

# Elaborating Space in IMP Research

By

Jan-Åke Törnroos  
Åbo Akademi  
University  
FINLAND  
jtornroo@abo.fi

Aino Halinen  
University of Turku  
  
FINLAND  
aino.halinen-kaila@utu.fi

Christopher John Medlin  
University of Adelaide  
  
AUSTRALIA  
chris.medlin@adelaide.edu.au

**Competitive Paper**  
**Annual IMP Conference in Rome, Italy, September 2012**

## Abstract

The IMP notions of business markets see relational interaction processes being at the heart of business exchange, so leading to the concepts of business relationship and network. The constitution of processes, consisting of events and activities, relies on difference in space and time. While time has been discussed, the concept of space has thus far remained unexplored.

In this paper the focus is on the spatial dimension of networks and networking. Business networks exist and are changing in space. Markets and resources, which business networks join, are distributed through space. Drawing on corporate geography and existing notions of business network theory we offer a new conceptualization of space in business networks. An examination and discussion of how the space concept is applied within the IMP research allows development of proposals to further our understanding of business networks as changing entities.

**Keywords:** space, interaction, networks, mental network maps, humanistic geography

*"A network approach requires identifying actors in networks, their ongoing 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**

Interaction, business relationships and networks form a distinct theoretical and conceptual approach to the study of business markets. Interaction between firms is considered as a key process through which companies relate and combine their activities and resources to each other, forming networks of interconnected business relationships (Ford, Gadde, Håkansson & Snehota 2003; Håkansson 1982; Håkansson, Ford, Gadde, Snehota & Waluszewski 2009; Håkansson & Snehota 1995). In this thinking, time and process have an in-built and a central position. Also, while space has been noted in IMP research (Håkansson et al. 2009) it has received much less attention.

Time and space are the two constructs that managers rely on to position and discern business relationships, parts of the network, and change in them. The dimensions of time and space differentiate the network virtually (i.e. via the Internet) and geographically, as well as socially and culturally. Time and space are closely linked, together influencing business interaction. Overcoming spatial distances in exchange, for instance, requires time, and spatial positioning of actors occurs relative to time, and timing of business actions. To discuss space without also considering time is not easy.

In the IMP approach time has been treated mainly as clock time, or the 'arrow of time', passing chronologically from the past into the future. Episodes and developments in stages and cyclical forms have also been noted (Andersson & Mattsson 2010; Ford 1980), and the study of networks using a process-based approach has been articulated (Easton 1995; Halinen, Medlin & Törnroos 2012; Halinen & Törnroos 1995; Medlin 2004). The same cannot be said about space, which has remained in a step-child position within IMP research.

A plethora of concepts related to time and process can be found in central constructs of the IMP tradition including e.g.: *interaction, relationships, activities, processes, stability and change, episodes, events, path dependence, and cumulative effects*. Also spatial constructions are found

in key terms, both in the form of mental network maps, or “network pictures” (Ford & Redwood 2005; Henneberg, Mouzas & Naudé 2006), as well as in describing the spatio-structural forms of relational webs (e.g. Chou & Zolkiewski (2012), Fletcher 2008). Central concepts of the IMP with spatial dimensions include: *networks, structure, resource constellations, actors, position, embeddedness, links, ties, bonds, and interdependence*, to name only some of the key concepts used. All these temporal and spatial concepts relate, in one way or another, to something evolving and taking place between business actors in time-space (cf. the structuration theory by Giddens 1984). These terms have inherently temporal and/or spatial ‘loadings’.

The spatial perspective is an important part of networks and how they emerge, develop and change over time. Yeung (1998, 109) states that the spatial organization of business operations has been a neglected theme in existing organizational research. “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 also supported by other corporate geographers interested in networks (Dicken 2007; Dicken, Kelly, Olds, and Yeung (2001).

In business networks, several process-based studies have been made where space inherently play a role in framing and developing understanding of processes. Yet, studies that focus on spatial dimensions are much fewer. They typically deal with international or regional development of a firm (Fletcher and Barrett 2001, Fletcher 2008, Johanson & Mattsson 1988, Kamp 2007, Törnroos 1991a) and consider some geographical aspects of space. What we call for here is a more varied and deeper understanding of space in the network setting.

The objective of this conceptual paper is to tackle the spatial dimension of business networks, so as to extend our current knowledge of networks and networking as a process. The focus is on space and the way space is differentiated. We posit that space, like time, should be seen as a multifaceted dimension of social change (cf. Andersson & Mattsson 2010b, 61). But space cannot be captured easily within the frames of one or even a few chosen perspectives, concepts, descriptions or patterns of thought. The paper adds to extant IMP literature by revealing key

spatial concepts and their importance in understanding interactive business relationships. We differentiate between the generic dimensions of space and the basic spatial constructs, and show how they are integrated in IMP theory and research.

The structure of the paper is as follows. First, we review the concept of space in relation to IMP interaction and network research, together with conceptual contributions within the field of corporate and economic geography. A three-dimensional model of space is suggested and used in the analysis. Second, we deepen the conceptual elaboration by discussing the role of basic spatial concepts – place, location and distance – integrating them into business network research. Third, we present examples of empirical studies to illustrate how spatial dimensions and constructs have been taken into account in IMP Research. Finally we sum up the conceptual development and draw implications for future business network research.

