REASONS OF INSUFFICIENT COOPERATION IN INFORMATION SHARING WITHIN CZECH ENTREPRENEURIAL ENVIRONMENT AND ITS IMPACT ON SUPPLY CHAIN

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Abstract

Task how to ensure adequate, effective response to the quickly changing requirements of their customers, both in terms of assortment structure, required quantities of products, and delivery time appears as one of the biggest problems, which must be solved by the management of firms in the Czech Republic at these days. The fundamental problem is that enterprises often do not keep at disposal necessary relevant information in advance. It results in serious problems not only in the actual planning of logistics processes, but also in a high instability of these plans, a significant number of operative interventions in the management, etc. There are many reasons for this situation, which may imply for example, from specifics of products, businesses and branches in which they operate and also from the firm's position within the supply chain. The willingness level of a business partner to share information about his forecasts, demand, actual sales, marketing operations etc. depends on the bargaining strength, competitive position and the distance of the manufacturer from the final customer within the supply chain. The CSO survey showed that only 9% of firms shared information about the demand within the supply chain in the Czech Republic in January 2009. This article deals with the identification of main reasons of insufficient cooperation in information sharing within Czech entrepreneurial environment and impact of this situation on supply chain mainly from the metals, metallurgic and metalworking products manufacturers' point of view.

Key words: SCM, ICT, information sharing, metallurgic and metalworking products manufacturers

1. INTRODUCTION

Regardless of whether companies focus only on the local or global markets, they operate in an environment of hyper-competition. The current market environment is mainly characterized by turbulent development, a large excess of supply over demand, rapid development of information and communication technologies, the growing awareness of customers and strong networking of economic entities. The consequence of these factors is a strong customer orientation, which led to the development of differentiated customer-value-based CRM. This specific approach to the market, based on application of a four-step process IDIC [1.] contributes significantly to changes in the management of both individual business processes [2.], and coherent integrated supply chains. The trend of mass-customization forces many companies to focus on their core business, and outsource a wide range of functions.

Individual links of the logistics chain get connected in network structures [3.]. This complicates efforts to effectively and timely communicate and respond to customer demands and without finding new ways of management this can result in the collapse of relations and the emergence of inefficient cost structures. For quick, quality, and often individual satisfaction of customer needs and requirements, it is increasingly important to manage information, financial and material flows in these supply chains. Such companies become successful which are able to detect not only customer wishes, but also flexibly and effectively respond to their demands. Therefore, the customers’ pressure increases along the supply chain to accelerate the reaction of suppliers, which thus forces shortening of time to process and fulfil their customers' orders. If a company wants to succeed under these conditions, it needs to accelerate and streamline not only its particular internal processes, but it must at the same time accelerate and streamline all streams, including decision-making, throughout the supply chain that includes the company [4.]. This
leads ideally to creating win-win mutually beneficial partnership, which is a source of a synergistic effect. However, this synergistic effect can be produced only through coordination, synchronization and optimization of structures and processes of the logistics system as a whole. Thus not only the individual companies, but the entire supply chains compete. Firms apply the Corporate Social Responsibility concept and the triple helix model of collaboration too [5]. Encompassment of supply chain management is becoming an important competitive advantage for individual companies. Therefore, there is a permanent development and implementation of new concepts, techniques and practices enhancing value through collaboration. Pernica indicates them collectively as logistic technologies [6]. They are based on the principle of enhancing information sharing and an option of replacing the stock with information through modern information and communication technologies. At these days they have flown into initiative of collaborative planning, forecasting and replenishment-CPFR to create supply chain advantage [7]. According to up to now experience of the author from investigations and discussions with managers in many manufacturing companies of different branches in the Czech Republic there is however all along low level of common information sharing. It implicates many problems mainly to manufacturing concerns.

The goal of this article is the identification of main reasons of insufficient cooperation in information sharing within Czech entrepreneurial environment. The main findings of this article are evaluation and impact of this situation on supply chain mainly from the metals, metallurgic and metalworking products manufacturers’ point of view. Targeted literature search in scientific literature, method of in-depth interview with managers in chosen companies, and analysis of the Czech Statistical Office (CSO) survey [8.] were used as research methods and sources. Companies in which research was carried out cannot be disclosed due to the information sensitivity.

2 INFORMATION SHARING WITHIN SUPPLY CHAIN

Supply chain encompasses all activities in fulfilling customer demands and requests. These activities are associated with the flow and transformation of goods from the raw materials stage, through to end user. Moving up and down the stages are the four flows: material flow, service flow, information flow and funds. Development of information and communication technology gave foundation for moving material management to supply chain management (SCM). In an evolutionary view in today e-business environment these flows are managed by a virtual organization [9]. Virtual integration of integrated supply chain is using technology and information to blur the traditional boundaries among suppliers, manufacturers, distributors, and end users in supply chain to offer the advantage of tightly coordinated supply chain. Data, information, and knowledge are shared across cultural-boundaries, time-boundaries, and space-boundaries. But according to experience of the author as well as results of CSO survey the data sharing does not work on this stage in Czech companies.

