Chapter 8
Virtual Organization of Supply Chains

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ABSTRACT

The main purpose of this chapter is to present a possible alternative for optimization of supply chain management. The chapter discusses the virtual organization as an important tool for optimization of supply chain management. A simple model for discussing organization of supply chain is introduced, which serves as an important starting point for assessing the current organization of the supply chain. Issues regarding collaboration between supply chain members are often emphasized in small, emerging economies in Central Europe. In these economies, supply chain management practices are not in the forefront. This chapter addresses issues regarding the collaboration of supply chain members based on a proposed model that can help responsible peoples in organizations to assess the current state of collaboration and show possible further directions in optimizing supply chain management, based on an increasing amount of virtual collaboration. In terms of practical implications, usage of selected tools in the frame of the proposed model of virtual organization is discussed, where usage, benefits, and drawbacks are outlined.

INTRODUCTION

Rapid development of information technology (IT) has importantly influenced business in various different ways. Especially in last two decades IT has importantly changed the way supply chains (SCs) are organized and enabled remarkable changes in ways that entities and/or members in SCs collaborate and exchange data with each other (Li, Riley, Qi, & Zhu, 2001; Gunasekaran & Ngai, 2004b; Manthou, Vlachopoulou, & Folinas, 2004). SC emphasizes the flow and transformation of goods from raw materials through production stage to the end user, moving the focus from single organization to the system of different organizations involved in SC. Efficient and synchronous SC requires that each entity involved has adequate information. Acquisition of needed information by

different parties in the SC depends also upon the organization of SC. In that framework IT provide a support, since its primary goals in supporting SC are related especially to the visibility of information, access to data for all entities involved in SC, exchanging and sharing data among members of SCs, and supporting collaboration between numerous SC partners (Thomas & Griffin, 1996; Li et al., 2001; Subramani, 2004).

IT that is aimed to support collaboration among numerous different member of SC, can range from supporting cooperation between peoples (e.g. as a representatives of organizations involved in SC) from different organizations in SC, like virtual teams or videoconferencing to solutions, that are used by all or majority of entities in SC, like totally integrated SC software system or solutions covering key aspects of SC management, like inventory management, aggregated demand and supply forecasting and/or planning, vendor managed inventory (Li et al., 2001; Christopher, 2011; Chen, Xiao, Ren, Wang, & Asme, 2012).

An important trend in last decade is globalization, which makes entities in SCs even more scattered around the globe, as they were in years before (Beamon, 1998; Radosevic, Pasula, Berber, Nebojsa, & Nerandzic, 2013). This state requires that contemporary SCs are becoming more and more virtually organized, which enable collaboration among geographically dispersed entities (e.g. employees from the organizations) without physical relocation. Adjacent, the need for virtual organization is heightened as well with increasing cost of transportation and in general business travel. In such circumstances, IT presents an important tool for enhancement of collaboration between members of SCs and reducing of costs throughout the entire SC (Li et al., 2001; Gunasekaran & Ngai, 2004b; Subramani, 2004; Chen et al., 2012).

Depend on the intensity how IT support processes in SC, especially collaboration among numerous members of SC, SC can have different degrees of virtuality (Franks, 1998; Manthou et

al., 2004; Shekhar, 2006). In that framework, SC's level of virtuality ranges from traditional organization of SC entities (e.g. level of virtuality is zero), where processes are not supported with the IT, to the totally virtual organized SC, where all processes are fully supported with IT. This pertains especially on the collaboration and communication activities among SCs partners, where different kind of IT solutions can be used to support these activities – e.g. collaboration between different SC entities.

According to the above mentioned starting points, this chapter presents the important role of IT for supporting collaboration among entities in global SCs. Based on increasing geographical dispersion of SC entities and the implementation of IT, we proposed a two dimensional model for defining the degree of virtuality of SC. Developed model serves for assessment of actual state of IT use in SCs and especially to provide a possible ways for further virtualization of SCs and in that frame utilization of IT solutions, with aim to reduce costs, enable more efficient collaboration, etc. In order to make assessment of current state and future steps more clear, we outlined typical IT solutions that support collaboration among SC member at different states of virtual organization of SC.

Proposed model can help organizations, i.e. responsible people in the organizations, to rethink existing ways of collaboration between their organizations and other partners in SC and help them to make decisions about an optimal combination of collaboration organization in SC. For instance, supply chain management (SCM) practices are underused in emerging economies in Central Europe, in comparison to the well-developed western economies (Dabic, Potocan, Nedelko, & Morgan, 2013), leaving a lot of space for improving performance of SCs, and from our considered viewpoint – enhancing collaboration between SC members. Thus, in terms of practical significance, proposed approach for assessing and/or designing of virtual organization of SC,

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