The relationship between social capital and operational performance

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Abstract

We surveyed firms in the apparel and accessories industry, in Brazil, to investigate the relationship of social capital with the operational performance of the buyer. Preliminary results (n=78) show that the dimensions of operational performance of the buyer relate differently with each dimension of social capital. NOTE: We present findings from an updated database of 102 plants.

Keywords: Social Capital, Operational Performance, Buyer-Supplier Relationship.

Introduction

Since 1974 Natura has distributed its products by self-employed salespeople in order to get to know its customers better and provide a personal service. It brought happy side effects: fewer employees covered by onerous labor laws; less need for capital during a period of hyperinflation; less reliance on awful roads. Natura foused on the middle market that placed it perfectly to benefit from the emergence of a huge new middle class (The Economist, Sept. 28, 2013).

This example shows a firm whose success build upon social capital, once they are the market leader in the largest channel for beauty products (door-to-door) in one of the largest markets for such consumer products. The same firm is also known because of its supplier relationships in Amazon’s rainforest, using the same principles of developing strong ties with communities that collect the ingredients for their unique products. Social capital is the key to their competitive advantage – both in marketing and operations. Despite these and other anecdotal evidences, the relationship between social capital and performance in operations is still not clear (Matthews and Marzec, 2012).

The capital is benevolence manufactured in social relationships that can be used to facilitate action (Adler and Kwon, 2002). It consists of three interrelated dimensions: relational, cognitive and structural (Nahapiet and Ghoshal, 1998). The structural dimension encompasses network properties, including personal ties and the global pattern of connections. The relational one represents ongoing personal relationships, based on a history of interactions, respect, friendship, personal and emotional attachment. The cognitive one includes shared codes, shared language and shared representations, interpretations and systems of meaning among parts (Nahapiet and Ghoshal, 1998).
Social capital can be deliberately stimulated or emerge because of relationships (Johnson et al., 2013). In times of fierce competition, practices that develop and maintain personal connections, trust, cooperation, respect and friendship can be used in the buyer-seller relationship, and can provide benefits in whose absence would not be possible. Investigate the buyer-supplier relationship, using the theory of social capital, and examining its three dimensions and their relationship to the operational performance is relevant for both academics – pointing the most appropriate actions for implementation and establishing the foundation for social capital on resources based vision (RBV) – and management practices – helping to reduce suppliers’ opportunistic behavior and increase buyer’s ability of decision making. Thus, we aim to analyze the relationship of the social capital dimensions to the operating performance of the buyer company.

The social capital theory recognizes that relationships can be a source of physical and informational resources. Research has shown that the use of these resources can help organizations to achieve positive outcomes, such as improving company performance (Cooke, 2007; Krause, et al., 2007; Lawson et al., 2008.). Matthews and Marzec (2012) explain the characteristics of buyer-supplier relationships and how they affect the performance of companies. However, there are benefits and disadvantages in the use of social capital in the collaborative relationship between buyer and supplier (Villena et al., 2011). Relationship actions involving the three dimensions of social capital (cognitive, relational, structural) most suitable to improve the buyer’s operational performance (cost, quality, delivery, flexibility and innovation) of company need to be explored in the area of operations management.

**The social capital and operations management**

The social capital addresses the possibility of achieving the ends that would be impossible without it or could be achieved only at an extra cost (Coleman, 1988). Benefits include privileged access to knowledge and information, preferred opportunities for new business, enhanced reputation, influence and understanding of networking standards (Inkpen and Tsang, 2005). A peculiarity is that social capital can be converted into economic advantage as a substitute or complement to other assets. This helps compensate the lack of financial resources or human capital. It can increase the efficiency of action, minimizing redundancy.

Seen its benefits, it is easy to see the importance of understanding its nature and construction, and how it can be used in inter-organizational relationships. Even Villena et al. (2011) have presented disadvantages; there must be an appropriate and balanced way of its use in operations management. Recently, the most significant use of social capital in the area of operations occurred in the supply chain management (Matthews and Marzec, 2012).

Although there are various academic definitions of social capital, for Andrissen and Gubbins (2009), it refers to "relationships". For this study, we used the definition of Nahapiet and Ghoshal (1998), for whom social capital is “the sum of actual and potential risks involved, evaluated and derived from relationship networks taken by an individual or a social unit”.