## **2. Space – the IMP and the Geographers' perspectives**

Networks are defined as sets of connected exchange relationships where one relationship affects the other (based on Cook & Emerson 1978). In IMP terms, business networks connect business relationships formed of actor bonds, activity links and resource ties (Håkansson & Snehota 1995). The concept of connection implies the idea of business exchange occurring across space and also through time. The discussion of space and how it is differentiated within the IMP approach is however minimal. The spatial dimension is included into the approach mostly in an implicit manner.

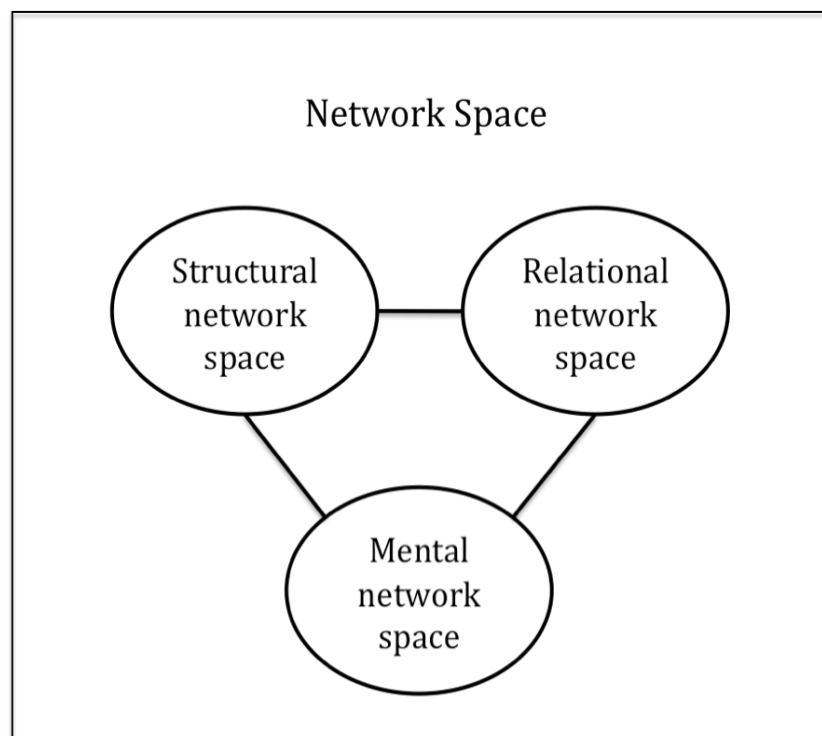
Corporate geographers have been occupied with research concerning both business networks and space (Amin 1993, Dicken 2007, Dicken & Thrift 1992, Hess 2004, Yeung 1998, 2001, Yeung, Poon & Perry 2001). However, they are using only scant references to IMP research, and this is also the case *vice versa*.

Space has many different dimensions, for example; physical, structural, cultural and mental qualities. Some of these dimensions have been noted in IMP research, some others are hardly

noted at all. Combining the ideas from corporate geography with those of IMP network theory, it is possible to draw three generic dimensions of space, which are relevant for the study of business networks:

- **structural network space** (nodes, links, ties and bonds forming network configuration in physical space)
- **relational network space** (relative positions of actors within the micro and macro network including spatial embeddedness in conjunction with relational processes creating the networks)
- **mental network space(s)** (cognitive network maps and pictures as enacted and experienced by human actors of the network, including social and cultural space surrounding focal actors and networks).

Figure 1 integrates those dimensions that best fit the IMP theory into a three-dimensional generic model of network space. We consider network space as the ultimate overarching concept that includes the three generic spatial dimensions. The generic concepts are not mutually exclusive but highly related to each other.



**Figure 1. Spatial dimensions of business networks**

The first structural dimension relates to the network, as it exists in space and time and forming a specific structure, i.e. a joint connected exchange system between actors of the network (Håkansson et al. 2009). The relational network space, in turn, refers to the idea of networks as relational systems, where each interactive relationship and activities therein only becomes comprehensible in relation to other connected relationships (Håkansson et al. 2009, 93; Andersson & Mattsson 2010). The mental notion of space takes a human perspective to networks. It has inspired for instance those IMP researchers who have used network pictures as the term to look at how actors cognitively perceive the network around themselves (Ford & Redwood 2005, Henneberg et al. 2006). Next we discuss the three dimensions in more detail drawing on both the Geographers' and the IMP Group's ideas.

### *Structural network space*

Spatial perspectives on networks have been offered previously, but the issue has attracted a new interest among IMP scholars (see e.g. Håkansson et.al 2009, pp. 38-45). The spatial view has been noted, e.g. when studying internationalization from a network perspective (Johanson & Mattson 1988; Johanson & Vahlne 2009), but it has not been elaborated more explicitly in a conceptual sense. In these studies the spatial dimension is closely related to country-level issues and recently also to global processes.

In the IMP perspective space is used to refer to the structural configuration of a network at a specific point in time (Håkansson et al. 2009). This structure is essentially institutional and physical. Companies make business deals to exchange goods and services across space, and combine various physical and organizational resources in interaction. The change of the structure, and the nodes, links and ties that form the structure occurs in interaction processes, which are following the actors' intentions and events transmitted through the network. This idea of a network structure aligns well with a relational notion of time, with network spatial structure changing from past to present and into the future (Halinen & Törnroos 1995). Future expectations together with past interactions and investments made between the actors form a spatial pattern of nodes and threads between the actors.

Corporate and economic geographers as well as sociologists have also been applying network space as a concept, somewhat similar to an IMP-view of business networks. The Network Society view of Castells (1996) and the Global Shift viewpoint by Dicken (2007) take a spatial view of network development, in conjunction with corporate development and globalization. However, space has not been so far a key issue of interest in relation to resources and the activities of partners.

