



Network pictures: Building an holistic representation of a dyadic business-to-business relationship

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ABSTRACT

Network pictures are perceived as providing a picture of a company's position within a network and as providing managers with a framework for strategic decision making. This exploratory paper sets out to investigate the application of network pictures of individuals from two companies involved in a business relationship. More specifically between companies and between individuals, it examines the boundaries of the network pictures, the lines of communication, the perceived relationship atmosphere and the impact of environmental factors. Within the companies the individuals were found to have different network pictures which reflect their managerial level and function. We suggest that the boundaries of the individuals' network pictures, their frequency of communication and perceptions of the relationship atmosphere systematically vary with their managerial level. Systematic variation occurred between the companies with regard to the perceived lines of communication and the relationship atmosphere.

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1. The problem companies face

In order for firms to develop their inter-firm relationships they need to be able to identify key actors in their business networks that can enable them to solve the problems. These problems may vary from working out who has the knowledge to help drive effective changes to problematic inter-firm routines, to identifying individuals with the authority to approve significant changes in make/buy decisions. Identifying actors, who might be individuals or groups of individuals from an intra-firm or inter-firm context, can be challenging. One way that firms might seek to do this is through the use of shared network pictures. The purpose of this research is to compare network pictures of individuals from two companies involved in a business relationship in order to generate insights into how individuals solve problems that span organizational boundaries and if network pictures might be used to develop inter-firm relationships.

2. Theoretical background

Ramos, Ford, and Naudé (2005) describe network pictures as,

“a representational technique that aims to capture or illustrate views that specific actors have of the networked environment within which they operate.”

In this regard, the concept of network pictures shares similarities with the discussions surrounding managerial cognition in the strategy literature (see for example, Osborne, Stubbart, & Ramaprasad, 2001; Porac, Thomas, & Baden-Fuller, 1989), the organizational behaviour literature (see for example, Weick, 1995) and the concept of network horizons in the industrial purchasing literature (Gadde, Huemer, & Håkansson, 2003; Mattsson 2002). Despite recent developments of the network pictures concept (Ford, Gadde, Håkansson, & Snehota, 2002; Henneberg, Mouzas, & Naudé, 2006), there continues to be a degree of ambiguity regarding how and when network pictures might most usefully be applied. One approach to exploring the application of network pictures is through four distinct levels of network management identified by Möller and Halinen (1999). The first level to which network pictures could be applied is the industry level. At this level network pictures have been used to represent the configuration of all actors carrying out value adding activities within a given industry (for example, Ford et al., 2002). At the second level, network pictures have been applied to represent the configuration of a firm's strategic positioning within its focal net (Henneberg et al., 2006; Öberg, Henneberg, & Mouzas, 2007). At the third level, network pictures could be applied to represent make/buy decisions. This level takes the firm as the nexus of resources and activities and the network picture would therefore be used to represent the configuration of activities carried out internally and externally, identifying the different types of exchange relationships with the core firm. At the fourth level, network pictures could be applied to individual customer–supplier relationships.

While Leek and Mason (in press) have examined the utilization of network pictures as a relationship management tool from the

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perspective of a core firm, no research to date has explored the differences and similarities of network pictures developed by different actors from both sides of a single inter-firm relationship – the buyer and the supplier. We suggest that the examination and comparison of network pictures from actors on each side of a single dyadic relationship are likely to generate valuable insights for relationship management theory. Using network pictures at the individual dyadic relationship level seems likely to generate insights into how actors understand and represent their position in the network. Further, by asking actors to draw and explain their network pictures it is possible to capture the 'stories' that accompany the representations. How each firm's network position evolves through individual, intra and inter-firm episodes that constitute what the relationship actually is (Ford & Redwood, 2005; Kamp, 2005), can then be explored.

Understanding a firm's network position is important as it affects its ability to develop current and new relationships within the network, and in this way, grow. Indeed, as Ritter and Gemünden (2004) explain, the smooth running of a specific relationship will affect its outcome and this in turn will affect other network relationships. For example, a problematic relationship with one supplier may lead to a company giving more of its business to another supplier.

