets, are the benefits of integration, as a consequence of the supply chain has a high degree of confidence of trading partners, which determines the spiral of value [2.].

2. Supply Chain Management Strategies

Competitive advantage, being an essential objective in supply chain management is achieved, inter alia, through, fast response to market signals, high value, quality, flexibility and capability to change and low costs. However, these targets are often treated as a partial and helpful for internal processes improving, and the cycle of the contract and reduction of inventory is a key to achieving supply chain advantage understood as a single organism.

Various cooperating areas between chain links, hampers the effectiveness of rapid response and efficient customer service by obtaining a competitive advantage. Compression time to respond to the demands of customers, called conscious decisions and actions, leading to increased revenue, but should not forget the environmental considerations and the potential inside the chain, which may lead to an acceptable overrun level of cost. A key condition for the implementation strategy for a rapid response is the immediate transfer of information on demand from retailers by means of computer systems, which are used to monitor the status of stocks [14.].

The main problem in supply chain management is an order time gap, which arises from a coverage supply to demand and so-called nature of production, or manufacture products to order. The effect of planning action for closing the temporary gap is presented on Figure 2. Logistics response time otherwise defined as the length of the supply cycle, means the extreme times of manufacture products starting from procurement of raw materials to provide the customer a finished product. Implementation order cycle for customer, specifies the time in which the final recipient from the moment of order it is willing to wait for its receipt.

In order to shorten the gap, the company should maintain inventories of raw materials and finished products likely to handle the increasing demand, or shorten the subprocesses that make up the process of execution of the contract by eliminating cells that do not meet the requirements in line with the operation objectives of the supply chain. Another way to shorten the gap is extending the period of the contract implementation, achieved by offering additional benefits in the form of lower prices, or extends the term of payment. The second way is to integrate the information flows within the chain, taking into account the formal sales data, which has a control above chain, including customer's needs. The information are provided using the automatic identification techniques [5.], directly getting through to all participants of the supply chain, thanks to this, simultaneous and immediate reaction follows emptive customer's order, where the cycle of order execution is conventionally extended [2.]. To effectively reduce the time gap, it's necessary to clearly identifiable place of origin the customer's order, which determines the dividing point, defined as a "place in the production process separating the parts which in all actions are carried out in accordance with customers orders, from the part determined on the basis of demand forecasts". Location of point of distribution coincides with the place, where inside the stream of goods accumulated stocks are created for the execution of the contract " [3.].

Stocks in the supply chain are held in different phases of the flow, its location depends on the industry, the nature of the product or market environment, a place of his localization is closer or farther away from potential customers, depending on the rotation.

Inventory reducing is a very difficult action, with the maintenance of proper size can be achieved by increasing the information stock, where the electronic road are used for transmission speed. Another solution is store, which is managed by the supplier who has the most current information about the reported demand. Better inventory management is also achieved through computer systems, automatic identification [6.], handling and use of intermediate cells. All solutions for inventory management, should take into account the distances that separate the manufacturer with a warehouse of raw materials and intermediate

handling or distribution centers and finished products warehouses, which are the last link connecting them with the customers [7].

