



Antecedents to supplier integration in the automotive industry: A multiple-case study of foreign subsidiaries in China

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ABSTRACT

Supplier integration has become an important concept for improving supply chain performance. The aim of this paper is to identify factors that facilitate and inhibit supplier integration in the context of the Chinese automotive industry. An inductive approach based on grounded theory was chosen as the research methodology, where data was collected through 30 detailed case interviews with subsidiaries of foreign automotive companies operating in China. The results indicate that buyer-side leadership is an important antecedent for building motivation, trust, and commitment among suppliers and for shaping their mindsets. This, in turn, facilitates strategic alignment and enables suppliers to build collaborative capabilities, which are finally shown to be a key enabler for successful supplier integration.

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1. Introduction

Both anecdotal and empirical evidence (Pyke et al., 2000; Murray et al., 2004; Wilkinson et al., 2005) indicate that many foreign companies in China are experiencing difficulties in sourcing strategic supplies from domestic suppliers and in forming long-term partnerships with them. In China, the difficulties seem to be more frequent in industries such as automotive that are characterized by high requirements on quality, delivery and intellectual property protection (Holweg et al., 2005; Zhang and Chen, 2006).

Despite the rapid growth of the Chinese automotive industry (Zhu et al., 2007), the collaborative capabilities of domestic suppliers are still limited. In addition to lacking basic process management skills (Eberhardt et al., 2004), challenges can be found in a historical shortage of R&D capabilities (Holweg et al., 2005). As a consequence, key components are still predominantly designed outside China and are imported by, or sourced from global suppliers with operations in China (Holweg et al., 2005).

The efforts among automotive companies in China to find suitable domestic suppliers have to be seen both in the context of response to local content requirements as promulgated by the Chinese central government, as well as within the context of the global sourcing strategy the automobile companies want to pursue. Therefore, both original equipment manufacturers (OEMs) and their non-Chinese suppliers are currently trying to integrate more domestic suppliers into their supply chains in China. Suppliers extensively influence the competitiveness of the buying firm in terms of quality, costs, and innovation. In a networked industry like the automotive industry, it is virtually impossible for individual firms to possess all the technical expertise and capabilities needed to develop and produce a complex product like a car (Wolters and Schuller, 1997; Binder et al., 2007; Wagner et al., 2008). In these situations, it is crucial for key players to work towards supplier integration.

As will be shown in this study, supplier integration is a complex and multi-faceted phenomenon that requires a comprehensive approach that provides and recognizes viewpoints from several angles. First, it is necessary to understand which intra- and inter-organizational capabilities have to be developed. Secondly, in the light of the apparent expectation gap between the requirements of foreign companies and the capabilities of domestic suppliers, it is essential to gain a better understanding of how trust and commitment between buyers and suppliers can be created and how necessary changes of mindset, competencies, and organizational configurations of Chinese automotive suppliers can be

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induced. Even as they try to integrate indigenous Chinese suppliers into their supply chains, this issue assumes a particularly high degree of importance when viewed from the perspective of Chinese subsidiaries of foreign firms. These subsidiaries form our study's focus. In this context, it should be noted that all foreign OEMs must have a Chinese joint venture partner by law at a 50:50 share and that many, but not all, suppliers have Chinese partners as well.

The goal of this paper is to contribute to theory building in supplier integration within the specific context of the Chinese automotive industry by analyzing empirical data gathered through qualitative case research methodology. Thus, the paper aims at answering the following research questions:

- How is the integration of domestic suppliers characterized among subsidiaries of foreign automotive companies in China?
- What are the antecedents to supplier integration in the Chinese automotive industry, and how do they motivate domestic suppliers to engage in collaborative buyer–supplier relationships?
- What are the critical capabilities needed for suppliers of foreign subsidiaries in China, and what facilitates the development of these critical capabilities?

2. Literature review

2.1. Definitions of central terms

Prior to any further analysis, central terms within this research need to be clarified. This paper adheres to several existing theories relative to supplier integration (SI) and supply chain integration (SCI) (Bowersox et al., 1999; Malhotra et al., 2008). SCI is defined by Bowersox et al. (1999) as the simultaneous orchestration of four critical flows: product/service, market accommodation, information, and cash within and across companies. In turn, SI is defined as a subset of SCI specifically focusing on the upstream part of the supply chain. Moreover, SI is defined as a practice that links externally performed work of the supplier into a seamless congruency with internal work processes (Bowersox et al., 1999).

