Int. J. Production Economics 129 (2011) 277–283

Contents lists available at ScienceDirect

Int. J. Production Economics

journal homepage: www.elsevier.com/locate/ijpe

Supplier development and the relationship life-cycle

Stephan M. Wagner*

Chair of Logistics Management, Department of Management, Technology, and Economics, Swiss Federal Institute of Technology Zurich, Scheuchzerstrasse 7, 8092 Zurich, Switzerland

ARTICLE INFO

Article history:
Received 7 July 2008
Accepted 22 October 2010
Available online 27 October 2010

Keywords:
Supplier development
Buyer–supplier relationship
Relationship life-cycle
Social capital theory
Regression analysis
Curvilinear relationship

ABSTRACT

The mainstream view holds that over time buyer–supplier relationships evolve through a number of phases. As a consequence, supplier development as a buyer–supplier relationship management practice should also be adapted to the life-cycle phase. Supplier development activities matching the buyer–supplier relationship life-cycle phase will lead to more favorable performance improvements. However, prior studies have neglected the relationship life-cycle perspective. This empirical study shows how the length of the buyer–supplier relationship can be used to improve the explanatory power of models investigating the performance outcomes of supplier development activities. The results show that supplier development is more effective in mature as opposed to initial and declining life-cycles phases.

1. Introduction

There is ample anecdotal evidence in corporate practice and academic research that supplier development as any set of activities a buying firm expends on a supplier to improve supplier performance and/or supplier capabilities (Krause et al., 2000) can help to meet supply needs and generate favorable results for the buying firm. Recognizing the long-term and strategic benefits of supplier development, many companies have established supplier development programs and teams. Honda of America, for example, has adopted the BP (“Best Practice, Best Process, and Best Performance”) supplier development program to help suppliers in implementing the Kaizen philosophy for continuous improvement and organizational change (MacDuffie and Helper, 1997; Sako, 2004). John Deere built up a systematic supplier development approach to upgrade suppliers’ just-in-time capabilities. Working with John Deere’s supplier development teams, suppliers were able to achieve dramatic reductions in cycle time (Golden, 1999). Several aerospace and defense companies, including Boeing, Lockheed, Northrop Grumman, Rockwell Collins, Parker Aerospace, and United Technologies, joined forces and established a program called the “Supplier Excellence Alliance” with the goal to share best practices with suppliers and to realize improvements in quality, on-time delivery, and inventory levels at the suppliers. After a few years into the program the tier-one suppliers now began to share with their own suppliers what they have learned from the aerospace and defense companies (Avery, 2008). By consulting with the problem solving teams of Toyota’s Operations Management Consulting Division (OMCD) in Japan and the Toyota Supplier Support Center (TSSC) in the United States, many suppliers have received assistance in building up lean manufacturing capabilities. These organizational capabilities benefited both the suppliers and Toyota in the long run (Dyer and Hatch, 2006; Dyer and Nobeoka, 2000). Wal-Mart set up a supplier development group and a series of strategies that help the retailer to better serve customers. This group fosters close collaboration between Wal-Mart and its suppliers and joint business planning. Consequences of these efforts include significant improvement in customer awareness of brands, successful key item launches, and increased sales (Hahn, 2005).

In line with the bigger prominence of supplier development in corporate practice, scholars have lately paid increased attention to supplier development activities and programs. In 2007 alone, nine articles focusing on supplier development were published in production- and operations management-related journals (Araz and Ozkarahan, 2007; Carr and Kaynak, 2007; Chan and Kumar, 2007; Krause et al., 2007; Lee and Humphreys, 2007; Li et al., 2007; Modi and Mabert, 2007; Rogers et al., 2007; Wouters et al., 2007). All these studies and previous research on supplier development have investigated the buying firms’ supplier development activities at a single point in time and ignored the life-cycle of the buyer–supplier relationship.

Scholars pointed out that suppliers with strategic partnership-like relationships with the buying firm should be considered as potential candidates for supplier development (Araz and Ozkarahan, 2007; Talluri and Narasimhan, 2004). Likewise, Li et al. (2007, p. 231) remarked that “[i]mprovements in performance will happen within the unique exchange relationships developed between the buyer and supplier firms.” Since such ‘strategic partnership-like relationships’ or ‘unique exchange

* Tel.: +41 44 632 3259; fax: +41 44 632 1526.
E-mail address: stwagner@ethz.ch

0925-5273/$ - see front matter © 2010 Elsevier B.V. All rights reserved.
doi:10.1016/j.ijpe.2010.10.020

relationships' which influence the effectiveness of buying firms' supplier development activities develop over time, I contend that it is necessary to go beyond the study of supplier development activities at a single point in time and to take the stage of the buyer–supplier relationship into account.