In the geographical view the structure of the network is formed by the locations of the actor firms, rather than the interactions between actors. Network structure that exists as geographic locations and the nodes and links between them follows from the process of finding and making decisions concerning geographic positions in relation to others in the network, as well as in relation to competitors. Location is therefore *relative*, and positions a company in a geographic network.

The notion of the structural network space emphasizes the physical and institutional aspects of space. *This structural space is formed by interplay between spatial and physical elements of networks.* In the structural space there are real companies, factories and offices, with people working there and contracts written between the parties. This structural space is the network as it exists in the form of location nodes *in space* as well as existing links, ties and bonds, which are the connections and interactions needed *over space*. Thus structural space has two dimensions: 1. a structure in space and connections, bonds and 2. interaction stretching over space.

#### *Relational network space*

The idea of relational space refers to humans (social actors) seeing other actors and places in relation to each other in space. Space conceptualized as a network of relationships, leads to embedded positions for the actors, resources and activities. For firms a "... consequence of their relative positions in space is that we cannot explain what happens in a single interaction process in isolation from those others with which it is connected" (Håkansson, et al. 2009, 93), and see also Andersson and Mattsson (2010a, 2010b). This implies that the key constituents of networks, actors, activities and resources, have their setting in a relational network space. This is the case

for supply activities, new technological developments, retail and distribution activities and the social interaction in networks.

The concepts of position and network embeddedness illustrate well the idea of network as a relational space. Each concept creates the other and each is required to apprehend the whole. Both notions are well comprehended in the IMP approach and have been used in many studies related to network change and evolution. For conceptualization of position, see for example Mattsson and Johanson (1992), and for embeddedness see Halinen and Törnroos (1998) and Fletcher and Barrett (2001).

For IMP research the position concept is a relative spatial term to the network of an actor (Johanson & Mattsson 1985). The concept can relate both to position of companies in the network (macro) as well as to the position of individual actors in the network (micro). Companies have positions that subsume certain roles and activities (taken-on activities) but they also act in a role, intentionally changing the network regardless of others' expectations (made-up activities) (Anderson et al. 1998). However, position and role are closed linked to each other; for example, an actor's role as a logistic firm also requires a specific network position in which to act. Thus, position in space and role in network are linked with position providing the impetus for role.

In IMP the spatial dimension comes into play when actors relate to each other through their previous investments and relative embedded positions in the network. Each actor (individuals, departments, firms) holds a position relative to others, who in turn have their relative positions towards other actors. Interaction processes between these actors affect possible others in the network, either directly or indirectly. The notion of network connects the temporal linkages with the spatial network (Ford & Håkansson 2006). Further, the concepts of time and change are stronger in the relational network space, as compared to the structural network space, so that the concepts of relative location and change in the network are more easily apprehended in relational network space.

In the corporate geography literature, position is always relative and has a location aspect. For



example, position characterizes where production and services are located relative to where the headquarters are situated. The human geographer David Harvey presented an idea about relational space in 1973. Since then many studies of position and embeddedness have been made by geographers (Hess 2004, Kamp 2007; Taylor & Leonard 2002, Yeung 2004). In particular, the relative turn in spatial research has been taken up e.g. by Dicken and Thrift (1992) and Hess (2004).

Embeddedness in this literature describes the network of actors with whom a person or organization is involved. Embeddedness is understood as the structure of relationships among a set of individuals and organizations regardless of their country of origin or local anchoring in particular places. According to Hess (2004), embeddedness refers to the 'architecture', durability, stability, structure and evolution of the network of relations, both formal and informal, in which the individual or firm must act. This idea of embeddedness comes close to the notion of networks as structures in the IMP approach, while it differs clearly from Granovetter's (1985) idea of viewing economic exchange as embedded in social structures and time.

Hess (2004, 117) further differentiates between relational embeddedness being composed of the local actors and network embeddedness being composed of the wide structural whole. Here space is configured as local and regional, versus a broader whole. According to Yeung (2004) and Grabher (1993), *position and embeddedness allow an understanding of the relations between the social and the spatial in networks*. Embeddedness provides a general context and position provides a specific and contextualized situation; together embeddedness and position provide an actor description that is different to all other actors.

### *Mental network space*

The third spatial dimension is what we here prefer to call *mental network space*. This idea takes a human perspective on networks and describes the cognitive-spatial part of how individual business actors experience, delimit and subjectively apprehend the network space. The mental network space is how business people make sense of the network space and the actors' relative positions. As the mental network space is subjective, the position of actors in the network can also carry the concept of power over space and power in space relative to other actors.

Cognition and mental mapping has been studied in IMP in the form of schemas or mental models (Welch & Wilkinson 2002), network horizons as mental network boundaries (Holmen & Pedersen 2003), and network pictures (Ford & Redwood 2005; Henneberg, Mouzas & Naudé 2006). This stream of literature is receiving considerable attention within the IMP (Colville & Pye 2010; Geiger & Finch 2010), but with an emphasis on cognitive aspects and the sensemaking by managers, the spatial dimensions of the concept has been largely left unexplored.

Human geographers have since the early seventies studied the experiential role of space by individuals as a distinct spatial research area. This research is named humanistic geography and draws heavily on a phenomenological philosophy of science (Buttimer 1976, Tuan 1971). The approach corresponds well with the notion of managers interacting in relational networks (as mental spaces) in business. Sensing and experiencing network space is formed as a part of individual sensemaking of the *lifeworld* (Buttimer 1976) through everyday experiences and interaction. As Buttimer (1976, 285) puts it: “Contemporary man is mobile, and he may experience space most vividly in networks of social and commercial interaction...”

