

GLOBAL TRENDS AND PRACTICAL EXAMPLES OF SUPPLY CHAIN MANAGEMENT WITHIN THE MOBILE TELECOMMUNICATIONS INDUSTRY

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-Abstract-

The OECD roundtable was publishing a conference paper on impacts of the economic crisis on globalization and global value chains (Escaith, 2009). Besides macro economical results of the 2008 global crisis the microeconomics of supply chains and trade in tasks were in focus. In order to increase the efficiency of the supply chain operations in a particular supply chain in spite of the current difficulties, a good structured collaboration should be established between the parties. This will bring closer the participating companies to each other in the different levels of the supply chain, and foster a co-operation of an effective material and information flow between the parties. Our paper is looking into theoretical basics and definitions of logistics and supply chain management. Based on these the special needs within the telecommunications industry will be highlighted and strategic long term as well as tactical short term co-operations, which foster the openness and trust, will be worked out.

Key words: *Supply chain, demand chain, logistics, co-operation, strategy, telecommunications, economic crisis*

JEL Classification: L63, L96, M11

1. INTRODUCTION, THEORETICAL EXPLANATIONS AND IDEA OF THE PAPER

The economic and financial crisis of 2008 changed almost every industry, companies had to face high demand volatility and fluctuation, and in most of the cases this went hand in hand with significant demand decrease which can be called demand volatility. Demand volatility is a reality in many industries, from discrete manufacturing to process and telecommunications industries. Not only

are retailers serving end consumers facing volatile demand, but this volatility is being passed on to manufacturers and distributors at different stages of the industry value chains. As the supply chain flexibility decreased in the recent years, the accurate and reliable forecasting methods will have a more crucial role in the upcoming time for the manufacturing companies, otherwise they will not be able to serve their customers in case of sudden demand changes. In the PRTM management survey 74% of the respondent firms considered poor forecast accuracy and the volatile demand as the biggest challenge that they are currently facing (Geissenbauer and D'heur, 2010). The transition to becoming pull-driven or demand-driven is slowly occurring in many industries.

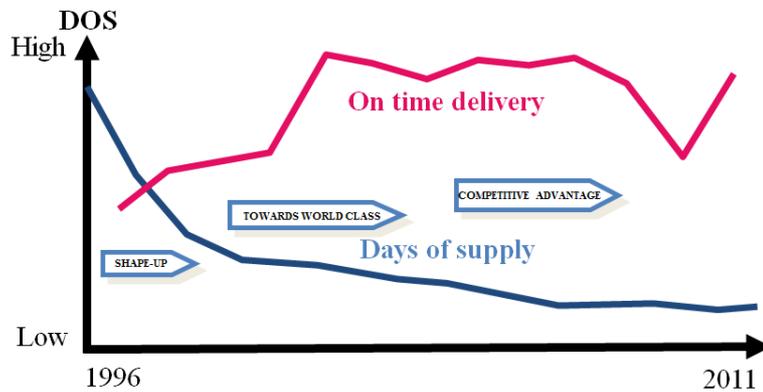
Under these unfavorable circumstances, companies were forced to reduce cost in every possible way, including the reduction of the inventory levels, labor force, production capacity, and the supplier base too, which steps resulted in decreased flexibility throughout the whole supply chain. „A stronger integration of the distribution infrastructure into the production operations leads to positive results.” (Dima, I.C., Grabara, J., Pachura, P., 2010) In order to increase the efficiency of the supply chain operations in a particular supply chain in spite of the current difficulties, a well structured collaboration should be established between the parties. This will bring closer the participating companies to each other in the different levels of the supply chain, and foster a co-operation of an effective material and information flow between the parties. Planning and forecasting is an essential part of business throughout all industries. Especially within the telecommunications industry the demand creation is made by one partner only but it is a joint work between handset manufacturers, mobile operators and other market partners like content provider and application developers. Between manufacturers and mobile operators you need to have an intensive dialogue with open books and high degree of trust.

The telecommunications industry was facing such issues already some while ago and is trying to develop processes to deal with it but just with the global crisis these issues got much more visible. In the year 1995 Nokia got into a situation which changed the entire company and its logistics processes: “Despite strong sales growth, Nokia Mobile Phones profitability was adversely affected by a number of factors during the year. The principal factor affecting profitability was the difficulty of meeting the challenges created by the business group's rapid growth. Profitability was also affected by interruptions in the supply of certain components, as well as logistical issues. (Nokia annual report, 1995) Nokia learned and changed the logistics concept. The proper logistics- and supply chain

model can be seen as one of the success factors which made Nokia the number one in mobile telecommunications.

