

# INFORMATION FLOWS IN SUPPLY CHAIN MANAGEMENT

## *Are Road Transport Companies Involved with Supply Chain Planning Processes?*

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**Abstract:** Businesses are increasingly facing global competition and therefore they meet growing demand for cost efficiency and customer responsiveness. Time-based competition is more a precondition than a source of competitive advantage at present business environment. At the same time companies are concentrating on their core business and outsourcing supporting operations to network partners. Logistics and transports are typical example of outsourced functions. Information management is one key element for effective and reliable supply network operations. This research clarified the role of road transport companies in the supply chains and identified discontinuations of information management and partnership operations from the view point of transport companies.

## 1 INTRODUCTION

Globalization and integration of markets have risen to a significant role in today's logistic business environment. Businesses are operating in a global marketplace and the demand for cost efficiency and customer responsiveness has increased. Therefore, global location of production and distribution facilities and time-based competition are the major driving forces in today's business environment. At the same time customers increasingly demand for wide variety of products with minimal lead-time. (Bhatnagar and Viswanathan, 2000), (Childerhouse et al., 2002) Also unpredictability of material demand is constantly increasing and therefore sets pressures for decreasing logistics lead-time even further. Therefore supply chain management has become an essential source of competitiveness and its significance has continuously increased (Singh, 2004).

In addition to many opportunities, globalization also brings along various demands. E.g. the current global economy demands the highest quality products at the least cost regardless of where the product is manufactured. Operating in a global market may also increase the uncertainty in the company's operations, which may in turn lead to considerably increased inventories and longer lead-times through global supply chains. (Bhatnagar and

Viswanathan, 2000), (Bhutta et al., 2003) When globalization increases and becomes more important in the business environment, companies will take a more global view of their operations and the importance of distribution and logistics functions will increase. Efficient logistics performance is recognised as an important source of competitive advantage and a crucial strategic imperative for the success of companies (Bowersox, 1990), (Rantala, 2006). In addition, competition will be increasingly between sets of networks based on deep partnership rather than individual firms or supply chains. This is often represented as one major trend in today's logistics, but interesting question is, whether road transport companies as part of the network are treated and operating as genuine partners in supply chain management.

Outsourcing is one major trend in today's business environment and logistic operations belong typically to the outsourced operations. The reason for outsourcing is mainly to achieve competitive advantage for the core business of companies. The extent of outsourcing has been gradually increased to larger entities and outsourcing has become a more strategic factor in companies (Brewer et al., 2001).

One obvious development trend in the business environment seems to be an attempt to keep inventories in motion in order to avoid capital investments in product inventories and a tendency to

push inventories onto other partners in the supply chain. On the other hand this trend is due to a lead-time decrease in the whole supply chain. A key point in supply chain management is that the entire process must be viewed as one system, but still the performance of each member of the supply chain affects the overall performance of the supply chain. (Christopher, 1998), (Bhatnagar and Viswanathan, 2000)

All the perspectives described above emphasise the significance of supply chain management for business operations, dynamic nature of logistics and imperative of partnership relationships through whole supply network. There are certain differences between business areas and all the operations does not have strategic role for other business partners, but in general the transportation companies have a critical role in success of supply chain operations and collaboration is a basic element in supply chain management.

The purpose of this study was to identify the role of transportation companies in supply chain management and to clarify the relationship between supply chain planning and management processes and road transports. Main research questions were:

- How are road transport companies involved with supply chain planning processes?
- What is the role of road transport companies in supply networks?
- Are road transport companies strategic partners for trade and industry?

Hertz and Alfredsson (2003) emphasised creating networks and acting in networks as primary approach in outsourcing logistics activities. By using 3PL (third party logistics) providers' services, companies can be both directly and indirectly related to other firms and they develop thorough relationships with other companies. These relationships exist not only between customers but also with suppliers, partners and customers of companies' own customers. Trust between companies is especially important when network development involves economic, technological and knowledge exchange. This also describes well the nature of networking and partnership.

