

## INFORMATION FLOW IN SUPPLY CHAIN MANAGEMENT WITH AN EXAMPLE OF WASTE MANAGEMENT COMPANY

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**Abstract:** The paper presents information flow process in management of supply chains. Authors notices information flows as a driving element of the global supply chain. Authors points also on the logistics aspects in supply chain of waste management company.

**Keywords:** information flow, waste management company, supply chain

### 1. Introduction

Globalisation and growth of competition, from a perspective of European Union accession, causes that companies search for management concepts which enable the efficiency of operation to be improved and, consequently, they lead to improvement in competitive position in the market or to holding current position. Under current conditions, supply chain management seems to be a concept with fresh perspectives. It is caused by the fact that this concept does not mean the negation of current relationships between supplier and customer which are frequently contradictory and focused on taking advantage of the market situation at the expense of supply chain partner. In return, the concept of supply chain management focuses on close cooperation of organizations which are the links in the same supply chain in order to achieve stronger competitive position on the market through effective management.

### 2. Analysis of the concept of supply chain management

Supply chain management is a relatively new concept, which was first meant by consultants in the early eighties and since then the concept has gained on popularity in scientific papers on logistics and management. However, the scientists working on supply chain management frequently make reference even to scientific output of the fifties or sixties. Practical use of the concept seems to be proved by the fact that the results of investigations carried out in 1993 in the USA among 325 logistics experts, members of American Council of Logistics Management indicated growth in importance of cooperation between companies and inter-institutional aspects of supply chain[1]

This mainly concerns specific approach to a group of cooperating companies, which eliminates many currently existing barriers and which is performed in order to manage and coordinate flow of goods, from raw materials to finished goods purchased by customers and other users. This cooperation is focused on achieving high efficiency of each company and their network as a whole, due to integration and coordination, as well as optimisation of the added value through all the links in the chain until the product expected by the customer.

Success of supply chain management depends on integration and coordination of three types of flow[2] (see Fig. 1):

- information
- goods
- cash.

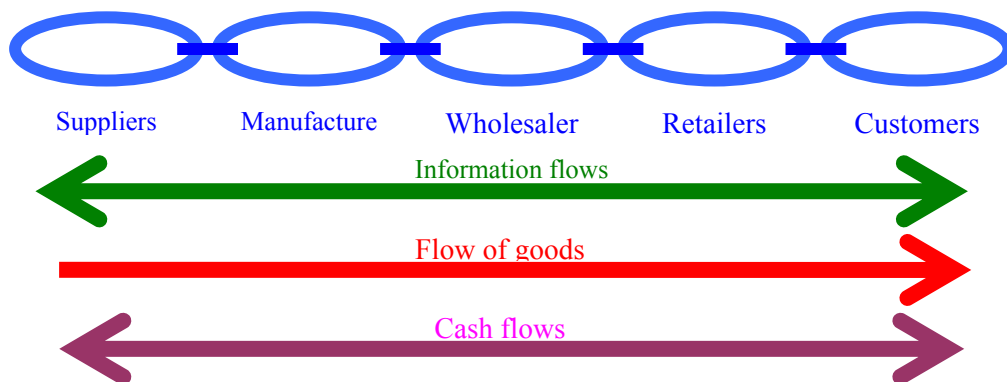


Figure 1 Factors of supply chain integration [3]

In practice, the phenomena of relationships and divisions in logistic chain occur [4]:

- In procurement, these activities are undertaken and realized which enable delivery of many various materials and cooperation elements in a defined amount, assortment and quality in a due time and at possibly lowest cost to the particular location, i.e. production process. Thus the phenomenon of interrelation of material stream and cooperation elements occurs.
- In distribution, such activities are undertaken and realized which provide the customers with finished goods in a demanded quantity, assortment, in a due time, with possibly lowest cost and in defined locations. Thus in distribution networks the phenomenon of division of finished goods supply stream, as far as to final recipients occurs.

Each change in location of materials and finished goods and the relevant information in logistics chain is connected with overcoming the time and space. Time aspect is connected with necessity to obtain as short time of flow of materials and finished goods as possible for individual links and in whole logistics chain.

Spatial aspect, however is connected with all necessary activities of relocation of materials and finished goods from one link in the chain to the another one [4].

Definition of logistics chain according to Bowersox says that *logistics channel (chain) means a number of entities (companies or organizations) which cooperate together in an integrated way in order to deliver right product to right place in right time while ensuring appropriate quality at possibly lowest cost* [4], which proves its key character.

With this approach, a logistics chain, according to flow orientation, encompasses cooperating companies, areas of cooperation and internal areas of company. Thus it comprises many links which must be related to each other in order for the chain to be reliable. They can include[4]:

- suppliers of materials,
- suppliers of cooperation elements,
- shipping companies,

- transport companies,
- warehousing companies
- final product manufactures,
- packaging and trans-shipment companies,
- wholesalers,
- dealers,
- agencies,
- retailers.

Number of links comprising typical logistics chain may vary. Depending on the logistics strategy assumed by company it can build more or less complex logistics chains. In present economic reality a position of a company in effectively operating logistics chain is of great importance. Thus the need appear to build such a relationships with their market partners so that, from the point of view of the goals set by the companies, they are effective and give the opportunities of proper realization of processes of flow of goods and information in the whole chain. Before building the logistics chain where the company is to operate, the answers to the following questions should be found:

- What are company's strategy and goals?
- What does the company need to achieve cooperating with other partners in logistics chain?
- How much financial resources should be spend in order to achieve set goals?
- What should be the concept of organization of logistics in company?
- Which solution from the suggested alternatives should be chosen?
- How the chosen solution should be implemented and developed?