Humanistic geographers developed the idea of mental maps early (see Buttimer 1976, Gould & White 1986, Tuan 1971, 1974, 1975), but their contributions have hardly been referred to in IMP based studies. The network picture idea is closely related to mental maps but the geographers have a focus on feelings and experiences in a humanistic and phenomenological sense, which differ from the more straightforward idea of network pictures as factual structures with specific theoretical content and operationalization (e.g. Henneberg et al. 2006, Ramos & Ford 2010).

If we look at mental maps of business actors we are focusing on how they experience, feel and make sense about their network relationships and how they map the network space as if it were an existing structure (actors, nodes, links, bonds and ties). As Tuan (1975, 209) posits, this is, however, an abstraction of reality and also an abstraction of the networks which in themselves are a human construction. “Mental maps...provide something to think with; they make it easier to focus and reorganize our thoughts. They cannot, however, be read off in the way that a real

map can” (Tuan 1975, 209). Tuan (1975) also tells us that mental maps are mnemonic devices in order to memorize events, people, and things and also as a means to structure and store knowledge. Thus, time in mental network space is likely to be highly differentiated across actors, with some individuals having highly fluid mental network space conceptualizations and other quite fixed.

### **3. Developing space notions in business network research**

So far we have argued that space forms an inherent category for understanding business networks in the IMP school of thought, and we have elaborated the concept of network space in terms of three generic spatial dimensions (Figure 1). To deepen the conceptual analysis we will now draw on three more concrete spatial terms that we call *fundamental spatial concepts*: place, location and distance. Each of these can be examined from a structural, relational and mental viewpoint, in accordance with the three-dimensional generic model of network space.

#### *Place*

The concept of place assists in specifying networks in the structural space, but clearly, place is also a relative concept that can be broadened geographically, but also socially and culturally. Place has relational and mental dimensions.

Place is defined as a “particular point in space” (Wilkes & Krebs 1985), one that is usually special because it is occupied by an actor or thing. Place can also include a broadened point in space. The concept of a *boundary* is a part of place, as a boundary delimits the point or region in space.

For place the concept of boundary has interesting ramifications. Successive boundaries create places inside locales, and wider places outside locales, in a hierarchical manner. The characteristics of the broader place and the more local place are linked by different network connections and similar as well as different social and cultural meanings. For example, the social and cultural understandings of Barcelona, Catalonia and Spain influence business network

development in quite interesting ways. Boundaries are important in creating meaning and in creating networks.

Business organizations have their offices and production units in specific places, in so-called geographic 'locales'. Business resources are fixed in space at places to some degree. In particular specific sources of raw materials, such as iron ore, are fixed in a place. Even markets are placed in space to some degree. These specific spatially "fixed" places constitute the microenvironment, within which business units exist. The place of a business enterprise and its local network always has particular characteristics. This specificity influences network development and change. Specific places around the actor companies (e.g. cities) form the basic spatial entity of the local network.

In the IMP research network boundaries have been an important topic of discussion. Network horizons and network pictures represent a mental approach to network boundaries (Holmen & Pedersen 2003, Henneberg et al. 2006). Similar ideas from geography research are presented by Markusen (1996) in her article "Sticky places in slippery space", where certain locales have a specific attraction for investments due to different reasons. Examples of sticky places are Silicon Valley, the Johore Triangle around Singapore, The Third Italy, Southern Scandinavia and e.g. global financial centers. In the global world, local existence and place plays a role in creating a sense and feel for e.g. cities or other localities as business spaces. Tradition and former decisions also play their role in attaching business activities to specific local places. The same goes with favorable locations in a logistical sense or specific innovative milieus (Dunning 1998, Dicken 2007, Castells 1996). The spatial dimension of place in a network constitutes the characteristics of an *actor's local existence in a specific physical place*. Each of the nodes of the network has its local place as well as reasons for existing in specific places. Finally, the idea of place inside larger places also leads to the concept of location.

### *Location*

Location is a broader spatial term than place. Location opens up the *relative* nature of places. Location deals with where economic, social and cultural investments are made, and where business organizations operate, *relative* to each other. Location speaks to the relativeness of a

place to other places. Thus, space is differentiated into places that are located relative to each other in time and space. Location positions places in a macro-environment, in the wider network (Yeung 2004, Dicken 2007, Dicken & Thrift 1994).

As mentioned earlier, location positions a company in a geographic network. The location dimension defines the network as existing *at a specific point(s) in time relative to other actors in the relational network space*. The location also specifies network space structurally, forming the different locales and places on the map of spatial nodes of a network. Locations may also have strong mental connotations. As a geographic concept location has not been elaborated to a notable extent within IMP.

### *Distance*

A third spatial concept related to business networks is the distance between the nodes of the located units of the network. Nodes are connected, and ties, links and social bonds are formed and change through interaction that occurs across a distance. Information, goods and money flows between the network actors over shorter and longer distances. Distance is a many-sided concept dealing with how to overcome different spatial-length barriers. Distance barriers can be, for example, physical, socio-cultural or time-related (Törnroos 1991b). Distance and time result in interaction frictions between actors. In the global digital economy some barriers are more easily overcome than previously.

Within the business network research, the concept of distance has had a minor role, but it has been used in characterizing relationship development and the atmosphere between industrial buyers and sellers (Ford 1980, Håkansson 1982, Hallén et. al. 1991).