**Dimensions of Social Capital**

Social capital is composed of three dimensions to explain the level of behavior of individuals and groups: structural dimension, relational dimension, and cognitive dimension (Nahapiet and Ghoshal, 1998).
The *structural dimension* refers to how and with whom a particular actor relates. There is or not in it the presence of ties between actors, network configuration in terms of measures such as density, connectivity and hierarchy (Nahapiet and Ghoshal, 1998), number of contacts of an actor (Smith et al., 2005), diversity of contacts, configuration and network stability (Inkpen and Tsang, 2005), besides the position of an actor in the network of contacts, i.e., with whom he has contact and how it occurs (Vera-Toscano et al., 2013). The network configuration determines the pattern of relations among its members (Inkpen and Tsang, 2005), and its stability is considered an important element in the creation of social capital.

The *relational dimension* refers to the type of relationships that social actors or units develop over time. Here, the focus is on the content and characteristics of relationships. It refers to the intensity of the relationship of an actor with others (Granovetter, 1973), to the number of roles of actors in relation (Burt, 1997), to the underlying rules of a relationship (Larson and Starr, 1993), and to the frequency of interactions to deepen relations (McFadyen and Cannella, 2004).

The *cognitive dimension* refers to shared interpretations and representations (Tsai and Ghoshal, 1998), as well as to the systems of meaning among parts (Nahapiet and Ghoshal, 1998). This dimension also relates to representations, interpretations and meaning system shared among actors and that enables or constrains their social exchange (Nahapiet and Ghoshal, 1998).

**Cost Performance**

Cost performance translates as the total cost of the product or service, including the production, productivity, capacity utilization and inventory reduction (Krause et al., 2007). When suppliers reduce their costs, benefits must be at least partially transferred to customers as lower prices (Clark, 1989; Human and Provan, 1997; Turnbull et al, 1992.).

The relational capital helps improve performance in buyer-supplier relationship. Trust, reciprocity, friendship and respect contribute to reduce monitoring costs, and increase the desire to cooperate beyond the contractual provisions. This dimension, e.g., allows privileged access to key resources (Kale et al., 2000; Uzzi, 1997), so it should enable greater efficiency in customer-supplier relationship. Thus, we hypothesize that cost performance relates positively to commitment (H1a), dependence (H1b), socialization (H1c), obligation / reciprocity (H1d) and confidence (H1e).

Cost is a crucial competitive priority for many companies and it is often used as an initial indicator of the success of a supplier relationship (Krause et al, 2007; Krause et al, 2001). The promotion of frequent interactions between buyer and supplier provides them with a diversity of reliable information (Koka and Prescott, 2002). To achieve benefits in the buyer-seller relationship it is important to build structural capital (Lawson et al, 2008; Krause et al, 2007.). Thus, we hypothesize that cost performance is positively related to performance evaluation (H1f) performance development (H1g), sharing information (H1h) and appropriability (H1i).

The cognitive social capital facilitates the exchange of resources, as buyer and supplier see the potential value of integration and combination of their resources (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). Thus, we hypothesize that cost performance relates positively to vision and shared values (H1j).
Quality Performance

There is a strong correlation between the quality of suppliers’ inputs and quality of final product or service (Krause et al., 2007). Quality includes product/service performance, features, reliability, conformance, durability, maintainability, aesthetics and perceived quality (Garvin, 1987). Quality performance is providing reliable, durable and high performance products that meet or exceed customer requirements (Koufteros et al., 2007).

Empirical studies have shown the benefits of relational capital in terms of improvement in quality (Cousins et al., 2006; Gulati and Sytch, 2007). Thus, the relational capital increases the willingness of buyers and suppliers to take additional risks and assume greater investments to achieve strategic benefits and operational improvement. Therefore, we hypothesize that quality performance relates positively to commitment (H2a), dependence (H2b), socialization (H2c), obligation/reciprocity (H2d) and confidence (H2e).