Collaboration is closely related to partnership and the presented research questions. There are various elements of successful collaboration, which are not examined in detail in this paper. As the road transport companies may be in various positions in supply chain networks, the elements of collaboration may be different and the significance of elements may also vary. Road transport companies may carry out single assignments or they may be involved as a

strategic partner in supply chain planning and operations taking complete responsibility of bigger entities in supply chain. The different roles are taken into account in this research.

One basic element in this research was the fact, that in order to meet the increasing demands set by trade and industrial companies, transport service providers will have to broaden their service supply. These requirements necessitate networking with other service providers. The networks should be capable to perform both planning and management of logistic processes according to agreed needs of transport customers and also to provide physical transports and inventories reliably and in time. Offering enough capacity to take responsibility for larger entities of the logistic chain requires at least bigger company size or a network of transport companies. (Rantala, 2006) Interesting approach from this point of view is to clarify the actual role of road transport companies in this kind of strategic partnership cooperation.

The research work can be divided into two parts. Theoretical background is based on research process in 2002–2006 leading to a doctoral thesis focused on heavy industry and its transportation systems in Finland (Rantala, 2006). Empirical part is based on research project conducted in 2007, where the focus was to examine the logistic system-level factors affecting the systems of road transportation, traffic safety and the attractiveness and development of the road transportation industry. The goal was to find system-level development targets in order to enhance the operation models in the industry. This research project focused on three areas of transportation in Finland: consumer goods, forest industry and food industry (Salanne and Rantala, 2007).

The theoretical part of research work is based on both literature survey and material from interviews with experts carried out in 2002–2005. These interviews consist in total 99 interviews with 120 representatives in Finland and abroad. The empirical examination is based on 23 interviews with representatives of Finnish trade, industry and transportation companies. These empirical results were presented and developed further at a workshop, where 30 representatives of interest group of road transportation industry were participating in development work.

## 2 FINDINGS

Company size is very small in Finnish road haulage industry, on average only 3.4 trucks per company. Therefore road transport supply is quite dispersed in Finland and usually transport companies are specialised in certain business area. Capability to serve wide variety of customers and transportation or logistic needs is limited. Therefore it is necessary for Finnish road haulage industry to increase company size by networking or organic growth in order to provide more sophisticated logistic services to satisfy the increasing demands of trade and industry. International road transport systems are already mainly based on networking with multinational logistic corporations and their service supply. In general, the small average company size seems to be a reason for road transport companies not achieving a strategic partnership position although their role often constitutes critical phases in supply chain operations.

Main finding of the study is that the supply chain includes enough information for the effective use of transport capacity and transport planning, but transport companies are usually not involved in these information flows. Lack of information is not due to technical restrictions. From information management perspective the transportation companies appear not to be considered as genuine strategic partners regardless of their important

position in the supply network. Thus the basic feature of true partnership does not realize in this part of supply chain. The absence of true partnership is rather unexpected, because physical transportations constitute critical phases in supply chain operations. Figure 1 describes the connection of supply chain management and transportation companies.

There are also exceptions in the road transport related information management flows. For example, transport flows of raw wood are well planned and accurately controlled, utilising effectively modern ICT technologies and navigation systems. Possible deviations are also reported real-time in both directions.

## 3 CONCLUSIONS AND FUTURE RESEARCH

Better information system compatibility would be an important development target for the communication systems between transportation company and transport customer. This would enhance deviation management in the supply chain and enable proactive planning of resource allocation in transport companies. Deviations usually reflect on the next phases of the supply chain depending on the type of transportation.