## **4. Examples of empirical studies combining networks and space**

In this section we discuss a selection of studies that have dealt with network space from a number of different directions. In each case we relate the research to the framework we have presented and elaborate some opportunities for research.

Tidström and Hagberg-Andersson (2012) discuss and analyze mental spaces of actors in a business relationship and distinguish between inner and outer network space. They studied four regional cases from different industries in Finland. All companies were SMEs. The study shows how initially co-operative relationships become problematic and competitive. They also note situations where both competition as well as co-operation prevail (i.e. co-opetition). The concept of space is defined based on individual perceptions of managers. The authors define inner space as the individual interactive focal companies and the nature of the focal business relationships. More peripheral actors, such as customers and the nature of the market define outer space, which are external to the focal business relationship.

In situations where co-operative relationships became competitive, there found critical events that are related to inner space. They also found events that related to both inner as well as outer space, and which changed the level of cooperation and competitive situation of the focal firms.

Another study by Johanson and Lundberg (2007) looked at the impact of geographical proximity and technology of 37 firms' R&D operations, in the Mälardalen region of Sweden. This study resembles those done by corporate geographers (Saxenian 1994, Maskell 2011). The geographical proximity is related to R&D and product development processes especially. The location and nearness to other actors, for example the universities Technology, is studied by looking at two dimensions of the studied high-tech firms. They found that those companies that have gradual, incremental R&D processes differ in their need for closeness and interaction from those that have more rapid and radical change processes.

The study by Törnroos (1991) elaborates the idea of distance in the context of two industries and their internationalization: the building construction and the paper and pulp, both in Finland during the 1980s. The spatial concept used dealt with three dimensions: physical space, relative space and relational space, with the later two effectively being relational network space. He found that neither of the two industries followed the stages or the gradual approach concerning their internationalization and strategy. Instead companies 'jumped over' closely located markets and started in the 1970s and 1980s to move directly into geographically and culturally distant

countries. This was contrary to the dominating theories of the time. The key was to get into markets and locations that were emerging and developing at the time (Middle East for building construction and EU markets for paper companies) before Finland became a member of the Union. Location and timing and market presence were seemingly as decisive as commitment and learning.

Fletcher and Barrett (2001) and Fletcher (2008) use the concept of network embeddedness as a way to look at international expansion across borders. Their studies showed different spatial aspects about internationalization in a network context. This relates both to how time and its connection to space. They looked especially how a white goods manufacturer became internationalized by using a network embeddedness approach. The studies use a classical notion concerning space as national entities and internationalization generally deals with the crossing of national borders as the basic spatial starting point. However, these two studies did explicitly show the resulting network structure as internationalization unfolds over time and in space.

Kamp (2007) takes a regional-locational approach in combination with network perspective in his longitudinal study about buyer-supplier relationships in the automotive industry in Europe. Kamp specifically focus on central-peripherally located networks, the co-location of suppliers and the change of actor composition in supplier networks. Using the automobile industry as a setting he showed specific periods in the industry development where the deep structure of the networks was changing (especially The FASA-Renault Valladolid case). The other case (WV in Navarra) also showed significant changes in the network structure and its spatial ramifications during the study period of over ten years. Those networks that had strong intra-network links showed a tendency to co-locate in a more concentrated manner (the WV-Case) than those that did not have strong intra-link network positions (the Renault-Case) (Kamp 2007, 150-151).

These studies, which include geographical and spatial issues, illustrate a variety of ways to conduct research related to network space. Table one presents the research according to spatial dimensions and network type and perspective. Given the multidimensional character of spatial dimension and the varying contexts, foci and perspectives that could be taken to relate networks to space, we see still many other opportunities for developing the network approach from this

angle. Experiential and mental space is explicitly elaborated in the studies by Johanson & Lundberg (2007) and Tidström and Hagberg-Andersson (2012). Also Kamp (2007) had a focused location perspective. Fletcher and Barrett (2001) and Kamp (2007) had clearly a process and structural viewpoint in their longitudinal studies.

We posit that process research in conjunction with taking different spatio-geographic perspectives and contexts to the study of networks offers great opportunities for understanding network processes in and over space. More elaborated and focused conceptions and models of network space are proposed in the next section.

<b>Study</b>	<b>Network type/perspective</b>	<b>Spatial dimension</b>
Tidström and Hagberg-Andersson (2012)	- Comparative cases - SME networks changing from co-operation to competitive	Mental network space and inner and outer network space
Johanson & Lundberg (2007)	- 37 firms, interviews - High-Tech networks in Mälardalen, Sweden	Geographical proximity and location/nearness in different types of companies
Törnroos (1991)	- Case studies - Network internationalization of firms & industries (paper & building construction companies)	Physical, relative and relational space
Fletcher and Barrett (2001), Fletcher (2008)	- Single longitudinal case study - Network embeddedness in internationalization	Spatial expansion across borders over time and changing network structure in space
Kamp (2007)	- 2 longitudinal case studies - Central-peripheral supplier networks & change	Locational change in network structures and relations

**Table 1. Chosen network studies with different spatial perspectives**

## **5. The production of business networks: a process in space-time**

This section integrates our ideas on network space and discusses a number of ideas that could be used in future research in business networks.