Figure 1 shows the achievement reached over last years and illustrates the potential of a proper supply chain co-operation. The Days of Supply (DOS) level for the customers which is a major cost factor could get reduced and on the other hand the service level and lead times could be reduced significantly.

Figure1: Nokia customer service and inventories development on global level



Source: Stoerkel, 2010

Understanding a certain industry's cost structure one can elaborate a powerful competitive advantage. And if one happens to be in a manufacturing business, it can dramatically improve one's capacity and production decisions. With these changes in the industry changes came along. Logistics departments in companies got more attention as ever before. In order to deal with the new circumstances like growth with decreased profits there was a need to change and increase the role of the logistics departments. That was the moment when supply chain management was emerged. Later on supply chain and supply chain management will be defined and differences between logistics and supply chain will be worked-out. With that foundation given we will examine the supply chain processes and look into the example of mobile telecommunications industry and Nokia in particular. The summary and the conclusions will highlight the key points and importance for companies like Nokia.

2. TRENDS AND MODIFICATIONS OF THE SUPPLY CHAIN AND SUPPLY CHAIN MANAGEMENT

Often the terms logistics and supply chain management are used as synonyms, but in fact they are not the same, so we should not mix them. The difference rooted in the approach itself, we distinguish them based on the below: Logistics management mainly focuses on a certain individual company, and through planning, execution and control of the processes it is intends to reach the best possible efficiency. However, the SCM concept has a broader view, and focuses on the relationship management of the parties in the network, and tries to harmonize the processes in order to foster the integration. A comprehensive definition of supply chain was given by the Council of Supply Chain Management: „The material and informational interchanges in the logistical process stretching from acquisition of raw materials to delivery of finished products to the end user. All vendors, service providers and customers are links in the supply chain.” (Council of Supply Chain Management Professionals, 2010)

It can also be seen as a collaborative-based strategy to link business operations within the organization to achieve a shared market opportunity (Bowersox et al., 1999). Besides the physical flow of materials there is another crucial factor: The flow of the information between the participants of the supply chain, because without this, a supply chain cannot be effective and efficient. The material and the information flow upstream and downstream through the supply chain is important, so it is a kind of „two-way street”. If there is no honest and open sharing of data between the parties like the handset manufacturer and the telecommunications operator there will be no chance to deliver the right products in the needed volume in time. Chapter 3 will highlight the necessary processes and to-do’s on both sides in more detail. Another definition can be found from Martin Christopher: „Network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer”. (Christopher, 2005)

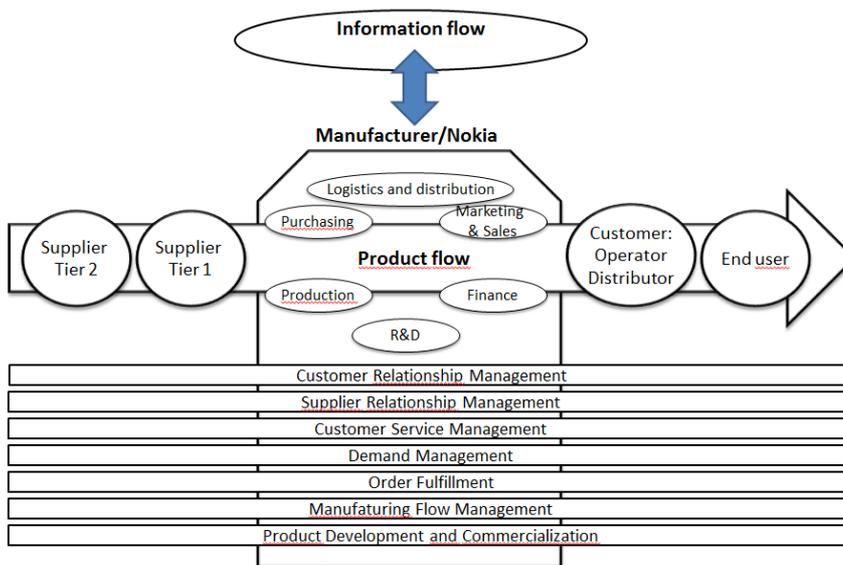
A similar concept can be recognized in the thinking of Lambert: „Supply chain management is the integration of key business processes from end-user through original suppliers that provides products, services and information that add value for customers and other stakeholders.” (Lambert, 2008). One of the key issues is the proper integration. How to bring the participants of the supply chain closer to each other, how to align the business processes of the involved companies to match the data and how to enable an effective way of working to maximize the service level? An experiment for the answer will be explained in Chapter 3.