Actions related to performance evaluation, supplier development and information sharing impact on operational performance in buyer's quality (Krause et al., 2007). When a buyer builds structural social capital with the supplier, based on frequent interactions and through different hierarchical levels, he often discovers unique opportunities that help him find various competitive priorities (Lawson et al., 2008). Thus, we hypothesize that quality performance relates positively to performance evaluation (H3f) performance development (H3g), sharing information (H3h) and appropriability (H3i).

Cognitive social capital provides reference of behavioral norms and common understanding of collective goals that increases the commitment to explore the synergy and it reduces the likelihood of conflict (Inkpen and Tsang, 2005; Jap and Anderson, 2003). When buyer and supplier share values and goals, the buyer’s quality performance is improved (Krause et al., 2007). Therefore, we hypothesize that quality performance relates positively to vision and shared values (H3j).

Delivery Performance

Reliability and speed characterize successful delivery (Wheelwright, 1984): it is the supplier's ability to deliver as was promised (Garvin, 1987). Empirical studies demonstrate benefits of relational capital in terms of improving delivery (Cousins et al., 2006; Gulati and Sytch, 2007). Thus, we hypothesize that delivery performance relates positively to commitment (H3a), dependence (H3b), socialization (H3c) obligation/reciprocity (H3d) and confidence (H3e).

Delivery is one of the most important measures of performance within the practices of the supply chain (Wee et al., 2010), and it is critical to maintain competitive advantage of the organization and efficient and effective operations. In this sense, we hypothesize that delivery performance relates positively to performance evaluation (H3f) performance development (H3g), sharing information (H3h) and appropriability (H3i).

Once buyer and supplier share values and goals, the buyer’s delivery performance increases (Krause et al., 2007). Thus, we hypothesize that delivery performance relates positively to vision and shared values (H3j).
Flexibility Performance

Companies generally respond to unpredictable environments through increase of flexibility, which gives them the ability to respond to customers’ needs. Flexibility is the ability to customize products or services in terms of volume and mix (Wheelwright, 1984). Commitment, respect and reciprocity are essential requirements for collaborative supply chain (Johnston et al., 2004). Collaborative supply chains are positively related to flexibility performance (Kale et al., 2000). Thus, we hypothesize that flexibility performance relates positively to commitment (H4a), dependence (H4b), socialization (H4c) obligation / reciprocity (H4d) and confidence (H4e).

The actions regarding the structural capital as performance evaluation, supplier development and information sharing affect the buyer’s operational performance (Krause et al., 2007). Appropriability means that social capital developed in a social setting can be used in another one (Nahapiet and Ghoshal, 1998). Thus, flexibility performance relates positively to performance evaluation (H4f), development of performance (H4g), sharing information (H4h) and appropriability (H4i).

If buyer and supplier share values and goals, the buyer’s flexibility performance will increase (Krause et al., 2007). Thus, we hypothesize that delivery performance relates positively to vision and shared values (H4i).

Innovativeness Performance

Empirical studies have shown the benefits of relational capital in terms of improvement and in innovation (Capaldo, 2007). Innovation is the ability to bring new products or services to market, develop new products or service features, or implement process improvements. By the rapidly changing of nowadays, it is difficult for a company to develop new products or services by itself (Koufteros et al., 2007). Then, a close relationship with suppliers can improve this development. Thus, we hypothesize that innovativeness performance relates positively to commitment (H5a), dependence (H5b), socialization (H5c) obligation / reciprocity (H5d) and confidence (H5e).

Improvements in the buyer’s performance from collaborative relationships with the supplier are increasingly critical to improvements in product design and process, to the ability to innovate and achieve shorter product development time (Lawson et al. 2008, Petersen et al., 2005). Thus, we hypothesize that innovativeness performance relates positively to performance evaluation (H5f) performance development (H5g), sharing information (H5h) and appropriability (H5i).

When one includes innovation in the supplier’s objectives, and the practice of sharing of values between him and the buyer exists, then the buyer can improve performance in terms of innovativeness, since the cognitive capital consists in vision and shared values, i.e., buyer and supplier share the same goals. Thus, we hypothesize that innovativeness performance relates positively to vision and shared values (H5j).