Just as networks are created and differentiated by managers through business relationships, interaction episodes and events, so too is network space produced and differentiated by managers. The notion of space being *produced* has been developed within the field of corporate and economic geography. This notion of space (Lefebvre 1991) takes forth that space is necessarily related to the “social” as well as the mental and natural space, so mirroring the IMP approach to business networks. The notion of producing space relates to the interplay between the social and the spatial. As Yeung (1994; 1998) comments; space is related to social interactions that are “necessarily constructed and reproduced socially” (Yeung 1998, 110). Thus, the spatial element is residing in our reality, as a result of interaction, and forms a building block for networking, as well as *producing* the network spaces. “This geographical dimension has rarely entered the calculus of organizational theorists” (Yeung 1998 110). These thoughts relate closely to what here has been labeled as structural network space as well as relative network space.

We shortly refer to both interaction and embeddedness before developing a model of how networks are produced through space-time processes.

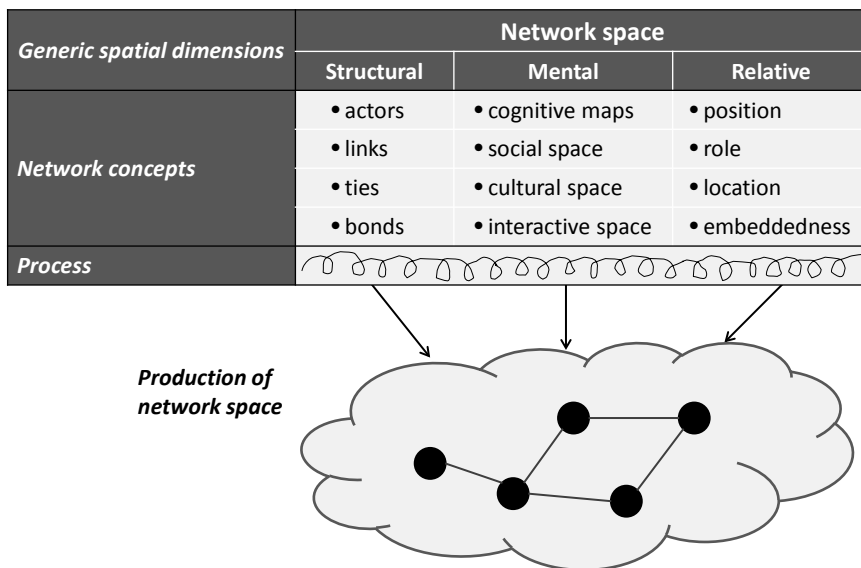
*Interaction in and over space.* The nature and shape of the space between social actors creates and transforms through interaction between the actors of the network. For example logistics and information processing are required to remove the friction of distance. The concept of distance is also included in the mental space of managers and is applied to how they represent their business organization’s location as well as the atmosphere and trust created between interacting managers and firms. The role of social actors and agents in producing the network spaces (both relative as well as structural spaces) is central to the change and development of the network. Thus, the actions of managers and firms will inevitably have spatial consequences and “produce network space”.

*Spatial embeddedness.* Network actors are embedded in a relative manner within the spatial dimensions of the network (Halinen & Törnroos 1998, Hess 2004). The location, or relative place within a broader macro-environment and context, leads actors to play specific roles within the network space. The spatial configuration of the network, including the position and relative

location provides an understanding of the roles played by an actor. For example, a firm located in the middle of a long transport route between raw material sources and markets must play one of many possible roles: logistics, manufacturing, organizing etc. Actors can also strategically develop multiple roles or specific and specialized/focused roles within an embedded position.

Embeddedness can be used to align the positional, interactive and locational elements of networks. Yeungs' (1988) notions are topical and relevant still today. However, Yeung (1988) does not focus on the mental dimensions of networks and their spatial implications and relevance. Evidently this issue should be considered when we look specifically at the network structure, the interaction process and how the actors perceive their surrounding network.

In figure 2 we aim to combine the issues taken to the fore by creating a systematic table for collecting concepts and notions about spatial dimensions of the business network approach. Networking denotes to the continuing process of change and evolution of business networks that takes place in time-space.



**Figure. 2. Generic spatial concepts producing network space**

The network space is seen as an outcome of interactive, social processes as well as mental maps of managers relating to decisions made by the actors. These processes together with physical surroundings create the structure and the interdependent nature of the network.

As indicated, the relationships in networks are always relative to their nature; meaning that positions, roles, locations and embeddedness are also changed as a result of interactive processes and changes in structure.

## **6. Conclusions and implications for research**

The spatial issues are not yet well covered within the interaction and network approach to business market research. More conceptual spatial understanding and empirical studies should be conducted with this in mind (indicated e.g. by Ford & Håkansson 2006, Håkansson et.al. 2009). We also suggest more cross-fertilization of research from corporate geography or the “geography of enterprise” studies and the IMP approach.

The generic concepts related to network space are offered consisting of a structural, relational and mental characteristics encompassing *network space* as the common term to note the role of space in IMP network research. We feel that we need conceptual rigor and novel ways to handle space within network research. Spatial issues are noted and exist implicitly in IMP concepts and in network structures.

We believe that being more explicit about space can lead to developing our understanding of how the network changes in space and over time. Figure 2 aims to portray the connection between the proposed generic spatial concepts and show how to integrate them with key network concepts in order to understand the process of network development as a process in space-time.

In addition, there are many methodological issues to tackle in order to come to terms with the tools needed to highlight the role of space in business networks. Process research in conjunction with spatial research as the key building blocks is needed in getting better grasp of networking processes and structures. The perspectives offered in this conceptual paper pave the way to go

further. Many perspectives can be taken into the issue and this forms a promising avenue for novel research topics and new results.

