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Using actors' perceptions of network roles and positions to understand network dynamics

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Research Highlights

- This study relates three main concepts in industrial marketing: network change, network position, and network role
- We explore network dynamics by analyzing how actors make sense of time and space in business networks, and how they act based on these perceptions
- Differences in actors' interpretations and enactments of their network role are necessary to explain their networking activities
- Actors' ability to change their network position is dependent on a shared interpretation of network roles between the network actors
- We use an extensive case study of the changing distribution structure for seafood in Norway and Japan to exemplify these points

Abstract and key words

This article explores network dynamics by analyzing how actors make sense of time and space in business networks, and how they act based on these perceptions. The time dimension is understood here as actors' perceptions of past, present and future *changes in their network*. The space dimension is understood, first, in terms of the *network position* a company holds in relation to its business partners, and secondly, in terms of the *network role* it enacts. As such, this study relates three pivotal concepts in industrial marketing: network change, network position, and network role. The link between these three relates to the interdependencies within a network, in that if one company attempts to change its position, this will in turn affect the position of other companies. Moreover, actors' attempts to change their position or role in the network are directed by their subjective sensemaking or perceptions of their surrounding network. In this article we posit that in order to understand network dynamics we must analyze how actors attempt to affect change based on their perceptions of their positions and roles in their network environment. Our analysis suggests that although there are similarities between perceptions by actors holding similar positions in the network, such network positions alone cannot explain their actions. Rather, differences in actors' interpretations and enactments of their *network role* are necessary to explain their networking activities. We use an extensive case study of the changing distribution structure for seafood in Norway and Japan to exemplify these points.

Keywords

Network position, network role, time, space, sensemaking, network change, network dynamics, seafood distribution, Japan, Norway.

1. Introduction

Over the last thirty years, the concept of viewing business relationships not as separate entities but as interconnected and interdependent systems of relationships, has gained increased attention by researchers in the area of inter-organisational management (Achrol, 1997; Achrol & Kotler, 1999). Using this perspective, a business relationship is not seen as a marketing channel, a supply chain or a value chain, but as being embedded in a business network (Ford et al., 2003). There are various approaches to analysing business relationships in terms of networks (see Araujo and Easton, 1996, for an extensive review). Our study will specifically adopt the Industrial Network Approach (INA) (Ford et al., 2003; Håkansson and Snehota, 1995) because this framework stresses the need to analyse the management of long-term buyer-seller relationships within complex network structures, rather than focusing on short-term purchasing decisions. Hence, network changes are seen as manifested in, as well as transmitted through, connected business relationships with identifiable parties and unique counterparts rather than in response to changes in a faceless, exogenous environment (Ford, et al., 2003; Håkansson and Snehota, 1995). After being introduced into the field of industrial marketing in the beginning of the 1980s (Håkansson, 1982) the INA today represents a major stream of research on business marketing and inter-organisational strategy (Håkansson et al., 2009). This approach as a conceptual grounding is particularly useful when analysing network dynamics, because: *“The network approach views any company's business context in a holistic rather than fragmented way. It pays particular attention to the connectedness of business relationships and the borderless nature of the network in which each company is embedded. As different parts of a network are linked, change may emerge and shift from any one part to another - an occurrence that the network view can reveal better than traditional organization theory or marketing approaches.* (Halinen et al., 1999, p. 780).

In a business network, a company will have a distinct *network position* based on its connections to other actors. This implies that networks are never stable, but dynamic entities because “*actors are constantly looking for opportunities to improve their position in relation to important counterparts and are therefore looking for opportunities to create changes in the relationships*” (Håkansson and Snehota, 1995, p. 275). An actor’s effort to change her/his network position is subject to her/his *network perceptions*, the perceived understanding of the surrounding network and ties to other actors, i.e. how the network is organised (Ford et al., 2003; Henneberg et al., 2006a; Holmen and Pedersen, 2003). Such subjective network understanding also represents the actor’s perceptions of their *network role*, or how an actor decides to act based on an interpretation of position and how this position is related to the position of other actors (Anderson et al., 1998). Thus, understanding how an actor perceives her/his network position and enacts her/his role, represents one way to understand network dynamics. The INA particularly stresses that actors never act in isolation. Roles and positions are therefore shaped by interactions. The role interpretation of one actor may conflict with the interpretations that other actors have of her/his particular role. We therefore posit that network dynamics are dependent on an actor’s ability to create or shape some common role understanding with other actors. This conceptualization of network dynamics remains largely unexplored in the literature, an exception being Anderson et al. (1998).

Therefore, in this paper we explore this assumption. First, we start by outlining key concepts such as network change, actor perceptions, network positions and network roles. We then develop an analytical framework to empirically investigate how actors perceive changes in time and space depending on their network position. This framework is applied to a case study of Norwegian suppliers of fresh salmon to Japan, a distribution network currently under considerable pressure to change. Results are subsequently discussed in terms of contributions to knowledge.