The unit of analysis in this paper is represented by collaborative buyer–supplier relationships, within which supplier integration is manifested and observed. *Strategic relationships* are formed as a function of the business impact of the commodity to be sourced and the level of complexity of the supply market. These are guided by the level of mutual investments of the buyer and the supplier in the relationship (Bensaou and Venkatraman, 1995). Although the majority of strategic relationships are also managed in a rather collaborative manner, the term *collaborative relationship* has a different notion. It is defined by the intensity of a buyer–supplier relationship characterized by the level of interaction and bilateral involvement between the buyer and supplier (Humphreys et al., 2004), and by the quality of those interactions (Cohen and Roussel, 2004). So in the context of this paper, collaborative relationships are characterized by trust, interaction, mutual responsibility, mutual risks and benefits, autonomous problem solving capabilities of the involved partners, and a proactive approach towards managing new challenges (Maloni and Benton, 1997).

2.2. Practices of supplier integration in the automotive industry

The automotive industry is characterized by a high degree of value added by suppliers in manufacturing as well as in the engineering of automotive components (Tiemann et al., 2000; Quesada et al., 2006; Wagner et al., 2008), which strongly suggests the implementation of collaborative approaches (Takeishi, 2001; Goffin et al., 2006; Paulraj and Chen, 2007; Zhang et al., 2009). First-tier suppliers have taken on an increasing level of responsibility

for developing and producing components rather than simply making predesigned parts (Petersen et al., 2004; Pil and Holweg, 2004; Quesada et al., 2006). The purchasing function in a company has correspondingly become increasingly more strategic since it is charged with generating a competitive advantage through supplier management (Watts et al., 1995; Narasimhan and Das, 2001; Möller and Törrönen, 2003; Ulaga, 2003).

Successful car companies have understood that competitive factors such as cost, quality, and innovation are determined very early in the product development phase (Zirpoli and Caputo, 2002; Binder et al., 2007). Proactive, preventive, and rigorous tactics during the development phase are needed in order to be able to reconcile the high degree of complexity inherent in the automotive industry with increasing customer expectations regarding quality, costs, innovation, and product variety (Takeishi, 2001; Tang and Qian, 2007). Therefore, car companies have deployed joint product development (Hsuan, 1999; Quesada et al., 2006; Binder et al., 2007) and joint production planning activities with suppliers (Doran, 2003; Bennett and O'Kane, 2006; Holweg and Pil, 2007) as a means to increasing the competitiveness of their own companies as well as that of the whole supply chain networks within which they exist.

Benefits of doing so are numerous. Collaborative production planning processes with suppliers lead to reduced inventory and capacity costs and shortened lead times (Doran, 2003; Tu et al., 2004). As a shift from make-to-stock to make-to-order strategies can be recognized in the automotive industry (Gunasekaran, 2004), synchronized production processes across the supply chain promise to deliver the highest efficiency and operational performance (Doran, 2004; Bennett and O'Kane, 2006; Reichhart and Holweg, 2007). Also, as a response to increased customer expectations in terms of degree of customization and lean manufacturing strategies, approaches like vendor managed inventory (VMI) have been implemented at the material flow level (Salvador et al., 2002). In order to facilitate these concepts, the material flow must be anticipated by a flow of highly accurate, timely, and reliable planning information (Cachon and Fisher, 2000; Krajewski and Wei, 2001; Stefansson, 2002). As more and more car components are developed by suppliers independently or jointly between the buyer and supplier, the involvement of suppliers in this area is of high importance (Wagner et al., 2008).

2.3. Research gap

The area where buyers and suppliers could collaborate have been studied extensively, with most of the literature in this area advocating the necessity to establish collaborative buyer–supplier relationships (Paulraj et al., 2008). However, this research has failed to explain how to implement supplier integration and in particular, how to establish collaborative buyer–supplier relationships in countries like China where its importance is paramount. Although most prior research has been conducted through empirical data based on case studies or surveys, the topic still largely remains unexplored or is not supported by reliable empirical evidence (Goffin et al., 2006). In sum, research on supplier integration in the Chinese automotive industry is scarce (see Table 1). Several scholars indicate that 'China is different' and that Western management practices may not be transferable to China (Martinsons, 1996; Jenner et al., 1998; Pun et al., 2000; Pun, 2001; Li et al., 2003).

3. Methodology

Given the identified research gap, it is unclear how sustainable buyer–supplier relationships can be facilitated in China. The lack of research on this topic in a Chinese setting led to the selection of an exploratory approach based on grounded theory (Glaser and

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