

# Information and Knowledge Sharing in Inter-organizational Relationships under the Process Approach

Esther Lage and Bráulio Alturas

*Instituto Universitário de Lisboa (ISCTE-IUL), ADETTI-IUL, Avenida das Forças Armadas, 1649-026 Lisboa, Portugal*

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**Abstract:** This paper aims to contribute to the understanding of inter-organizational information and knowledge sharing by analyzing how the phenomenon is presented in the literature under the process approach. As results, it was possible to identify how the authors have labeled and measured the phenomenon, the contexts in which it has been investigated and what antecedents have been identified. Aspects that demand further studies were also highlighted. For networks and organizations the study provides lessons regarding the information and knowledge characteristics, firm's characteristics and channels used to share information and knowledge.

## 1 INTRODUCTION

This paper aims to contribute to the understanding of inter-organizational information and knowledge sharing through a theoretical review based on the process approach. This approach focuses on inputs that influence the phenomenon (Martinkenaite, 2011). The benefits for the scholars are the provision of an integrate view on the subject and the identification of aspects that demand further studies. Additionally, this paper aims to provide a guideline for networks and organizations that can help them achieve their goals on this issue by defining appropriate policies, incentives and channels.

## 2 MAIN ASPECTS OF THE PHENOMENON

**Label.** It is possible to highlight the existence of three groups of studies regarding inter-organizational information and knowledge sharing:

- A group that use the term "Information" (Moberg et al., 2002; Carr and Kaynak, 2007; Madlberger, 2009);
- A group that focuses on "knowledge" (Simonin, 2004, Mei e Nie, 2007; Bstieler e Hemmert, 2008; Bond III, Houston and Tang, 2008; Pérez-Nordtvedt et al., 2008);

- A group that focuses on both of them: information and knowledge (Fritsch and Kauffeld-Monz, 2008; Morrison and Rabelotti, 2009). Those authors consider this distinction relevant due to differences in transmission costs between them.

Despite the fact that the differentiation between the terms information and knowledge is not always clear in the studies, which may be due to the fact that this is still an open problem in the field of information science (Floridi, 2004), it seems that the authors consider them to be different phenomena.

Another difficulty related to the label is the use of diverse terms following the terms "information" or "knowledge", such as sharing (Carr and Kaynak, 2007; Mei and Nie, 2007), transfer (Tushman and Scanlan, 1986; Simonin, 2004), exchange (Moberg et al., 2002), flow (Dahl and Pedersen, 2004) acquisition (Hau and Evangelista, 2007). It is not clear the distinction between them, and, in many cases, they may mean the same idea.

It seems that the term knowledge transfer has gained more notoriety, considering theoretical reviews on the subject that favored this term (Wijk et al., 2008; Easterby-Smith et al., 2008; Martinkenaite, 2011) as well as conferences that used this designation (<http://inkt12.innovationkt.org/>).

**Conceptualization.** Most researches understand the phenomenon as a one-dimensional one, emphasizing

the extent to which it occurs (Carr and Kaynak, 2007; Bstieler and Hemmert, 2008; Fritsch and Kauffeld-Monz, 2008). Under this line, different types of information and knowledge are taking into consideration. For instance there are researches that differentiate the sharing in terms of knowledge nature (tacit x explicit), knowledge content (marketing, technology, management) and information objective (strategic x operational) (Moberg et. al., 2002; Hau and Evangelista, 2007; Samarra and Biggiero, 2008).

Less common in the literature, a multi-dimensional approach (Pérez-Nordtvedt et. al., 2008) measured the phenomenon by two dimensions: effectiveness (usefulness and understanding of the knowledge acquired) and efficiency (speed and economy of the transfer).

**Contexts.** Information and knowledge sharing has been investigated in different kinds of inter-organizational relationships such as supply-chain relationships (Moberg et. al., 2002; Carr e Kaynak, 2007; Madlberger, 2009), innovation networks (Fritsch and Kauffeld-Monz, 2008; Bond III, Houston e Tang, 2008), clusters (Dahl e Pedersen, 2004; Morrison and Rabbellotti, 2009) and international strategic alliances (Hau and Evangelista, 2007; Simonin, 2004; Perez-Nordtvedt, Kedia, Datta e Rasheed, 2008). Whenever the focus is not on a dyad but on the whole network, the researches either ask the respondents to think about the most important partners (Fritsch and Kauffeld-Monz, 2008; Samarra and Biggiero, 2008) or to consider the network as a whole (Bond III, Houston and Tang, 2008).

**Antecedents.** It is possible to highlight the following factors found in the literature as positive influences for the occurrence of information and knowledge sharing in inter-organizational relationships: information quality (Moberg et. al. 2002); the sharing of a codified and articulate type of knowledge (Mei and Nie, 2007), the sharing of knowledge perceived as valuable by the receptor (Perez-Nordtvedt et. al., 2008), the practice of information sharing within the organization, among its departments (Carr and Kaynak, 2007), absorption capacity (Cohen and Levinthal, 1990), top management commitment (Madlberger, 2009), informational attitudes such as transparency and willingness to share (Madlberger, 2009), appropriate electronic links to trading partners (Madlberger, 2009), high degree of redundancy of relationships within a network (Fritsch and Kauffeld-Monz, 2008), actor acting as a broker in a network (Fritsch and Kauffeld-Monz, 2008), intention and ability to

learn (Simonin, 2004), assistance provided by the partner (Hau and Evangelista, 2007), high intensity of interaction and intimacy between partners (Bstieler and Hemmert, 2008), enduring desire to maintain a valuable relationship with the trading partner (Moberg et. al., 2002), good interpersonal relationship, trust and ease of communication (Pérez-Nordtvedt et. al., 2008), attractiveness of the partner (Pérez-Nordtvedt et. al., 2008), perceived benefits (Madlberger, 2009), informal socialization mechanisms (Dahl e Pedersen, 2004; Lawson, Petersen, Cousins and Handfield, 2009).