2.1 Information sharing in Czech entrepreneurial environment from the metals, metallurgic and metalworking products manufacturers’ point of view

For better understanding and status analysis in information sharing in companies within Czech entrepreneurial environment it is important to briefly summarize evolution up to virtual organization. The impact of advanced information and communication technology on materials and SCM is significant. In mid 1960, the first use of computer for planning material was MRP software. But MRP does not recognize the capacity limitation and in the mid 80th was evolved MRPII (Manufacturing Resource Planning). This software allows the effective planning of all resources of a manufacturing company. In the 1980s, cost on the labour power decreased and cost on the material increased so companies searched for new strategies that helped them to improve production processes, reduce costs and successfully compete in an increased competition. As examples we can mention JIT (Just in Time), TOC (Total Quality Management) and TQM (Total Quality Management). Increased using Internet and increased globalization led to the development of ERP systems in 1990s. These systems provide an integrated view of information across functions within a company and
with the potential to go across companies. Wide use of Internet enabled to integrate E-commerce into business models of companies with goal to maximize the overall value generated rather than profit generated in a particular supply chain. Supply chain design should reflect the nature of demand (efficient supply chain or responsive supply chain), product clock–speed, process clock–speed and organization clock–speed, and pull and push processes [9].

Present situation in information sharing in branch of metals, metallurgic and metalworking products manufacturers can be clearly documented on results of CSO survey “Information and communication Technologies in business sector 2010” [8]. This survey is periodically realized each year since 2003. In this paper are presented in Table 1 chosen results from 2382 metals, metallurgic and metalworking products manufacturers which are monitored beside manufacturers from other branches in this survey, January 2010. From these 2382 monitored companies are 1704 small sized companies (10-49 employees), 558 middle sized (50-249 employees) and 119 big enterprises with more than 250 employees.

Table 1 Structure of metals, metallurgic and metalworking products manufacturers according to their exploitation of chosen ICT - selected from [8].

<table>
<thead>
<tr>
<th>Part of companies from their total number within branch (%), which exploit:</th>
<th>Small sized enterprises</th>
<th>Medium sized enterprises</th>
<th>Big enterprises</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal computer network</td>
<td>55,0</td>
<td>93,7</td>
<td>98,1</td>
<td>66,2</td>
</tr>
<tr>
<td>Intranet</td>
<td>17,9</td>
<td>44,7</td>
<td>74,1</td>
<td>27,0</td>
</tr>
<tr>
<td>Extranet</td>
<td>9,2</td>
<td>20,9</td>
<td>33,4</td>
<td>13,2</td>
</tr>
<tr>
<td>Own web pages</td>
<td>67,3</td>
<td>87,0</td>
<td>90,9</td>
<td>73,1</td>
</tr>
<tr>
<td>Web pages which allow on-line order</td>
<td>15,7</td>
<td>14,4</td>
<td>18,0</td>
<td>15,5</td>
</tr>
<tr>
<td>ERP</td>
<td>13,3</td>
<td>48,5</td>
<td>81,3</td>
<td>25,0</td>
</tr>
<tr>
<td>CRM</td>
<td>5,3</td>
<td>20,7</td>
<td>45,6</td>
<td>11,0</td>
</tr>
<tr>
<td>Electronic data exchange between various companies</td>
<td>15,0</td>
<td>17,3</td>
<td>51,5</td>
<td>17,4</td>
</tr>
<tr>
<td>Standard EDI</td>
<td>2,0</td>
<td>10,5</td>
<td>25,6</td>
<td>5,2</td>
</tr>
<tr>
<td>Electronic information sharing with suppliers</td>
<td>7,2</td>
<td>6,4</td>
<td>26,8</td>
<td>8,0</td>
</tr>
<tr>
<td>Electronic information sharing with customers</td>
<td>6,8</td>
<td>14,3</td>
<td>30,5</td>
<td>9,7</td>
</tr>
<tr>
<td>SCM for information sharing</td>
<td>0,8</td>
<td>2,4</td>
<td>7,7</td>
<td>1,6</td>
</tr>
<tr>
<td>Computer network allowing to give an order for material, goods or services</td>
<td>26,6</td>
<td>25,2</td>
<td>41,1</td>
<td>27</td>
</tr>
<tr>
<td>Computer network allowing to accept orders on product, goods or services</td>
<td>16,6</td>
<td>18,6</td>
<td>33,4</td>
<td>17,9</td>
</tr>
</tbody>
</table>

From the Table 1 it is evident that ICT is exploited for data sharing in larger degree in big enterprises namely for all monitored items. Only 7,7% of big enterprises, 2,4% of medium sized and 0,8 small sized enterprises
is using software SCM for information sharing as the highest level information sharing for support of material flow management in the frame of supply chain in real time.

