An analysis of the direct and mediated effects of employee commitment and supply chain integration on organisational performance ☆

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A B S T R A C T

This paper focuses on the interrelationships among the different dimensions of supply chain integration. Specifically, it examines the relationship between employee commitment and supply chain integration dimensions to explain several performance measures, such as flexibility, delivery, quality, inventory and customer satisfaction. Very little research has been conducted onto this topic, since employee commitment is rarely included as an antecedent of the effect of supply chain integration on performance. Seven research models have been analysed with Structural Equation Models using a multiple-informant international sample of 266 mid-to-large-size manufacturing plants. The findings suggest that the relationship between employee commitment and operational performance is fully mediated by supply chain integration. Employee commitment contributes to improving internal integration, and internal integration affects performance both directly and indirectly. Moreover, obtaining internal integration helps to achieve supplier and customer integration. As a result, companies should strive to achieve both employee commitment and internal integration, as they mutually reinforce each other. Similarly, managers should achieve internal integration before external integration and include external integration at the strategic level in order to reap the greatest advantages from supply chain integration. Meanwhile, managers should promote employee commitment not only for better supply chain success, but also to mitigate the barriers of supply chain management implementation.

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1. Introduction

Supply chain management (SCM) has strategic relevance because increased competitive pressures have pushed many firms to turn their supply chains into competitive weapons to enhance performance (Fine, 1998). Effective SCM is a source of potentially sustainable competitive advantage for organisations and supply chain integration (SCI) plays a crucial role in this (Van der Vaart and Van Donk, 2008).

However, despite the potential benefits of SCI, the effective integration of value-added activities along the supply chain (SC) and the competitive influence of SCI have been questioned. Thus, more empirical research is needed in this topic (Leuschner et al., 2013).

Despite the fact that numerous studies have addressed SCI, it can be seen that it is not a well-defined concept (Fabbe-Costes and Jahre, 2008). SCI does not have a single, accepted definition or operationalisation (Pagell, 2004). SCI should consider the strategic, tactical and operational levels. SCI could be defined as the degree to which SC members achieve collaborative inter- and intra-organisational management on the strategic, tactical and operational levels of activities (and their corresponding physical and information flows) that, starting with raw materials suppliers, add value to the product to satisfy the needs of the final customer at the lowest cost and the greatest speed (Alfalla-Luque et al., 2013b).

SCI needs both intra and inter-company integration across the entire SC in order to work as a single entity (Alfalla-Luque and Medina-Lopez, 2009). In consequence, SCI research should take into account internal integration (INTI) and external integration

(EI) with supplier (SI) and customer (CI), as well as the external integration orientation (EIO).

However, previous research has not always taken the different dimensions of SCI into account (Fabbe-Costes and Jahre, 2008). Droge et al. (2004) suggest that the joint use of EI and INTI has a synergistic effect on firm performance. Other studies show that one of the reasons that prevents a high level of EI being achieved is a low level of INTI (Gimenez and Ventura, 2005). Moreover, INTI seems to be the starting point for broader integration across the SC. However, there is over emphasis on customer integration (CI) and supplier integration (SI) alone, excluding the important central link of INTI (Flynn et al., 2010). As stated by Zhao et al. (2011), despite increasing research interest in SCI, we still have a very limited understanding of what influences SCI and what the relationships between INTI and EI are. This paper seeks to provide empirical evidence on this relationship.

The prior literature is not unanimous in stating that the relationship between SCI and performance is positive. Some papers conclude that a higher level of SCI positively influences performance (Li et al., 2009), but others have not been able to demonstrate this relationship (Swink et al., 2007). So, additional research is necessary to test the relationship between SCI (separated out into its various dimensions) and performance. This relationship could be affected by the existence of variables that act as antecedents. Some studies have found that SCI has a mediating effect on performance (Vanichchinchai, 2012), but a limited number of studies have been conducted in this respect. As a result, determining the antecedents and performance consequences of SCI is a key focus of recent SCM research (Droge et al., 2012).

