Chapter 11
The Influence of Supply Chain Collaboration on Process, Relational and Product Innovations

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ABSTRACT
This chapter focuses on the impact of strategic and tactical collaborative actions as well as e-collaboration tools efficiency on process and relational innovations which in turn should influence product innovations. The results of this study show that tactical collaborative actions are more geared to lead firms to innovate rather than strategic actions. Findings also suggest that relational innovation has an effect on product innovation for the upstream perspective, whilst process innovation influences product innovation for the downstream perspective.

INTRODUCTION
In order to gain a competitive advantage and to ensure long term resilience for firms, many industries now rely on innovativeness. Thus, managers have to regularly make strategic decisions pertaining to the identification of adequate resources and competencies (external partners or internal department/divisions) that can incite innovation. In such contexts, collaboration, which is carried out at different levels (strategic, tactical or operational activities), is inevitable and rapidly becomes a means to address cross-functional activities (De Luca and Atuahene-
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Gima, 2007). The impact of collaboration on product innovation (i.e. new product development) is relatively well covered in the literature (Nieto and Santamaria, 2007). It highlights some of the main challenges of carrying out real-time synchronous interactions between partners (Loch and Terwiesch, 2005) and emphasizes the changes in the relationships and in the inter-organizational processes that dictate the collaboration (Swink, 2006). The pressure to perform in a supply chain has also pushed firms to change management approaches and use information technologies and/or electronic tools to support product innovation (Swink, 2006; Auramo et al., 2005).

In a supply chain context, process and relational innovations are also essentials parts of the innovation cycle. Indeed, without building a set of strong relationships and gearing processes to their respective partners, it would be difficult for a network of collaborative firms to create new products/services. Unfortunately, to date, literature on the subject is very scarce. In order to partially address this gap in the literature, the objective of this chapter is thus to analyze, from both the up-stream and downstream perspectives, the impact of strategic and tactical collaborative actions as well as e-collaboration tools efficiency on process and relational innovations and determine if these two types of innovations generate product innovation. Strategic collaborative actions are defined here as actions that enable supply chain partners to gain a global understanding of the supply chain strategies to be undertaken by all parties involved in the chain, while tactical collaborative actions are oriented towards supporting supply chain activities (i.e. planning, forecasting, production, etc.) tied to specific products or families of products. E-collaboration tools efficiency measures how well e-collaboration tools are used to support a set a supply chain collaboration activities. Finally, process, relational and product innovations are defined here as changes, which require a significant degree of novelty for the firm, that can improve respectively the firm’s products, its business processes (or work methods) and its relationships with business partners.

The remainder of this chapter is structured as follows. The next section presents the relevant theoretical background related to collaboration, e-collaboration and innovation in a supply chain context. Section 3 presents the research model and hypotheses and section 4 describes the research methodology. Findings are then presented in section 5 and discussed in section 6.

THEORETICAL BACKGROUND

Supply Chain Collaboration

Collaboration in a supply chain context is defined by Anthony (2000) as two or more companies sharing the responsibility for exchanging common planning, management, execution, and performance measurement information. The fundamental rationale behind the concept is that by pooling their resources, collaborative supply chain partners can perform better than they could if each of the firms operated individually (Bowersox et al., 2005). Better demand planning, increased operational flexibility to cope with high demand uncertainties, inventory and cost and the development of new skills and competencies are just some of the expected benefits tied to SCM collaboration (Fisher, 1997; McCarthy and Golistic, 2002; Sabath and Fontanella, 2002).

The goal of collaboration is quite precise but the means to attain the objectives are sometimes not as clear. Some studies focus on the strategic activities required to ensure supply chain collaboration (Ogden et al., 2005) while others focus on more pragmatic or tactical actions undertaken by collaborating partners (Simatupang and Sridharan, 2005). Integration and information sharing between members, joint investments and outsourcing are some of the strategic collaborative actions identified (Sezen, 2008; Cassivi, 2006; Ogden et al., 2005). Kotabe et al. (2003) also recognizes