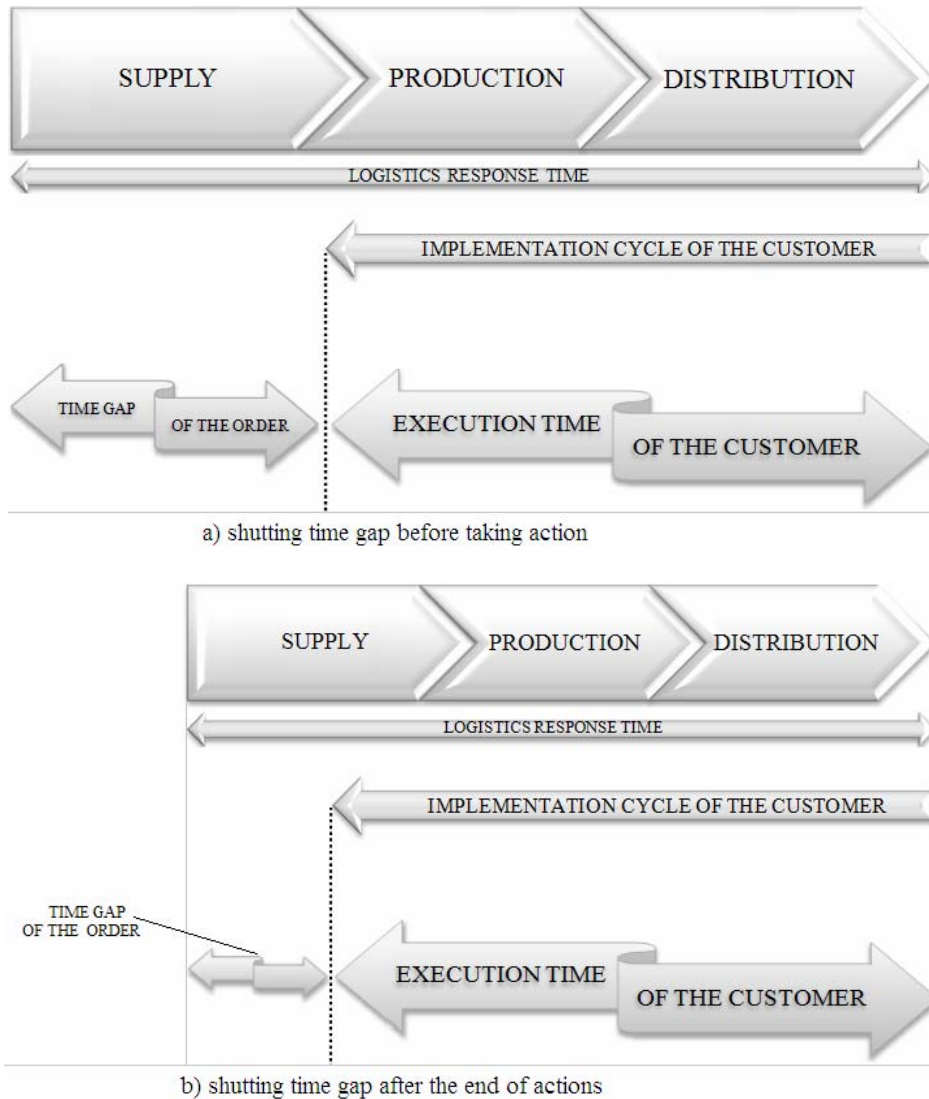


Figure 2. Shutting the time gap in the supply chain

Source: own work based on the [2.]

3. The supply chain, clusters and the competitiveness

Globalization affects all sectors operating in today's economic environment. The global economy is characterized by a high degree of co-operative relations between the operators, which represents the global supply chain. It is globalization which by the setting of logistics trends, stresses the importance of the problem of controlling the physical and information flow in supply chains, resulting from the need to overcome the increasing distance and affect the coordination of these flows.

Participation in the global economy, forces abide by strict regulations, which the small and medium enterprises are often not able to cope. Therefore, you can see more and more mergers, acquisitions, or creating global centers, where system integration is focused on knowledge, technology and organization. Such activities are also increasingly applied to the SME sector. Companies participating in the flows, the global supply chain, should take measures related to cross-docking, outsourcing [9.] interaction to take financial risks or in cooperation in the areas of information technology, transport and storage. Enterprises should focus on creating and managing organizations that are network related, finding the external logistics providers and the differentiation in terms of products, needs and customers' expectations. Overall functioning in the global supply chain is geared to achieve a competitive advantage in the global market in which the rules should take into account the logistics and have a long-term character, ensuring adequate time to adapt to them by the participants [13.].

Table 1. Common features of enterprise networks and clusters

COMMON FEATURES	
BUSINESS NETWORK	Voluntary associations Investing in the creation of relationships Loose connections Autonomy of individuals in terms of economic and legal Transfer of resources between units Create and strengthen information channels
CLUSTERS	Reciprocity of benefits The interdependence of traders on the resources controlled by other companies

Source: own work based on the [12.]

Business networks and networked organizational structures, creating a new opportunities to develop business relationships, that are flexible in time and space. Internal links have vertical and horizontal character, giving you the chance for success in the form of specialization, flexibility increase and potential. The target of network organizations is internal restructuring while ensuring external growth. Creation of supply system according to uniform methods, thus improving their effectiveness, and increase confidence both within the network (through flows of information), as well as between buyers and sellers, and a continuous and ever-better contact with the market, will allow on fulfillment consumer expectations.

In terms of goals which reaches a network of organizations, a network of enterprises or clusters, can be noted that supply chains are based on the same efforts (Table 1.), while the competitive background (in terms of competition), is a factor which differs described entities (Table 2.) [12.]. Aspect of obtaining the benefits and losses from point of view consumer and business, depends on their position and could fluctuate around a structured organization (hierarchy) and the market, also depends on the environment and the impact of globalization. Network characteristics also relate to the presence of competitive relations between them, open access to the networks and the existence of a leader or main unit, which manifests a hierarchical behavior [11.].

Functioning, on the local market, national, international or global mentioned earlier, it relies on forcing the competitiveness and efficiency through competition between operators, offering the supply of goods and services, often using price and quality. Market and the State are the primary regulators of economic processes, but it should also be seen appearing in various forms of cooperation, which regulate business conduct in a manner non-confrontational and non-market, which can include economic self-government, strategic alliances, as well as centers of firms in the form of groups, bundles, networks.

Table 2. The differences between the network companies and cluster

	DIFFERENCES
NETWORK COMPANIES	No territorial restrictions Measure from the inside Implementation of own goals by individual network operators Cooperation
CLUSTERS	Region activation Outside activities The existence of entrepreneurial company Concentration of spatial entities Competition and cooperation

Source: own work based on the [12.]