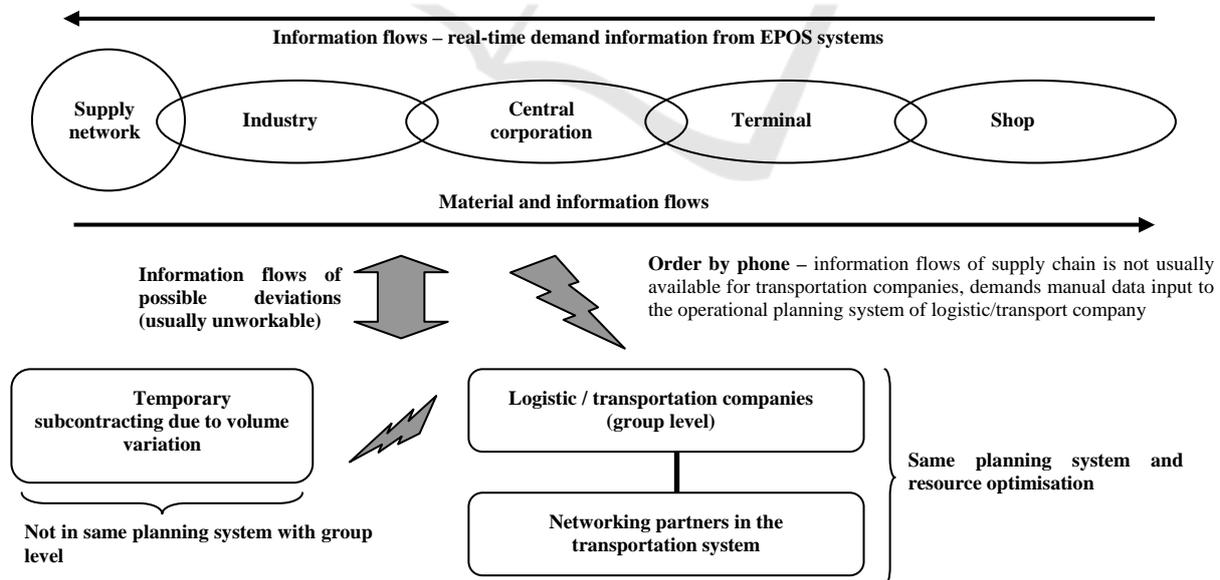


Figure 1: Information flows as an example in grocery supply chain from transport company point of view.

Planning of resource allocation is increasingly significant for road transport companies due to tightened EU regulations related to drivers' work and rest time legislation, increasing number of product-specific special requirements and increasing control by digital systems. Therefore transportation chains and single operations must be based on detailed plans, follow-up and information exchange.

Proactive planning is essential also from environmental and economical perspectives. Continuously rising fuel costs forms increasingly significant cost item, which presuppose effective resource planning and utilisation. Transportation industry is a significant source of emissions, too. Climate change discussion emphasise the clarification of carbon footprint for supply chain operations and the proactive planning of transport operations in order to reduce fuel consumption and emissions.

Results indicate that road transport companies are usually not in a genuine partnership position in supply chain operations. There are a plenty of other features related to partnership relationship, which are not discussed here in detail. For example, cooperation in business planning toward common target, shared interest in profitability of cooperation, and reliable and open discussion connection between supply chain partners are fundamental collaboration forms that occur relatively seldom in the supply chain management between industrial or trade partners and road transport industry in Finland.

Purpose of the study was to examine the logistic system level factors that affect the operation of road transports. Attractiveness, competitiveness and development of road transport industry have been as a main interest. The main purpose has been to examine the partnership relationships related to road transports. Results indicate that there are many requirements for reorganising the transport industry in Finland in order to provide wide variety of high quality logistic services. Changes anticipate a development towards a genuine partnership position with trade and industry. A further study of basic conditions of genuine partnership operations between road transport companies and its customers would be needed to define, what kind of elements are essential, how information exchange and management should be solved and how the goals for cooperation could be set. This approach would provide deeper analysis of the role of road transport companies in the supply chain management and the development process towards a genuine partnership role.

This research work will continue with next phase studying the future development of road transport industry specialising in operation models and availability and qualifications of work force. This research phase has started in March 2008 and will be completed at the beginning of 2009.

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