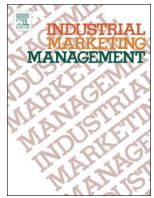




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Dimensions of space in business network research

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ABSTRACT

Interactive processes constitute a core notion in business exchange, leading to the concepts of relationships and networks. The constitution of process, comprising unfolding events, activities, and connected structures, relies on difference in space and time. While research has been devoted to time, the concept of space has thus far remained largely unexplored within business network research.

This conceptual paper focuses on spatial dimensions for conducting research according to the IMP business network approach. Business actors create connected relationships and networks that exist and change as continuous emerging spatial structures and as mental maps in the managerial mindset. These relational network processes and structures are located, distributed and experienced in and across space. Drawing on economic geography and conceptual frameworks from the business network approach, we propose new dimensions and conceptualizations of space for the study of these networks. The paper delivers proposals to extend our current understanding of business networks as emerging and changing spatio-temporal entities with implications for theory development, research and practice.

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"A network approach requires identifying actors in networks, their on-going relations and the structural outcome of these relations. Networks therefore become the foundational unit of analysis for the understanding of the global economy, rather than individuals, firms or nation states" (Dicken, Kelly, Olds, & Yeung, 2001).

1. Introduction

Business relationships and networks constitute an avenue of research both within industrial marketing and in the current research on economic geography. Interaction between firms is a key process through which companies relate their activities and resources to each other, forming networks of interconnected business relationships. The Industrial Marketing & Purchasing Group (IMP) of researchers has been developing the interaction and network approach in business marketing since the late 1970s (Ford, 2001; Ford, Gadde, Håkansson, & Snehota, 2003; Håkansson, 1982; Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009; Håkansson & Snehota, 1995). In this tradition, network actors, their activities and joint resources, where time and process

and the connected structure occupy an inbuilt and central position, play the key role.

Analyzing some key constructs of the IMP network approach reveals the important but predominantly implicit presence of both time and space in research constructs. A plethora of concepts related to time and process can be found in the central constructs of the tradition, including e.g. *interaction, relationships, activities, processes, stability and change, episodes, events, and path dependence* (e.g. Ford, 2001; Håkansson, 1982; Håkansson & Snehota, 1989, 1995; Håkansson et al., 2009). There are also many central concepts that include a spatial dimension, such as *network structure, resources, actors, position, links, ties, embeddedness, and network horizon*. All of these concepts exhibit to some degree an inherent temporal or spatial loading. Network links and ties as located and connected entities relate to existing structures in *geographic space*. Companies and their facilities are located in specific places, and resources are combined by various activities through their locations, physically and/or virtually. Social bonds, such as trust and commitment, relate on the other hand to socio-cognitive dimensions existing in the *mental space* between interacting actors.

While space has been identified as an area in need of research (Håkansson et al., 2009; Tidström & Hagberg-Andersson, 2012; Törnroos, 1991a), it has received scant attention as a key conceptual framework within the IMP network approach. Apart from a few recent contributions (e.g. Cantù, 2010; Eklinder-Frick, Eriksson, & Hallén, 2011; Nicholson, Tsagdis, & Brennan, 2013), the concept of space and geography has remained unexplored and is not taken explicitly into

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account within this domain. Yet the notion of space provides a core basis for e.g. resource heterogeneity, embeddedness and the overarching business network structure.

In economic geography, the dimensions of time and space differentiate a business network virtually and geographically as well as socially and culturally (Dicken, 2007; Dicken et al., 2001; Yeung & Coe, 2014). Overcoming spatial and other distances in exchange requires time, and the spatial positioning of actors occurs relative to time and the timing of business actions. To discuss space from this perspective without also considering time seems likely to be unproductive.

Therefore, we find it important in this study to clarify and deepen the concept of space in business network research. We posit that space, like time, should be seen as a multifaceted human dimension of social change (cf. Andersson & Mattsson, 2010b, 61), and that space cannot easily be captured with one or even a few chosen perspectives, concepts, or patterns of thought. This study differentiates between various spatial constructs, and adds to the extant literature by proposing a conceptual model of space pertinent to understanding the development of interactive business networks. The purpose of the model is to enhance and direct research on how space affects and is constructed in a business network.

We draw on conceptual developments and approaches within economic geography to shed light on how spatial concepts can be used as relevant frameworks and perspectives to study interactive networks in business marketing. Other network viewpoints of relevance, e.g. social networks (Granovetter, 1985; Parkhe, Wasserman, & Ralston, 2006) and strategic networks (Gulati, Nohria, & Zaheer, 2000; Jarillo, 1988), deserve treatments of their own, although the proposed conceptual model might be applicable there, too.

