



Factors affecting the adoption of supply chain management practices: Evidence from the Brazilian electro-electronic sector

Ana Beatriz Lopes de Sousa Jabbour^{a,*}, Alceu Gomes Alves Filho^b,
Adriana Backx Noronha Viana^c, Charbel José Chiappetta Jabbour^a

^a UNESP/FEB – São Paulo State University, Faculty of Engineering at Bauru, Av. Eng. Luiz Edmundo C. Coube 14-01, Bauru, São Paulo, CEP 17033-360, Brazil

^b UFSCar – Federal University of São Carlos, Campus São Carlos, Rodovia Washington Luís (SP-310), KM 235, São Carlos, São Paulo, CEP 13565-905, Brazil

^c USP/FEA – University of São Paulo, Avenida Bandeirantes, 3900, Monte Alegre. Ribeirão Preto, São Paulo, CEP 14040-900, Brazil

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Abstract This study on the factors affecting the adoption of supply chain management (SCM) practices develops four hypotheses based on a literature review, and tests them using survey data of Brazilian electro-electronic firms. The results reveal the big picture of the SCM practices in the sector and suggest that contextual factors such as size, position and bargaining power affect the adoption of SCM practices, which are also more customer oriented. Sector characteristics are very important in analysing SCM practices. Contrary to the findings of literature, the relationship between competitive priorities and SCM practices was not supported statistically. © 2011 Indian Institute of Management Bangalore. All rights reserved.

Introduction

Supply chain management (SCM) represents a new form of managing business and relationships with other members of the supply chain (SC) (Lambert, Cooper, & Pagh, 1998; Lambert & Cooper, 2000; Lummus & Vokurka, 1999). However there is little consensus regarding its definition and understanding (Mentzer et al., 2001; Burgess et al., 2006; Stock & Boyer 2009; Stock, Boyer, & Harmon, 2010). Li, Rao, Ragu-Nathan, and Ragu-Nathan (2005) and Li, Ragu-Nathan, Ragu-Nathan, and Rao (2006) define SCM practices as a set of activities carried out to promote efficient management of its SC.

The studies in SCM practices can be categorised into the following general themes: (a) identification of activities or actions related to SCM at manufacturing companies in different countries (Basnet, Corner, Wisner, & Tan, 2003;

* Corresponding author.

E-mail addresses: abjabbour@feb.unesp.br (A.B. Lopes de Sousa Jabbour), alceu@dep.ufscar.br (A.G. Alves Filho), backx@usp.br (A.B. Noronha Viana), prof.charbel@gmail.com (C.J. Chiappetta Jabbour).

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Olhager & Selldin, 2004; Halley & Beaulieu, 2010); (b) categorisation and validation of constructs for SCM practices (Tan, Lyman, & Wisner, 2002; Li et al., 2005); (c) verification that the adoption of SCM practices affect company performance (Tan et al., 2002; Li et al., 2006; Zhou & Benton, 2007; Koh, Demirbag, Bayraktar, Tatoglu, & Zaim, 2007; Chow et al., 2008; Robb, Xie, & Arthanari, 2008; Hsu, Tan, Kannan, & Leong, 2009) and (d) verification that the characteristics of the industrial sector can affect the adoption of SCM practices (Jharkharia & Shankar, 2006).

Some of the major findings related to factors influencing the adoption of SCM practices are: the role of contextual factors such as the company's position in the chain, its field of operation (economic sector) and size (Li et al., 2005, 2006; Halley & Beaulieu, 2010); the industrial sector (Jharkharia & Shankar, 2006); and the relationship between SCM practices and elements of the operational capacity portfolio (Hsu et al., 2009), such as competitive priorities (Zhao & Lee, 2009). According to Zhao and Lee (2009), competitive priorities (CP) are an important factor influencing the adoption of SCM. They define CP of production (cost, quality, flexibility and delivery) as operational capabilities, which are the competence of the production function to achieve company strategy.