My study draws on social capital theory (e.g., Adler and Kwon, 2002; Inkpen and Tsang, 2005; Nahapiet and Ghoshal, 1998) to explore the performance improvements of buying firms willing to develop social capital with key suppliers through supplier development. The primary goal of the study is to explore the impact of the dynamic nature of buyer–supplier relationships on the outcome of buying firms' supplier development activities. I test my proposed model in a cross-sectional sample by means of a quasi-longitudinal analysis. More specifically, I show that different stages of the buyer–supplier relationship life-cycle moderate the relationship between supplier development and the buying firm's performance. As such, my research refines and extends previous empirical studies on supplier development and asserts that the life-cycle of the buyer–supplier relationship should be included as a moderator in models studying the impact of supplier development and other models investigating buyer–supplier relationship practices.

I next provide a review of the current literature on buyer–supplier relationship dynamics embedded within the theoretical constructs of social capital theory and previous research in management and relationship marketing. This includes the delineation of my hypothesis. Next, I describe the data and the measures, and present the analysis and results. Finally, I discuss implications for further research.

2. Theory and development of hypothesis

2.1. Time contingent value of social capital

Social capital theory is an emerging concept that acknowledges the inherent value of social structures such as relationships, networks, and groups. Social capital refers to "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet and Ghoshal, 1998, p. 243). Central to the studies using social capital theory is the idea that networks of relationships and interactions between individuals can facilitate the creation of value within firms (Inkpen and Tsang, 2005; Tsai and Ghoshal, 1998).

Social capital can be defined and applied on different levels of analysis, such as individuals, groups, and organizations (Adler and Kwon, 2002). Whereas some relationships only require relationships between certain boundary spanning individuals, others need group- or organization-level social capital to enable collaboration in teams. One can distinguish between three components of social capital: (1) relational capital (trust, identification and obligation), (2) cognitive capital (shared ambition, vision, and values) and (3) structural capital (strength and number of ties between actors). Each dimension relates to a specific and identifiable aspect of social capital (Nahapiet and Ghoshal, 1998). In the context of this study, I am specifically concerned with the relational dimension of social capital.

While the explanatory power of social capital theory and the central value and importance of social capital to organizations have been popularized within the management literature (e.g., Adler and Kwon, 2002; Lin, 2001; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998), social capital theory is particularly applicable to better understanding buyer–supplier relationships. First, social capital has been described as the "relational glue" underpinning effective supply chains (McGrath and Sparks, 2005). Second, social capital theory acknowledges that buyer–supplier relationships are embedded within a larger social, environmental, political, and legal context (Håkansson, 1982). Third, social capital enhances the efficiency of buyer–supplier relationships resulting in the creation of opportunities that may not otherwise have been possible (Cousins et al., 2006; Krause et al., 2007; Lawson et al., 2008).

Historically, it has been common to look at the transactional nature of buyer–supplier exchanges, masking the embedded social and behavioral aspects. However, just recently social capital has received increasing attention as a theoretical lens through which to understand buyer–supplier relationships and the value creation process—resulting in four articles: drawing on social capital as theoretical underpinning, Cousins et al. (2006) studied inter-organizational socialization processes that create relational value in supply chains. Through case studies with six firms from the European food industry, Knoppen and Christiaanse (2007) investigated the behavioral dimensions of inter-organizational adaptation in buyer–supplier relationships along the lines of social capital theory and delineated adaptation into a cognitive, relational, and structural dimension. Krause et al. (2007) used social capital theory as the explanatory framework for the relationship between buying firms' supplier development efforts, the accumulation of three types of social capital, and buying firm performance. Lawson et al. (2008) draw on social capital theory to support their model linking relational embeddedness and structural embeddedness to buyer performance improvements within strategic buyer–supplier relationships.

Only two of the studies refer briefly to the time contingent value of social capital. To capture relational capital, Krause et al. (2007) included relationship length (i.e., years of the buyer–supplier relationship) as a measure and suggested a simple positive linear relationship between relationship length and improvement in the buying firm's performance. Knoppen and Christiaanse (2007) were aware that the relationship stage has an influence on inter-organizational adaptation. However, the authors did neither investigate the influence of relationship length nor relationship-life cycle in much detail. They merely concluded from their case studies that "[p]artners admitted that trust had grown over the years, by living through good and bad times together." (Knoppen and Christiaanse, 2007, p. 217) The authors realized that the cross-sectional assessment of inter-organizational adaptation is a limitation and that future research should ideally apply a longitudinal approach.

Both studies did not capture path dependence in the evolution of social capital. Krause et al. (2007, p. 534) pointed out in the discussion of relational capital that "past transactions may alter the calculus for further transactions" and that "prior history of cooperation between firms" has an impact on buyer–supplier relationship outcomes. However, the authors did not factor the path dependence of buyer–supplier relationships into their model. Path dependence could have been modeled by including some measure of relationship length or relationship life-cycle as a moderator between a buyer–supplier relationship management practice and performance. In a nutshell, I suggest to account for the dynamic nature of buyer–supplier relationships over the relationship life-cycle in studies on supplier development.

2.2. Dynamic nature of buyer–supplier relationships

Krause et al. (2007) posited simple positive linear relationships between relationship length and the improvement in two categories of buying firm performance. Both relationships were not supported, which is not surprising given the recent hints of social capital theorists to the path dependence of social capital.

Kotabe et al. (2003) studied two forms of knowledge exchange between a buying firm and a supplier – which can be considered as