The apparent inconsistency in the findings and doubt about the relationship between SCI and performance suggest a missing variable. Taking into account the literature, our interest lies in including employee commitment (EC) as an antecedent in this relationship. Previous research has analysed the effect as an antecedent of workforce practices on performance for some operations management (OM) practices, e.g. TQM, JIT and TPM (Cua et al., 2001) but little research has been done on the effect of workforce practices in SCI, or even in SCM in general (Fisher et al., 2010). However, Fawcett et al. (2008) state that human nature is the primary barrier to successful SC collaboration both internally and with external SC partners.

This paper therefore focuses on the relationships among the different dimensions of SCI themselves, and on the relationship between EC and the SCI dimensions to explain several performance measures. It analyses EC as an antecedent of the effect of SCI on performance. For this we use a multiple-informant international sample originating from the third round of the High Performance Manufacturing (HPM) project. Fig. 1 shows the research framework.

The paper is structured as follows. Section 2 establishes the theories supporting the research, analyses earlier studies and establishes the hypotheses, objectives and proposed model to be tested. Section 3 describes the sample and the methodology employed. This is followed by the results of the study. Finally, the discussion, main conclusions, contributions, implications for practitioners and academics, limitations and future research are presented.

2. Theoretical background, research hypotheses and proposed model

In this section, firstly an analysis is conducted of the theories that support the research (Section 2.1). Next, the relationship among performance, SCI and EC is analysed and seven sets of hypotheses are established on the basis of a thorough literature review. Section 2.2 focuses on the relationship between SCI and performance. The first set of hypotheses addresses whether internal integration is directly related to external integration (H1 and H2). The second set of hypotheses covers the relationship between customer and supplier integration and external integration orientation (H3 and H4). The third set analyses whether SCI dimensions are directly related to performance (H5 and H8). The fourth set examines whether external integration orientation acts as a mediator in the relationship between customer/supplier integration and performance (H9 and H10) and whether external integration acts as a mediator in the relationship between internal integration and performance (H10 and H11). Section 2.3 focuses on the relationships among EC, SCI and performance. The fifth set of hypotheses addresses the question whether EC is directly related to performance (H12). The sixth set covers the relationships between EC and SCI dimensions (H13–H15). Finally, the seventh set analyses the mediated effect of internal integration and SCI (H16–H18). Section 2.4 describes the objective of the paper and the proposed model.

2.1. Theories supporting the research

In this paper our primary theoretical focus is on the theoretical framework of the value chain (Porter, 1986) and the resource-based view (RBV) of the firm (Peteraf, 1993; Barney, 1991). These are the two most commonly identified theories in SCM (Defee et al., 2010) and workforce management research.

Porter (1986) demonstrated that competitive advantage does not come about only with the efficiency with which any individual company is managed, but with that of the value chain as a whole. As such, the value that a company achieves will depend to a great extent on the relationships it has with its customers and suppliers (Porter, 1986), i.e. the degree of SCI. SCI is directly involved in the value-adding processes required to achieve efficient and effective upstream and downstream flows of products, services, decisions, and information (Bowersox et al., 2000; Mentzer et al., 2001). An analysis of a company's SC enables its capabilities to be identified by determining the activities in which it has, or can have, a competitive advantage, and the relationships that exist among them. The company can then identify the activities it prefers to carry out itself and those that would be better acquired externally. Therefore, the organisation has to take a series of strategic decisions based on the analysis of these business capabilities that will affect SCM and SCI directly. SCI enables a company to excel at specific value-added activities for which it possesses unique
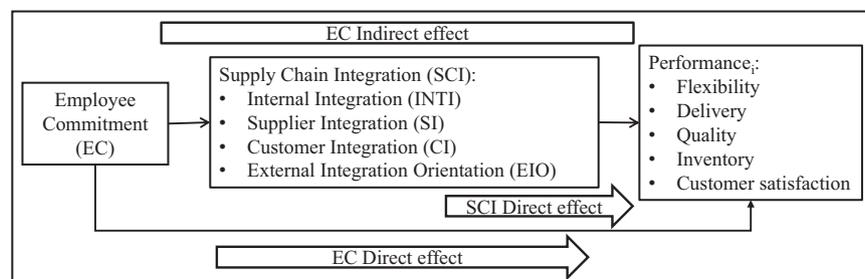

Fig. 1. Research framework.