Studies related to CP in the manufacturing and automotive sector find a significant relationship between suppliers and manufacturers competitive priorities and practices (Salles, Vieira, Vaz, & Vanalle, 2010; Vachon, Halley, & Beaulieu, 2009). Competitive priorities (CP) choices (Maia, Cerra, & Alves Filho, 2005) and the company's focal strategy (Demeter, Gelei, & Jenei, 2006) are related to its SC configuration and practices.

The objectives of this paper are to identify the SCM practices being adopted in Brazil's electro-electronic companies and the factors that affect their adoption. A survey of electro-electronic companies was conducted in Brazil to achieve the proposed objectives.

Brazil's electro-electronic sector was chosen as the object of study due to several reasons. It is important to the country's economy, contributing 4% of the GDP (Abinee, 2009). Its import dependence, lack of internal competences for new projects and products and linkages with other industries and sectors of the economy were features affecting its choice of study.

The next section presents a discussion of the relevant literature on SCM practices, factors affecting SCM practices, and characteristics of the Brazilian electro-electronic sector; the methodology adopted to conduct the survey in the third section; the major results of this research are presented in the fourth section; the discussion of these results in the fifth section; and the conclusions and limitations of this study in the last section.

Literature review

Supply chain management practices

Li et al. (2005, 2006) define SCM practices as a set of activities conducted by organisations to promote an efficient management of their supply chain. According to Pires

(2004), SCM practices are related to initiatives for changing the management of business processes in the supply chain. And, Vaart and Donk (2008) state that supply chain practices are considered tangible activities or technologies that play an important role in focal company collaboration with its suppliers and customers.

There are several studies on SCM practices: Tan et al. (2002) categorised six constructs of SCM practices and established their correlations with company performance. However, evidence on the relationship between SCM adoption and performance is mixed. The influence of contextual factors (size, position, extension of the chain) in adopting SCM practices are emphasised by Li et al. (2005, 2006); Halley and Beaulieu, 2010 additionally emphasise the company's position on the SC and the field of operation. The influence of the industry specific factors have been emphasised by Jharkharia and Shankar (2006) who studied four different types of industry (auto, engineering, fast moving consumer goods, process) in India. The inter-relation between SCM practices, operational capabilities and performance have been emphasised by Hsu et al. (2009) and Robb et al. (2008). Country studies also reveal the impact of SCM adoption on performance (Olhager & Selldin, 2004; Zhou & Bento, 2007; Koh et al., 2007; Chow et al., 2008; Robb et al., 2008; Halley & Beaulieu, 2010). However, Basnet et al. (2003) identified the status of SCM practices at manufacturing companies in New Zealand and verified that the adoption is not well disseminated.

Table 1 systematically represents the classification of SCM practices with each classification emphasising a conceptual perspective.

The next section presents a brief discussion regarding factors that affect SCM practices.

Factors that affect supply chain management practices

In identifying the factors that affect SCM practices, the literature emphasises contextual factors such as size of the company, position in the supply chain, field of operation; the industrial sector; and operational capacities or competitive priorities (CP) particularly related to production.

Several studies (Li et al., 2005, 2006; Halley & Beaulieu, 2010) have drawn attention to the effect of *contextual factors* such as size, position and field of operation on the adoption of SCM practices.

Some research has already studied the relationship between the *company size* and SCM. The lack of comfortable fit between small and medium size enterprises (SME) and SCM practices has been affirmed by several studies (Quayle, 2003; Arend & Wisner, 2005; Vaaland & Heide, 2007), unless they are adopted in conjunction with large customers (Quayle, 2003) or key partners (Arend & Wisner, 2005). Thakkar, Kanda, & Deshmukh (2008) also verified differences between large and small and medium enterprises in terms of key SCM practices.

With regard to the *position* in the SC, Harland (1997) and Li et al. (2005, 2006) affirm that the company's position in its main chain differentiates it in terms of performance

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