Comparing the network pictures from a number of individuals within both firms involved in a single relationship should help us develop a richer and more comprehensive picture of the relationship. Håkansson and Ford (2002) suggest that multiple network pictures are necessary in order to enable managers to cope with multilayered, multifaceted demands of the workforce and the business network. The call for the use of multiple network pictures is perhaps not surprising when we consider inter-firm relationship dynamics comprise multiple individuals that operate and interact at different organizational levels and on an intra and inter-firm basis. Further, the activities of individuals within the firm are bound by both the functional divisions within which they operate and by the specific roles associated with each worker. The multiplicity of these boundaries suggests that no one could have a complete picture of what is happening in a specific inter-firm relationship. In this regard, we suggest that organizational structures set boundaries around the amount and type of information that any one actor might have about a specific relationship. Hence, multiple network pictures seem likely to provide a more complete view of a relationship both within and between the firms.

3. Dimensions of network pictures

Using network pictures to identify and configure a firm's network position within its focal network, Henneberg et al. (2006) identify eight dimensions of network pictures. Leek and Mason (in press) interpret these dimensions at the individual, dyadic relationship level (cf. Möller & Halinen 1999). For the purpose of this paper, the five dimensions are identified; Environmental Forces, Actors and Boundaries, Focus on Activities and Resources, Positioning, and Process and Interaction (see Fig. 1 below):

1) Environmental Forces

The external environment includes aspects that are outside the visibility of the network picture, outside the boundary but whose influence may affect how the network picture evolves (Anderson et al. 1994; Holmen & Pedersen, 2003; Henneberg et al., 2006). Because of the interactive nature of Möller and Halinen's (1999) levels of management, it seems likely that the network pictures that managers hold at the industry, firm and portfolio levels are likely to impact upon and inform their network pictures at the dyadic relationship level.

2) Actors and Boundaries

Henneberg et al. (2006) identify two sub-dimensions of actors and boundaries; depth and width. *Depth* is understood as the number of relationships a focal company has involving the direct supply of goods

and services. *Width* is understood as the nature of relationships that a focal company has with other companies outside the formal product/service delivery system (Henneberg et al., 2006). For our purposes, at the relationship level *depth* is to be interpreted as the number of hierarchical levels within the dyadic relationship, at which the focal individual has a relationship. That is, the relationships between the individuals at different hierarchical levels within the core firm and their relationships with individuals at different hierarchical levels within the buyer/supplier firm. The *width* of a relationship is interpreted as the number of relationships the individual has i.e. the number of individuals and groups the focal individual interacts with, both within their own company and the supplier/buyer company. This explains the association between actors and boundaries of the perceived relationship.

Actors may be depicted as individuals or groups of individuals and may sometimes be described as specific functions, e.g. the design team. Essentially the boundaries at this level encompass a specific relationship but it is acknowledged that relationships outside that boundary will have an impact as boundaries are artificial (Holmen and Pedersen 2003).

3) Focus on Activities and Resources

A network picture will include different types of activities and resources (Håkansson & Johansson 1992; Håkansson & Snehota 1995). Resource ties such as the integration of information systems should also be considered (Holland & Lockett 1997). Within a relationship the actors' network pictures will encompass the activities and resources and this can be used to clarify the structure and workings of the relationship, i.e. which group or individual is responsible for which task. Most individuals in a relationship will probably be aware of these points but in a new situation, for example, a new design task or work stream, these aspects may not be clearly understood by either customer and/or supplier. This could create problems which a network picture could possibly help identify and clarify.

The focus of the network picture will vary according to what is being investigated for example if there is a problem with payment then the financial aspect becomes the focus.

4) Positioning/Centre

This is the perspective the individual will be using to base their decisions and actions on. The individual may be at the centre of the relationship in that they are responsible for its smooth running on a day-to-day basis.

5) Process and Interaction

Here three sub-dimensions are identified: 1) the direction of interaction, 2) time and task and 3) relationship atmosphere. First, *Directionality of Interactions* at the relationship level encompasses the flow of goods and information and the processes that enable this to happen. For example, respondents might well identify who is communicating with whom, how often, about what and the importance of that communication.

The second sub-dimension of process and interaction is *Time/Task*. Ganesan (1994) suggests that a network picture can provide information on the duration of the relationship. It is stated that certain activities performed by a company may be accepted if the relationship is short term but would be deemed unacceptable should the relationship be long term (Weick, 1995). However it is unclear how this information would actually be depicted on a network picture. Thus, it seems likely that information on the expected duration of the relationship would be required to provide contextual information for the interpretation of the network picture.

The third sub-dimension of process and interaction is *Relationship Atmosphere*. Henneberg et al. (2006) state that the degree of power between the companies in a network is important as it indicates the extent to which they are dependent or independent on others in the

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