Metals, metallurgic and metalworking products manufacturers queues thus on 10 position from monitored 25 groups of companies within the Czech Republic (companies are segmented into groups according to their economic activities) namely just behind group of chemical, pharmaceutical, rubber and plastic industry, glass industry and manufacture of building materials. SCM software is employed in this group by 8,1% of big enterprises, 6,4 % middle sized and 1,8% of small sized enterprises. Within the branch manufacturing industry then ranks 4th position from nine groups of enterprises. The highest percent of enterprises, which are using software package SCM for electronic information sharing is within the group dealing with telecommunication activities namely even 49,9 % of big enterprises. Manufacturing of computers, electronically and optical instruments group is far behind this first group, but still on second position. SCM software is exploited within this group by 17,5 % of enterprises. Third position occupies automotive industry and manufacture of other means of transport with 14,5 % big enterprises.

Periodical electronic data sharing with suppliers or customers utilized 15 % enterprises in the whole Czech Republic, which is about 4 % less in comparison with European average. Information are more frequently shared with customers than with suppliers and information about state of supply predominate and then information about anticipated demand. Method of sharing through web pages prevails (8 % enterprises), while through SCM it is only 1,5 % from all monitored enterprises.

### 2.2 Reasons of insufficient collaboration in information sharing

There are many reasons for this situation, which may imply for example from specifics of entrepreneurial environment in the Czech Republic, from specifics of products, businesses and branches in which they operate and also from the firm’s position within the supply chain.

Corruption and law enforcement are factors perceived on a long-term basis as one from biggest problems of entrepreneurial environment in the Czech Republic [10.]. This environment is full of no-confidence, with many negative experiences of managers from the past. Willingness to share any information the more by electronic way is therefore generally from this reason very low. Willingness for information sharing is therefore based more likely on long-term personal relations. One can also obviously assume that this situation influences also on the fact that there is low knowledge of managers with new methods and techniques of supply chain management.

The willingness level of a business partner to share information about his forecasts, demand, actual sales, marketing operations etc. depends on the bargaining strength, competitive position and the distance of the manufacturer from the final customer within the supply chain. Economic entities with strong bargaining position in the chain do not want often to be involved in cooperation because it means sharing information with others and thus sharing the success manual [4.]. The effort of individual enterprises to succeed in these challenging conditions in the competitive environment then creates a tendency to move some of their problems as well as the costs to their suppliers. Enterprises then behave so as to suit their own particular interests, regardless of the consequences for their suppliers [11.]. The result can be creation of a supply chain, but it is not integrated into the logistics system as a whole and the desired synergistic effect cannot be originated. Number of manufacturing firms operating in the B2C markets is in a similar situation in the Czech Republic. These are especially the companies whose products are supplied through a distribution connecting links or directly into super and hypermarkets, with such a strong “bargaining” power, that there is nothing to motivate them to share information with their suppliers and mainly with manufacturers on their forecasts and actual sales. They use the information on end-use customers as their competitive advantage partly towards a large number of their mutually competing suppliers-manufacturers, thus further entrenching their already strong position in the supply chain, and also towards the competing chains [12.]. This situation is analogous practically independent on branch. Such behaviour of retailing chains towards their suppliers in the Czech
Republic is according to opinion of some managers supported by strong competition between large amounts of weak suppliers.

On the other side many of big enterprises of metals, metallurgic and metalworking products manufacturers battle with relatively narrow range of potential suppliers of supplied raw material conduce to their relatively disadvantageous bargaining position in face of these suppliers and mainly to deepening of unwillingness to mutual data and information sharing.

Another situation is obviously in big multinational companies which form huge concerns, do partnerships with partners of the same importance, which supplement their range of goods and services. Joint information sharing even on the highest level and operating CPFR can be assumed to exist within such corporations. At the same time, new tools and technics are sought to be used for analysis, measurement, design and optimization of the supply chain or for demand prediction in metals, metallurgic and metalworking products manufacturers [13, 14].

3. IMPACTS OF INSUFFICIENT COLLABORATION IN INFORMATION SHARING

The adverse effects within the chain can be suppressed or completely eliminated coordinated and material flow throughout the entire chain can be achieved by timely sharing of information about planned events, demand forecasts and capacity levels of all links and about actual information on the customers’ requirements of the system. The well-known bullwhip-effect can be an example of an adverse effect. This is crucial example of supply chain inefficiency, which can be suppressed for instance by CPFR application [15].

The whole set of others logistic technologies respectively collaborative strategies [11.] such as for example QR, ECR, CRP, RMR, VMI cannot be effectively applied if the information sharing level is low. The aim of exploitation of these technologies is to reduce uncertainty, reduce inventory and the total cost along the entire supply chain and improve overall profitability. These aims cannot be achieved in contemporary market environment without information sharing.

No sharing of information flows between the particular links of the logistics chain and the effort to promote individual goals would ultimately lead to deterioration in flexibility, lengthening of delivery times, slowing down in response to changing customers’ demands and ultimately to a loss of competitiveness.

The coordination of actions contributes to the growth of the overall supply chain performance efficiency and the cooperative problem solving may result in the desired synergistic effect. Therefore, the integration of logistics chains is the key factor of success of all their links.

REFERENCES