As negative antecedents, the literature highlights the sharing of ambiguous knowledge (Simonin, 2004 based on Reed and DeFillippi's, 1990), knowledge based on complex organizational routines (Pérez-Nordtvedt et. al., 2008), cultural distance between partners (Hau and Evangelista, 2007 based on Johanson and Vahlne, 1977).

### 3 MANAGERIAL IMPLICATIONS

Sharing information and knowledge is a strategic issue and every firm and network needs to define the benefits and risks of engaging in such activity.

If a firm does not want to share information and knowledge for fear of losing position, privileges or rewards (Hau and Evangelista, 2007) there are some practices than can be followed to achieve this goal, such as: avoiding knowledge registration and observation of processes in which information/knowledge is being applied (Winter, 1998), use of patents, copyrights, trade secrets (Liebeskind, 1996), personnel policies and contractual specifications (Nieminen, 2007).

If a company wants to increase its participation in inter-organizational information and knowledge sharing, it is possible to draw some lessons that can favor the occurrence of the process:

- Regarding information and knowledge characteristics: the more codified the knowledge, the easier it is shared (Mei and Nie, 2007). Therefore, proper formatting is important, not only in syntactic and semantic aspects, but also in pragmatic terms. This contributes to make the understanding easier for the receiver and to minimize possible ambiguities. Furthermore, it is important that information and knowledge are valuable in the perception of the receiver.

- Regarding characteristics of firms involved in sharing: if a firm wishes to obtain information and knowledge of other organizations the first step is to ensure the presence of a desire and intent to learn. This is not a simple and linear variable. Organizations must manage it throughout the development of the partnership in order to get results, expanding the focus to other types of information and knowledge when needed (Beamish and Killing, 1997). However, intent to learn is not enough. Companies must also develop the ability to learn. To this end, they should invest in a higher degree of heterogeneity of skills involved in the management of collaborative relationships (Samarra and Biggiero, 2008) and in the practice of research and development (Fritsch Kauffeld-and Monz, 2008). All these practices require the top management commitment in terms of resource availability.
- Regarding characteristics of the relationship between the firms: researches indicate that the presences of a long-term commitment willingness, trust, ease of communication, close and frequent interaction in the relationship between the partners contribute to the sharing process. These aspects facilitate a common understanding between the partners and the dissemination of sensitive information/knowledge. However, it is also important to highlight that strong ties can generate contrary consequences to the sharing process, as the lock-in effect, in which companies ignore ideas that come from outside (Fritsch and Kauffeld-Monz, 2008).
- Regarding channels used: it is recommended the use of routines that maximize the frequency and intensity of partner-techniques interaction in order to help the partners to develop overlapping knowledge bases. This demands alignment of incentives, financial or informal, in order to encourage reciprocity and transparency (Dyer and Sing, 1998). A balance needs to be evaluated in terms of presence and virtual channels. Although virtual meetings provide benefits, they also may end up reducing the possibility of informal face-to-face contacts, what may be negative for information/knowledge sharing. Formal forms of socialization maintain its importance but mainly because they stimulate and encourage informal sociability (Dahl and Pedersen, 2004; Lawson et. al., 2009).

#### 4 RECOMMENDATIONS FOR RESEARCH

Despite the growing number of studies over the past 20 years on inter-organizational information and knowledge sharing, there are still many aspects that need to be more fully apprehended (Easterby-Smith, Lyles and Tsang 2008). From the literature analyzed it is possible to identify the following suggestions related to the process of sharing and to the methodological aspects:

- Process: adoption of new variables as possible antecedents such as organizational culture, avoidance of uncertainty, risk propensity (Moberg et. al., 2002); cultural distance, attributes of the management team, leadership style (Wijk, Jansen and Lyles, 2008); type of coordination between companies, duration and frequency of the relationship; country of origin of the partners (Perez-Nordtvedt et. al., 2008); identification of feedbacks between results and antecedents of knowledge transfer (Martinkenaite, 2011); deepening in matters of disadvantages, losses or costs related to the process (Madlberger, 2009).
- Methodology: use of longitudinal studies in order to identify causal relationships (Lawson et. al., 2009); balanced use of positivist and interpretative methodological approaches in order to capture the richness and social complexity that involves the transfer of knowledge (Pérez-Nordtvedt et al., 2008); use of multiple participants (Wijk, Jansen and Lyles 2008).

#### 5 CONCLUSIONS

Inter-organizational information and knowledge sharing in inter-organizational relationships is a complex phenomenon due to some aspects such as the methodological difficulties related to the capturing and measuring of intangible aspects and the still undefined discussion on information and knowledge differentiation. Another difficulty is related to the understanding of the information process among companies arranged in network. The researches usually prioritize the most important relationships without characterizing specifically each of them. Regarding the antecedent's factors, it is important to highlight that they are associated with different contexts and actors.

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