Clusters (networks, groups of enterprises) they constitute the regulation which isn't in the end national or market, but they are demonstrating elements of the certain kind symbiosis between the market and cooperative elements, where he is active both as a mechanism of competition and selection. Often, they are a good way to achieve the effect of the competitive advantage over rivals (often foreign) [4.].

Literature presents a variety of cluster concept term, but for the purposes of this study Porter's definition of cluster is adopted. "A cluster is a group of companies and other entities, which include associations, chambers of industry and trade, scientific bases, etc., which is characterized by geographical proximity location, a variety of intense relationships, and players recognize the benefits of a common location and cooperation, i.e. external benefits of scale, synergies and diffusion and the positive externalities " [10.].

According to M. Gorynia main task of the cluster is to improve the competitiveness (Figure 3.), this feature can be viewed in three dimensions: competitive position, which is the result of an assessment by the buyers what the company offers on the market, competitive strength, as all the resources together with culture, organizational structure, strategic vision and a way to keep business and competitive strategy, which includes a set of instruments, such as quality, price, assortment, promotion and sale.

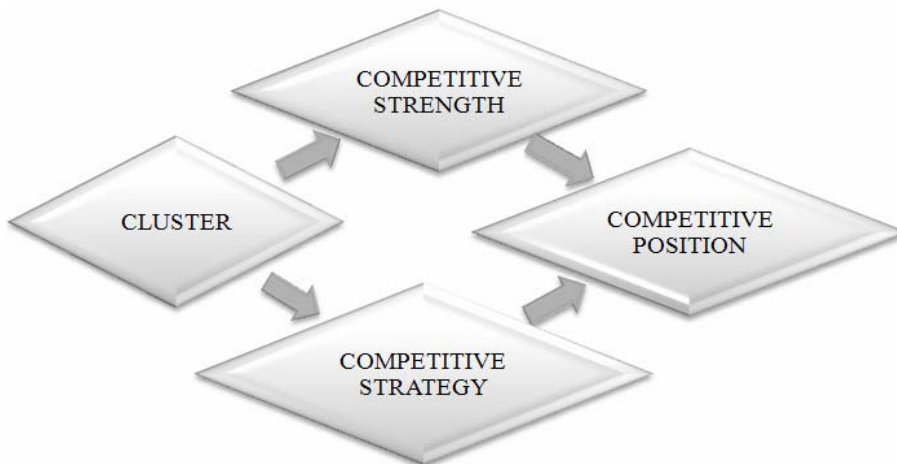


Figure 3. Cluster influence on competitiveness

Source: own work based on the [4.]

In consideration of the impact of clusters on the competitiveness, we would point out the benefits it brings to participate in the cluster. Diagram presented on Figure 3 shows that the cluster directly affects the capacity and strategy, and both contribute to improving the company position. The confirmation of this fact, are the benefits of participation in the cluster quoted in the literature. The competitive potential is generating access to specialized and advanced resources (key skills, venture capital), suppliers, services, infrastructure and proximity with innovation related branches, supported by institutional links. Strategy of compete in turn helps in accessing to demanding clients from international markets, allows the proximity with market rivals, which are exerting impact for better risks management related with innovations [4.].

4. Summary

The activities of enterprises, consisting merely of cooperation in supply chains and dependencies occurring between the participants, during the downturn in the global economy, undoubtedly fail to obtain a competitive advantage in the chain. Presented in the article ways to improve the competitive position of companies in their respective sub-activities are based on similar assumptions. Integrating the supply chain, with emphasis on the importance of information flow and delivery time, entail the maintenance of adequate stocks. Clustering based on the activity of the local environment, the ability to entrepreneurship, access to innovation and knowledge. The two main currents, and hence supply chains and clusters, which affect the improvement of market position, have one major thing in common without which could not functioning, it is mutual entities trust. Creation of clusters, as the business initiatives in the existing supply chain would lead to the creation of the center managing the entire cluster, and this could be the role of the supply chain leader. Functions of the leader would include generating strategies, methods of management, cluster innovation management, which don't differ from the general tasks performed by the supply chain. The cooperating entities, both large companies, which have an impact on each other, as well as SME companies cooperating in a cluster, will give possibility to improve and standardize the products quality and services, with support in effective use of outside funds. These solutions often wouldn't be able to reach for small and medium enterprises and for large companies, without adequate support in the knowledge which came from external institutions, would not guarantee success in foreign markets. The external development of clusters requires funding for IT infrastructure, which supply chain already has. In addition, the clusters are generating need of R&D with their implementation, the construction of the financial system, improvement of legal institutions and political support. Given the regional narrowing and quantity of self-government institutions, these factors do not constitute a strong barrier, which could adversely affect the formation of clusters.

Both the supply chains and clusters affect the enterprises development, are generating higher competitiveness and with the strength which they together imply an economic growth allows to improve the image and position of national enterprises on international markets.

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