Space in networks also relate to strategy-issues. Position, role and embeddedness in connection with favorable locations and creating value have inevitably also geographical dimensions. The perspective of managerial decision-making and mental space in developing strategy by “mental mapping” potential network relations and positions is one plausible research area. When moving into the spatial arena new and sometimes problematic issues come to the fore as well. Space often constrains the shaping of a business network. Raw materials and markets are often necessarily spatially fixed in a place, with a relative location. The result is that certain network actors are required to bridge the distance. This fixing of roles within the network space offers research opportunities to discover how location provides actors with power and influence within a network, and how actors can apply that influence to achieve strategic outcomes.

Finally, space can be differentiated, as we see it, according to three fundamental spatial concepts and these can be more closely aligned with differentiation of time (cf. Halinen, Medlin & Törnroos 2012), so that deeper understanding is gained of business network evolution and change.

## References

- Amin, A. (1993). The globalization of the economy: an erosion of regional networks?. In *The Embedded firm. On the socioeconomics of industrial networks*, Grabher, G. (ed.). London & New York, Routledge.
- Anderson, H., Havila, V., Andersen P. & Halinen, A. (1998) Position and role-conceptualizing dynamics in business networks. *Scandinavian Journal of Management*, Vol. 14, No 3, 167-186.
- Andersson, P. & Mattsson, L.-G. (2010a). Temporality of resource adjustments in business networks during severe economic recession. *Industrial Marketing Management*. 39, 917-924.
- Andersson, P. & Mattsson, L.G. (2010b). Temporal Profiles of Activities and Temporal Orientations of Actors as Part of Market Practices in Business Networks”, *IMP Journal*, Vol. 4, No 1, 57-78.
- Bizzi, L. & Langley, A. (2012). Studying processes in and around networks. Forthcoming in *Industrial Marketing Management*.
- Buttimer, A. (1976). Grasping the Dynamism of Lifeworld. *Annals of the Association of American Geographers*. Vol. 66, (2), 277-292.
- Chou, H.H. & Zolkiewski, J. (2012). Decoding network dynamics, *Industrial Marketing Management*. Vol. 41, 2, 247-258
- Castells, M. (1996). *The rise of network society*. MA, Blackwell,
- Colville, I. & Pye, A. (2010). A sensemaking perspective on network pictures. *Industrial Marketing Management*. 39, (3), 372-380.
- Cook, K.S. & Emerson, R.M. (1978). Power, equity, and commitment in exchange networks. *American Sociological Review*. 43, (5), 721-739.
- Dicken, P. *Global shift: Mapping the changing contours of the world economy*. (5th ed.). London, Sage Publications, 2007.
- Dicken, P., Kelly, P., Olds, K. & Yeung, H.W. (2001). Chains and networks, territories and scales: Towards an analytical framework for the global economy. *Global Networks*. 1, 89-112.
- Dicken, P. & Thrift, N. (1992). The organization of production and the production of organization: why business enterprises matter in the study of geographical industrialization. *Transactions of the Institute of British Geographers*, 17, 279-291.
- Dunning, J.H. (1998). Location and the multinational enterprise: A neglected factor? *Journal of international business studies*. 29, (1), 45-66.

- Easton, G. (1995). Methodology and industrial networks. in *Business marketing: An interaction and network perspective*. K. Möller & D.T. Wilson, eds. Norwell (MA), Kluwer Academic Publishing.
- Fletcher, R., & Barrett, N. J. (2001). Embeddedness and developing global networks: An Australian case study. *Industrial Marketing Management*, 30(7), 561–573.
- Fletcher, R. (2008). The internationalisation from a network perspective: A longitudinal study. *Industrial Marketing Management*. 37, 953–964.
- Ford, D. (1980). The development of buyer-seller relationships in industrial markets. *European Journal of Marketing*. 14, (5/6), 339-354.
- Ford, D., Gadde, L.-E., Håkansson, H. & Snehota, I. (2003). *Managing business relationships*. Chichester, John Wiley.
- Ford, D. & Håkansson, H. (2006a). The idea of business interaction. *The IMP Journal*. 1, (1), 4-27.
- Ford, D. & Håkansson, H. (2006b). Imp - some things achieved: Much more to do. *European Journal of Marketing*. 40, (3/4), 248-258.
- Ford, D. & Redwood, M. (2005). Making sense of network dynamics through network pictures: A longitudinal case study. *Industrial Marketing Management*. 34, (7), 648-657.
- Geiger, S. & Finch, J. (2010). Networks of mind and networks of organizations: The map metaphor in business network research. *Industrial Marketing Management*. 39, (3), 381-389.
- Giddens, A. *The constitution of society*. Cambridge, Polity Press. 1984
- Gould, P. & White, R. *Mental Maps*. London, Penquin (2<sup>nd</sup> Edition). 1986.
- Grabher, G. *The embedded firm: On the socio-economics of industrial networks*. London, UK, Routledge, 1993.
- Granovetter, M. (1985) Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, Vol. 91, 481–510.
- Håkansson, H. *International marketing and purchasing of industrial goods: An interaction approach*. Chichester, Wiley, 1982.
- Håkansson, H., Ford, D., Gadde, L.E., Snehota, I. & Waluszewski, A. *Business in networks*. Glasgow, John Wiley & Sons, 2009.
- Håkansson, H. & Snehota, I. *Developing relationships in business networks*. London, International Thomson Business Press, 1995.

Halinen, A., Medlin, C.J. & Törnroos, J.-Å. (2012). Time and process in business network research. *Industrial Marketing Management*. Vol. 41, 2, 215-223.