Method

We conducted a survey in a sample of manufacturing plants in the Brazilian apparel industry. We chose this particular industry due to its importance to the economic dynamics in Brazil in terms of physical production, employment and trade. We obtained the list of the firms in
GuiaTexBrasil, a database of the Brazilian trade association for textiles and apparel (ABIT). Respondents included managers directly involved with suppliers.

We contacted each respondent by phone to obtain consent and get the email of the informant. The initial sample was 1000 firms, but we only were able to find 503 valid phone numbers. We sent an electronic questionnaire with cover letter for each manager (Dillmann, 2000). In 40 days of data collection, we obtained 117 questionnaires – we excluded 15 responses due to incomplete data. We identified two respondents as outliers. Thus, our final sample was 102 plants, or 20.28% of response rate, deemed satisfactory in empirical OM research (Malhotra and Grover, 1998). We tested for bias of the non-respondents, assessing the mean differences between the responses of early and late shipments of the returned questionnaires (Armstrong and Overton, 1977). We applied the t-test statistics and observed no statistically significant differences in the variables of interest (p <.05), suggesting that non-response bias is not a concern for this study.

The set of dependent variables comprised five main factors: cost – measured with a scale of 5 items adapted from Krause et al. (2007) and McDuffie (1995); quality, delivery, flexibility – all measured with scales of 5 items adapted from Krause et al. (2007), and innovativeness – measured on a scale of 5 items adapted from Koufteros et al. (2007). We asked the buyer company to indicate its level of agreement in relation to the effect caused by the supplier at the factory, in each of the five factors. Each of the scale items was measured on a Likert scale of 7 points where 1 indicates "strongly disagree” and 7 "strongly agree".

The independent variables (social capital) were as follows:

1. relational dimension – commitment, measured with a scale of 5 items adapted from Krause et al. (2007) and Koufteros et al. (2007); dependence, measured with a scale of 5 items adapted from Krause et al. (2007); socialization, measured on a scale of 5 items adapted from Lee and Dawes (2005); obligations/reciprocity, measured with a scale of 5 items adapted from Krause et al. (2007), Lawson et al. (2008) and Lee and Dawes (2005); confidence, measured with a scale of 5 items adapted from McEvily and Marcus (2005), Perrone et al. (2003);

2. cognitive dimension – shared vision and values, measured with a scale of 5 items adapted from Krause et al. (2007);

3. the structural dimension – performance evaluation, measured with a scale of 4 items adapted from Krause et al. (2007); development of performance, measured with a scale of 5 items adapted from Krause et al. (2007); sharing of information, measured with a scale of 7 items, 4 of which are adapted from Krause et al. (2007) and 3 other measures were added; appropriability, measured with a range of 5 items adapted Krause et al. (2007).

Each of these scale items was measured with a Likert scale of 7 points, where 1 indicates "strongly disagree” and 7 "strongly agree", however for performance evaluation and performance development, 1 indicates "never" and 7 "always".

We also included the following control variables: size of the plant (measured as the logarithm of the number of FTE), investment (the inverse of the logarithm of the age of production equipment), length of the relationship (in years), percent of purchase of this particular supplier, and bargain power. We included these variables in blocks of hierarchical regression, similar to other research in OM (e.g., Klassen and Vachon, 2003).
Results and Discussion

After the statistical analysis, we found support to ten hypotheses of the research. Table 1 shows the summary of the results of the multivariate regression models. The complete regression tables, with the estimates from OLS, are available upon request to the authors.

Table 1: Summary of Regression Results

<table>
<thead>
<tr>
<th>Measures</th>
<th>Cost</th>
<th>Quality</th>
<th>Delivery</th>
<th>Flexibility</th>
<th>Innovation</th>
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<td>Relational</td>
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<td>Commitment</td>
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<td>Dependence</td>
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<td>Socialization</td>
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<td>Reciprocity</td>
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<td>Trust</td>
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<td>Cognitive</td>
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<td>Vision and values</td>
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<td>Structural</td>
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<td>Performance evaluation</td>
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<td>Performance development</td>
<td></td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
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<tr>
<td>Information sharing</td>
<td>(+)</td>
<td>(+)</td>
<td></td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>Appropriability</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>Variance explained</td>
<td>54%</td>
<td>35%</td>
<td>31%</td>
<td>38%</td>
<td>46%</td>
</tr>
</tbody>
</table>

Regarding the structural dimension, the analysis provided support for the hypothesis $H_{1f}$ indicating that performance evaluation relates positively with the operating performance in cost of the buyer company. This is consistent with Krause et al. (2007): building structural social capital is important to achieve benefits in the buyer-seller relationship.