3. THE TWO TIER NETWORK IN THE MOBILE INDUSTRY: THE EXAMPLE OF NOKIA

In order to describe the interconnections between the different parties it would be useful to speak about networks rather than about chain. The network design problem is one of the most comprehensive strategic decision problems that need to be optimized for the long-term efficient operation of whole supply chain. (Vidal et al., 1996)

In the telecommunications industry the different partners within the supply chain have to adapt their behavior and exchange of information to the new needs based on the economic crisis in terms of speed and openness. As Figure 2 illustrates we can observe a simplified supply chain structure with a two-tiered supply side, and a two-tiered demand side. What we have to recognize is that the supply chain management processes link all the relevant functions within the particular company, and also integrate the mentioned company with the other firms in the supply chain in focus, so it can be described as a cross-functional and a cross-firm involvement at the same time. Therefore it is important that the participating companies have standardized processes in order to cooperate efficiently, and it will end up with favorable results for all the involved parties.

Figure 2: Supply chain structure within telecommunications industry



Source: Own figure based on Lambert, D.M., Cooper, M.C. and Pagh, J.D. (1998) p.2

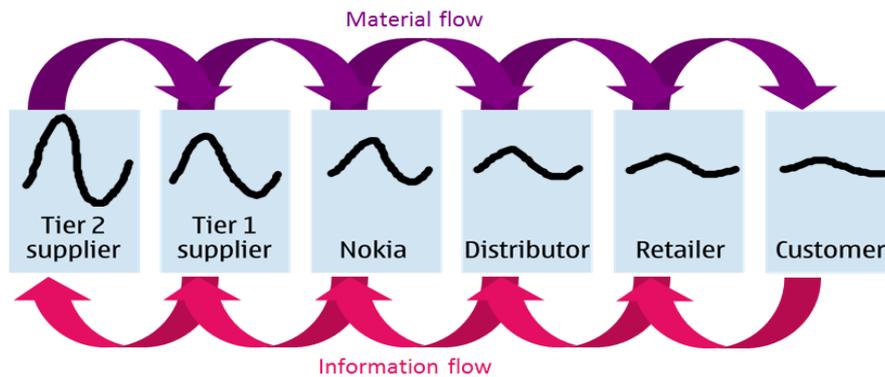
The major advantage of an open communication is the better reliability of the data. All the partners in the value chain can optimize their planning and the individual companies will definitely gain tremendously but the benefits will move beyond the own company and everybody will gain. This will obviously have direct repercussions on the organization and thus add to their locked-in working capital. Supply chain management principles primarily focus on three elements. The company can compress the lead times and raise quality and accuracy at every stage, service will improve thus getting rid of costs out of business. Secondly organizations should take a process view rather than a functional view of the operation. In addition to that working across functional boundaries to integrate business processes in the future is getting more important. Thus change in the supply chain can be focused on improving the characteristics of supply in the context of the goals that have been set for changing the service objectives

As above we had the chance to observe the structure of a general supply chain model, let us project this model to the mobile industry, and see how does it look like in the case of the operations of Nokia.

Nokia as a manufacturer can be placed in the center of the chain, as the company produces the mobile devices in their own factories across the world. The Supplier 1 level represents the direct suppliers of Nokia, from which the company purchases all the needed materials, components and spare parts for their factories, which are necessary for the manufacturing activities, in order to produce the final products for the end consumers. Naturally these suppliers also have their own suppliers, from which they procure the related raw materials, which are the basics for the production of mobile phone engines, batteries, covers, displays, and other essential components. They are representing the second tier, the Supplier 2 level.

On the demand side of the graph the next level in the network is the level of Customers, which are representing the direct distributor partners of Nokia, and its mobile operator partners (such as Vodafone, Telenor, T-Mobile, etc.). In fact, in both of the cases there is an additional level on the demand side of the supply chain, between the Customer and the End User. In case of the channel of the wholesale distributor partners, the goods will flow through the certain retailers to the final end consumers. In case of the mobile phone operators' channel, the end consumers purchase the mobiles from the particular operator, but not directly from its central warehouse. The mobile operators have their own retail channel too, through which the cell phones are distributed, and sometimes these retail shops are operated by a third party contractor. Figure 3 illustrates the supply chain network with the material and information flow limitations.