Industrial networks in business markets and economic geography share common ground, though little exploited to date. Nicholson et al. (2013) argue that business network studies and economic geography "... often address similar (arguably identical) research problems, particularly those pertaining to the analysis of regional development networks, but with subtly distinct conceptual armories." However, cross-fertilization between the fields has been largely lacking, with only a few authors working in the overlapping area (see e.g. Cantù, 2010; Törnroos, 1991; Yeung, 1994, 2005). Based on the argued closeness and similarity, the development of a spatial perspective would appear to offer a promising opportunity to advance understanding of business networks.

The structure of the paper is as follows. First, we review the IMP network literature on how space is conceived and studied as part of business interaction and networks. Second, we introduce the viewpoints and conceptual contributions that economic geography can offer the IMP network approach. Third, based on both streams of research, we develop a conceptual model of network space comprising the key spatial dimensions of business networks. Fourth, we deepen the discussion by adding three geospatial concepts: place, location, and distance, and integrating them into the model. Finally, we sum up the conceptual development and discuss its implications for business network research as well as practice.

2. Spatial dimension in IMP business network studies

Business networks are defined as sets of connected exchange relationships where one relationship affects another (Cook & Emerson, 1978). The concept of connection implies the idea of business exchange occurring in and across space and in and through time. Here, the expression of 'in' concerns time and space as an arena or environment for business interaction, whereas 'across' and 'through' suggest the socially constructed forms of time and space, yet importantly including the substantive interactions.

In the IMP approach, networks connect business relationships comprising actor bonds, activity links and resource ties (Håkansson & Snehota, 1995). Business interaction and networks evolve in space,

but the notion of space has only recently been proposed as a relevant dimension to be included in IMP network research (see e.g. Håkansson et al., 2009, pp. 38–45). Theoretically, in the IMP network approach space has been conceived through three focal elements: interdependency of activities, heterogeneity of resources, and jointness of business actors (Håkansson et al., 2009, pp. 38–45). Space has been seen as a context for interaction, or as a network structure that positions each actor and their interactions in its connected business landscape.

Space has therefore in some form been, at least implicitly, present in business network studies. In studying internationalization from a network perspective (Fletcher & Barrett, 2001; Fletcher, 2008; Johanson & Mattsson, 1988; Johanson & Vahlne, 2009; Törnroos, 1991), the spatial dimension is by necessity accounted for. In these studies, the spatial dimension is often closely related to country-level issues and recently also to global processes. Also, the concept of distance has played an important role, whether regarded as a physical, cultural, or psychic category (Törnroos, 1991a,b). Studies on regional networks take the proximity of companies and other actors in a specified geographical area as a focal point of departure in examining some focal aspect of business networks, e.g. industry decline (Nicholson et al., 2013), R&D operations (Johanson & Lundberg, 2007), knowledge transformation (Cantù, 2010), social capital (Eklinder-Frick et al., 2011). The central and peripheral locations of suppliers (Kamp, 2007) and local and global origins of investor relations (Chen & Chen, 1998) exemplify network type studies in relation to location. Finally, in strategy research in business networks, sensemaking by managers and the mental dimensions of network space have been pronounced (Henneberg, Naudé, & Mouzas, 2010; Tidström & Hagberg-Andersson, 2012). The concept of network horizon (Holmen & Pedersen, 2003), and the recent growing number of studies around 'network pictures' as cognitive maps, imply the idea of space, i.e. how human managers mentally experience their relational business webs around them (see e.g. Ford & Redwood, 2005; Henneberg, Mouzas, & Naudé, 2006; Laari-Salmela, Mainela, & Puhakka, 2015).

Thus, we conclude that space plays mostly an implicit role in IMP business network research. The topic has occasionally arisen in studies but has never been explicitly discussed or integrated into the development of IMP network theory. In the recent research, the mental–cognitive dimension of space has been strongly highlighted, but other spatial dimensions have barely been addressed. In some concepts (network structure, distance, location) or in some studied contexts (global business, regional networks), space is inherently involved indicating specific and relative positions in a spatial sense. We see these space dimensions as fruitful avenues for further inquiry.

3. Geographical perspectives on space in business networks

Studies of the firm in economic geography, where the focus lies on the spatial organization of business operations, offer an important source of ideas for the conceptualization of space in networks. As the economic geographer Yeung (1998, 109) states, "Network relationships in their *abstract* sense are placeless, although they produce 'networked space'. But the concrete realization of network relations must always be embedded in *place*", and "geography therefore plays a crucial role in influencing the formation of networks" (Yeung, 1998, 116). This idea is supported by economic geographers studying business networks within their field (see e.g. Dicken, 2007; Dicken et al., 2001; Yeung & Coe, 2014; Coe & Yeung, 2015). This is also taken as a point of departure for this study.

Economic geography has traditionally looked closely at how firms locate their activities and what drives and motivates them to seek favorable or 'optimal places'. The classical location theory of v. Thünen, Weber and their followers (see e.g. Isard, 1956; Lloyd & Dicken, 1979; Smith, 1981) employs mainly quantitative methods together with general economic theory where space "... and the world as well as people in it were treated as objects rather than subjects" (Cresswell, 2009, 3).

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