Similarly, the analysis gave support for $H_{1h}$, indicating that information sharing relates positively to operational performance in cost of the buyer company. It also provided support for $H_{2h}$ indicating that sharing information relates positively with the operating performance in quality of the buyer company. It is consistent with Krause et al. (2007): Actions relating to information sharing impact on operational performance in buyer’s quality.

In addition, the analysis provided support for $H_{4h}$, indicating that sharing information relates positively with flexibility in operating performance of the buyer company, the result also agree with Krause et al. (2007): Actions relating to structural capital such as information sharing impact the buyer’s operational performance.

$H_{5h}$ was also supported, indicating that sharing information relates positively with the operating performance in innovativeness of the buyer firm. This result is consistent with Lawson et al., 2008; Petersen et al., 2005: Improvements in buyer’s innovation performance from collaborative relationships between supplier and buyer are increasingly critical to improvements in product design and process, in the ability to innovate and shorter product development time.

The analysis provided support for the $H_{1i}$, indicating that appropriability relates positively with the operating performance in cost of the buyer company. It also provided support for $H_{2i}$ indicating that appropriability relates positively with the operating performance in quality of the buyer company. This result is consistent with Lawson et al. (2008): when a buyer builds structural social capital with his supplier, based on frequent interactions and through different hierarchical levels, often finds unique opportunities that help him to find many competing priorities.
The analysis also provided support for the $H_{3i}$, indicating that appropriability relates positively with the operating performance in delivery of the buyer company. This result is consistent with Wee et al. (2010): Delivery is critical to maintain competitive advantage of the organization and efficient and effective operations.

The analysis provided support for the $H_{5i}$ hypothesis, indicating that appropriability relates positively with the operating performance of the buyer company innovativeness. This result is consistent with Koufteros et al. (2007): By the rapidly changing of nowadays, it is difficult for a company to develop new products or services by itself, and then there is room to undertake actions of relationships involving appropriability.

In relational dimension analysis provided support for the hypothesis $H_{4b}$, indicating that dependence relates positively with flexibility in operating performance of the buyer company.

The theoretical contribution of this paper is to connect the social capital to operating performance, pointing out the relationship practices that contribute to a collaborative relationship, long-term between buyer and supplier, who can be resources to improve competitiveness and hence improve the buyer’s operating performance. It also establishes an unexplored connection between social capital theory and the Resource Based View (RBV), for which a competitive advantage is sustainable if it is difficult to imitate or substitute. The social capital accumulates itself as an unpredictable effect of other activities, and its effect may depend on the context and the route – two of the three main reasons that make a resource to be hard to imitate and/or to replace. Therefore, social capital contributes to the creation of sustainable competitive advantage, and here it was shown how such advantage is created.

There are some managerial implications related to the measures of the three dimensions of social capital and in the measures relating to operational performance:

1. Buyers must provide means to avoid the dependence of the supplier, for the dependence is negatively related to the flexibility performance;
2. buyers must prioritize the cooperative relationships that give the opportunity to his participation in the evaluation of supplier’s performance, i.e., enabling complaints and compliments and inform the buyer about the arrangements because as the actions related to performance evaluation increase, the operational performance of cost performance increases;
3. buyers must invest in actions that increase communication to exchange important information that may affect each other, because the sharing of information is positively related to cost performance, quality performance, flexibility performance and innovativeness performance;
4. buyers must prioritize cooperative relationships in an setting that can be used in another one, because appropriability is positively related to cost performance, quality performance, delivery performance, and innovativeness performance.

**Conclusion**

To create sustainable competitive advantage, the buyer company does not need to devote efforts to actions that involves commitment, socialization, engagement/reciprocity, trust, shared vision and values or performance development, but should invest in collaborative relationship practices that include dependency, performance evaluation, information sharing, and appropriability.

**References**