Halinen, A. & Törnroos, J.-Å. (1995). The meaning of time in the study of industrial buyer-seller relationships. In *Business marketing: An interaction and network perspective*. K. Möller & D. Wilson, eds. Boston, Dordrecht and London, Kluwer Academic Publishers, 493- 529.

Halinen, A. & Törnroos, J.-Å. (1998). The role of embeddedness in the evolution of business networks. *Scandinavian Journal of Management*, Vol. 14, No 3, 187–205.

Hallen, L., Johanson, J. & Seyed-Mohamed, N. (1991), Interfirm Adaptation in Business Relationships, *Journal of Marketing* 55 (April), 29-37.

Harvey, D. *Social Justice and the City*. London, Edward Arnold. 1973.

Henneberg, S.C., Mouzas, S. & Naudé, P. (2006). Network pictures: Concepts and representations. *European Journal of Marketing*. 40, (3/4), 408-429.

Hess, M. (2004). 'Spatial' relationships? Towards a reconceptualization of embeddedness. *Progress in Human Geography*. 28, (2), 165-186.

Holmen, E. & Pedersen, A.-C. (2003). Strategizing through analyzing and influencing the network horizon. *Industrial Marketing Management*. 32, (5), 409-418.

Johanson, J. & Mattson, L.-G. Internationalization in industrial systems. in *Strategies in global competition*. N. Hood & J.-E. Vahlne, (eds). Beckenham, Croom Helm, 1988, 287-314.

Johanson, J. & Mattsson, L.-G. (1985). Market investments and marketing investments in industrial networks. *International Journal of Research in Marketing*. 3, (2), 185-195.

Johanson, J. & Vahlne, J.E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of international business studies*. 40, (9), 1411-1431.

Johanson, M. & Lundberg, H. (2007). The impact of geographical proximity and technology on firms' R&D operations. *Finanza, Marketing e Produzione*, Vol. XXX, No. 1, 123-138.

Kamp, B. *Location behaviour and relationship stability in international business networks. Evidence from the automotive industry*. London & New York, Routledge. 2007.

Lefebvre, H. *The production of space*. Oxford, Basil Blackwell, 1991.

Markusen, A. (1996). Sticky Places in Slippery Space. A Typology of Industrial Districts. *Economic Geography*, Vol. 72 No. 3, 233-258.

- Mattsson, L-G & Johanson, J. Network Positions and Strategic Action: An Analytical Framework, In: *Industrial Networks: A New View of Reality*, Eds. B. Axelsson and G. Easton, Routledge: London, 205-214, 1992.
- Medlin, C.J. (2004). Interaction in business relationships: A time perspective. *Industrial Marketing Management*. 33, (3), 185-193.
- Quintens, L. & Matthyssens, P. (2010). Involving the process dimensions of time in case-based research. *Industrial Marketing Management*. 39, (1), 91-99.
- Ramos, C. & Ford, D. (2011). Network pictures as a research device: Developing a tool to capture actors' perceptions in organizational networks. *Industrial Marketing Management*, 40(3), 447-464.
- Ritter, T. (2000) A Framework for Analysing Interconnectedness of Relationships. *Industrial Marketing Management*, Vol. 29, No. 4, 317-326.
- Saxenian, A. *Regional advantage, culture and competition in Silicon Valley and Route 128*, Cambridge, MA and London. Harvard University Press, 1994.
- Taylor, M. & Leonard, S. *Embedded enterprise and social capital*. Aldershot, Ashgate, 2002.
- Tidström, A. & Hagberg-Andersson, Å. (2012). Critical events in time and space when cooperation turns into competition in business relationships. *Industrial Marketing Management*. Vol. 41, 2, 333-343.
- Tuan, Y. F. (1971). Geography, Phenomenology, and the Study of Human Nature, *The Canadian Geographer*, Vol. 15, 181-192.
- Tuan, Y. F. (1974). Space and Place: Humanistic Perspective. *Progress in Geography*, Vol. 6, 211-252.
- Tuan, Y. F. (1975). Images and Mental Maps. *Annals of the Association of American Geographers*, Vol. 65, No. 2, June, 205-213.
- Tuan, Y. F. (1976) Humanistic Geography, *Annals of the Association of American Geographers*, Vol. 66 No. 2, June 266-276.
- Törnroos, J.-Å. *Om företagens geografi - en teoretisk och empirisk analys* [The Geography of the Firm - a Theoretical and Empirical Analysis]. (Dissertation), Åbo Akademi University, Åbo Academy Press, Turku. 1991a.
- Törnroos, J.-Å. Relations Between the Concept of Distance and International Industrial Marketing. In, *New Research Developments in International Marketing*. Edited by S.J. Paliwoda. London, Routledge, 126-139, 1991b.



Welch, C. & Wilkinson, I. (2002) Idea Logics and Network Theory in Business Marketing. *Journal of Business-to-Business Marketing*, Vol. 9 , No. 3, 27–48.

Wilkes, G.A. & Krebs, W.A. (eds). (1985). *Collins concise English dictionary*. Sydney, Collins.

Yeung, H.W.-C. (1994). Critical reviews of geographical perspectives on business organizations and the organization of production: Towards a network approach. *Progress in Human Geography*. 18, (4), 460-490.

Yeung, H.W.-C. (1998). The social-spatial constitution of business organizations: A geographical perspective. *Organization*. 5, (1), 101-128.

Yeung, H.W.-C., Poon, J. & Perry. M. (2001). Towards a regional strategy: the role of regional headquarters of foreign firms in Singapore. *Urban Studies*. Vol. 38, (1), 157-183.