Answers to these questions should be known, justified and accepted by the board and management in a company before making key financial decisions.

Preparation of concepts of logistics chain in which a company is to exist should start from specifying and agreeing by all the involved parties the requirements on target system. Moreover, these requirements should be the result of careful analysis of the needs which takes into consideration mainly service initiatives of the company in the market.

The focus should also be made on specific goals in a company, which will provide for other aspects, i.e.:

- operation under conditions of competitive market is connected with necessity of careful monitoring of the competition activities. Planning and implementation of the structure of supply chain is necessary. Such a structure must be effective both in terms of expenses incurred on building of it and other factors.
- A company confronts the necessity of consideration of strategy of building the supply chain which enables the set standards of customer service to be achieved.

System approach to building strategy of supply chain described as above ensures right decisions on choice of organizational solutions to be made. Such an approach leads also to making the decisions which minimize investment risk and to ensure set business goals to be achieved. Implementation of an integrated system encompassing both finance/cost and the sales areas of a company's operation is therefore a necessity.

### **3. Information system in supply chain in Sita [6, 7]**

Sita is a company which cooperates with ca. 2.7m Polish citizens and 3.3 thousand of companies. A particular attention should be paid to the services for partners who can be

provided complex services. The company ensures consulting and prepares individual, most effective systems of service. Such cooperation enables flexible approach to solved problems and optimization of processes of their realization.

Sita realizes tasks in terms of:

- consulting and waste management planning,
- collecting and disposal of municipal waste,
- collecting and disposal of industrial and hazardous waste,
- planting and maintaining the green,
- yearlong (mechanical and manual) maintaining of road and squares cleanliness.

The company cooperates closely with the Capital Groups of an international range. It provides services for PKN Orlen, Pizza Hut, BP, Shell, Statoil, Castorama, Selgross, IKEA. Sita's partners include biggest Polish building companies: SKANSKA S.A., BUDIMEX S.A., MITEK S.A., WARBUK S.A., HYDROBUDOWA S.A. Since 2004 it has developed in terms of providing services for nationwide networks of branches, such as Mc' Donald and Kredyt Bank S.A., Elektro World, Conforama, CAT Logistic. It offers services all over Poland for cities, towns and gminas, housing cooperatives, council houses, condominiums and individual customers. The company ensures that, if possible, the waste is selectively collected. In many branches throughout the country it realizes selective disposal of municipal waste with the division into paper, plastics, glass and metal. In several of them the company is equipped in sorting lines. Thanks to it the recycling materials can be more efficiently recovered from dry fraction of materials. Selectively collected industrial waste enable choice of most effective solutions in terms of processing and recycling of the waste. Considerable store is set by proper hazardous waste treatment, forwarded to the entities which deal with such an activity. Sita Group manages two installations for industrial waste treatment. The company aims to minimize fraction of waste which reaches landfills. Only non-recyclable waste is forwarded to modern landfills with specialized protective and monitoring equipment.

The investigated company is characterized by complex consideration of operation and logistics subsystems which is realized by supply chain management. The logistics chain is made up of four fundamental links:

- unit which generates waste, which is subject to further processing (e.g. a company, an inhabitant),
- entity responsible for waste collection and its transport by means of leased containers to another link in the chain,
- units whose task is to sort the waste and then its recycling,
- last link in the chain is a landfill, where the non-recyclable waste is forwarded.

In the supply chain operating in such a way it is necessary to support the material processes with the software which optimizes these processes. In the investigated entity i.e. Sita Częstochowa, an invoicing and accounting software application of RUOM is employed. Main part of the software is based on CRM solutions. The theorists claim that CRM is not only an IT system but a comprehensive modern marketing strategy for businesses. CRM is an abbreviation of *Customer Relationship Management*. Relationship management means in this case:

- monitoring all the relationships with customers,
- monitoring the tasks performed by the employees providing services to the customers,
- monitoring whole projects connected with multiple customers served by the employee teams.

All the operations are usually performed using notes, various support applications and most of data are stored in people's memory. Implementation of CRM system consists in moving all customer data and information on processes connected with customer service to the software. Access to this data and processes is granted to anybody who needs such information.

Key benefits of implementation of CRM system include:

- possession of one, homogeneous and coherent database for all information on customers,
- possibility of fast searching for information on customers according to different conditions,
- independence from knowledge on customer known only to particular employees.

Unfortunately, implementation of CRM system is connected with huge workload and necessity of maintaining high self-discipline after the implementation in order for database to be always updated. However, proper implementation of the CRM system and strict adherence to procedures for registration of data and information on customers, contacts with them or performed tasks enables prospectively improved customer service.

RUOM system employed for the investigated company is comprised of four main modules; maintenance module is the most important one, while three remaining are designed for settlements, invoicing and controlling. The system is used by four divisions of the company, i.e.:

- Accounting,
- Bookkeeping,
- Maintenance,
- Controlling.

Each division can use the data from the system. They can also make corrections and changes in records concerning a particular customer or various events which took place in a company. The system also gives opportunities of preparation of reports and analysis on the basis of data contained within the system; there is also an opportunity to move them and process in Excel software.

The system shows several benefits which enable the market advantage to be achieved by the company. By using information flow throughout all the links of logistics system in supply chain the effective management of these processes and, consequently, making proper decision in a given area have become possible. Application of the system for improvement of customer service, which is an overriding task of any supply chain, has become of key importance.

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