Figure 3: Volatility amplification – Bullwhip effect



Source: Stoerkel, 2010

With increased speed of information change and in ideal case a complete transparency from all partners within the network we would be able to overcome the bullwhip effect (Disney, 2009) and generate a lot of savings as well would lead to an improved service and availability level.

In ideal case the manufacturer would get daily information about all relevant purchase on the level of point-of-sales (POS). With more transparency in the cooperation the results will improve and a win-win situation can be established.

4. CURRENT SUPPLY CHAIN TRENDS – TENDENCIES AFTER THE GLOBAL RECESSION

As an effect of the global recession the demand of goods like mobile phones decreased. Consumers focused their purchase decisions on the things which are really important and increased their savings. A replacement of a mobile phone is not essential as long as the device you have is still working. For the handset manufacturers as well as for mobile operators that meant a massive decrease of new phone sales. The supply chain had to react fast in order to avoid over capacities and too high cost. The main goal now was to decrease lead times and build up a flexible supply network. In order to justify the need for the collaborative planning efforts between the supply chain members in the current business environment we can examine the survey conducted by the PRTM Management Consultant group (Geissenbauer and D'heur, 2010). The survey intended to analyze the impact of the economic crisis of 2008 to the global supply chain trends, how it influenced the management decisions, and what is its effect nowadays, in the time of financial recovery, across several industries. From the

total sample around 26% came from the Electronics & Telecommunications industry and therefore it can be seen as relevant.

During the financial and economic crisis of 2008, the firms had to face high demand volatility and fluctuation through the whole supply chain across several industries as it was outlined in the introduction already. Due to the significantly diminishing demand, companies were forced to introduce short-term solutions: reducing inventory levels, reduce the supplier base, and cut costs on every level, in order to maintain the profitability.

What was the scenario at the end of 2011? The majority of the respondent companies in the PRTM survey are expecting serious upstream in terms of sales revenue (average 8.3% annual revenue growth till 2012). Today's results underpin that trend and future expectations show that most economies start a rapid growth and much faster than expected.

However, to capture the raised potential of this expected demand increase, companies should need the necessary abilities. The problem is, that in the years of the recession most of the firms did not have the chance to invest (due to limited financial resources) in order to improve their flexibility and supply capabilities, and now they will not be able to react in time to the favorable market changes.

Besides that there are other factors which are further lowering the supply chain flexibilities. The poor performance of certain material suppliers can have a significant unfavorable effect on the supply capabilities, especially in the consumer electronics industry, where the manufactured products' complexity is usually high, and the BOM (Bill-Of-Material) list of an item consist of numerous units. This way the lack of even one particular material can cause huge delays in the production, in case of the sudden de-commitment of a supplier. Relying on these findings we see that precise forecasting is the key factor to successfully cope with demand fluctuation, and the best-performing companies have already recognized this fact. And what is the direction that talented managers have chosen? Companies should focus on customer relationships and strengthen the collaboration with the most important business partners. With a well-established collaboration, uncertainty in demand can be minimized, but in order to succeed in this, the proper tools should be on hand too. Looking at the findings we see a one-to-one match to the supply chain development we faced at Nokia. Strong partnerships combined with exchange of all relevant data in real time is key of success and the basis for cost reductions as well for service level improvements. It depends on the willingness of the partners to integrate the information systems

and exchange data in ideal case on daily level to see trends coming and avoid any kind of the bullwhip effect before it hits you.

5. SUMMARY AND CONCLUSION

If companies want to be successful with their supply chain in the coming years they must give special attention to joint planning efforts with their suppliers and partners. To manage all the complex processes within the company is difficult, very costly and assumptions can be very wrong. The first, theoretical part of our paper depicts the direction of the development regarding the supply chain management practices. From this, we can clearly see that the trend in the last decades was to facilitate the integration. Firstly companies have started to integrate the certain functions into the organizations internally, secondly they proceeded to integrate the different levels of the particular supply chain, too. The main goal is to increase the visibility throughout the supply chain, and this way to eliminate totally the so called “silo-effect”. In the case of Nokia the change from logistics to supply chain was very beneficial and represents one of the key success factors in the battlefield of telecommunications.

The lack of communication and common goals between the business partners in a particular supply chain is one of the biggest barriers against the efficient operational performance. Supply chain management is here to stay and we are at the beginning of the spectrum. We still have a long way to go and miles to conquer before the entire industry, all players and all participants become supply chain enabled and get necessary tools to make informed decisions. Companies have a lot to gain from Supply chain management implementations – you just need to trust your partners.

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