2. Exploring Key Concepts

2.1. Network Dynamics

Network dynamics have received increasing attention amongst researchers in recent years, but more understanding of time and space in industrial networks has been called for (Elo et al., 2010; Ford and Håkansson, 2006). In our research, the *time* dimension is related to past, present and future (Medlin, 2004), where the sequential episodes of interactions are linked to each other in an evolutionary process. Thus, exchange episodes are “*part of a change process that involve learning, adaptation, commitment and distance-reduction over time*” (Håkansson et al., 2009, p. 35). However, using past-present-future as delineations of time may limit our understanding of this dimension. Even though events may follow a cyclical pattern, actors’ understanding of events are based on their interpretations of the past and their expectations for the future. This is referred to as relational time by Halinen and Törnroos (1995). In their view, “*the present moment can only be understood in terms of its history and its future*”, (Halinen and Törnroos, 1995, p. 494). This understanding of time is suggested as a way to analyse interactions, because “*The ‘past-loadedness’ of events residing in actors’ experiences and memories; the present based on earlier and possible future events; and the ‘future-loadedness’ of events with expectations, hope and fear for what may happen, are aspects inherently built into business relationships*” (Hedaa and Törnroos, 2008, p. 323). Similar issues are been discussed by (Easton and Araujo, 1994), stating that in traditional market transactions, the goal of both parties is to bring everything from the past and everything in the future to the immediate present – thereby creating a compressed and bounded time frame. They suggest that in exchange relationships, actors tend to merge past, present and future in a continuum where the parties take into account learning from their connected relationships, and these experiences are shaped and projected to the future as

“parties attempt to structure and control their own trajectories of evolution” (Araujo and Easton, 1996, p. 77).

Similarly, interaction takes place in a *space* dimension where actors are related in terms of resources and activities, and where dyadic relationships are connected to a wider network of relationships (Håkansson et al., 2009). As the relationship matures, such resources and activities become interdependent. This is not a smooth process. On the one hand, networks change as actors seek new ways of combining resources and activities. On the other hand, there exist actors resisting these changes, seeking stability. According to Håkansson and Snehota (1995), stability and change are an inherent duality of networks, and Lundgren (1992) sees stability acts as a prerequisite for change. This duality is also termed coalescence and dissemination of networks (Håkansson and Lundgren, 1992). Others use concepts such as expansion and contraction (Mattson, 1987); extension and consolidation (Cook, 1982) and splitting and joining (Hertz, 1996). Halinen et al. (1999) see change in terms of confined and connected change: *Confined change* remains within the dyad of a business relationship, and is not acted upon by other actors outside the relationship. However, due to the interdependencies of relationships, change in one relationship often spreads to other relationships, subsequently affecting the whole network. This is defined as *connected change*; a change which influences or is acted upon in other relationships in the network. Changes in networks have also been characterized as evolutionary processes (Easton, 1992) or as a process where stable periods are broken by radical changes (Halinen et al., 1999).

In this study, it is the interplay between actor bonds, resource ties and activity links (the so-called ARA-model) which serves as the locus of space dynamics. According to Håkansson and Snehota (1995): *“...These are not just recording the effects of change, they are also one of its main sources...As links, ties and bonds are developed within one relationship, they are also combined and connected to each other. The development of*

relationships brings them together in different and sometimes contradictory ways. We thus believe that three dimensions of change in business networks can be identified with the interplay of links, ties and bonds as a starting point” (Håkansson and Snehota, 1995, p. 276).

However, this space dimension must be seen in relation to the time dimension: actors base their future decisions and networking activities on their present interpretations of their past experiences (Medlin, 2004).

To date, few methodological tools are available to the researcher when conducting empirical process research, according to Elo et al. (2010). This issue relates to an underlying epistemological question as to whether we study the *process of change* (how events and activities of actors unfold over time) or *the outcome of change* (how the network is reconfigured at a given point in time). Our paper attempts to address both these questions. We aim to understand how actors make sense of change and what this implies for their networking behaviour. This is process research in the sense that we observe the process through the eyes of the actors. At the same time, we are looking at the outcome of change because we focus on how change is understood and explained by the actors at a given point in time. Both cases highlight the need to understand network dynamics by taking into account how network changes are perceived and understood by the actors.

2.2. Perceptions of Change

In networks, companies interact based on their *perceptions* of their relevant network environment and their subjective interpretations of the network logic (Ford et al., 2003; Henneberg et al., 2006a; Holmen and Pedersen, 2003). This is also referred to as *sensemaking* (Weick, 1995), where actors try to make sense of their surrounding network by “*constructing sensible, sensible events. They structure the unknown*” (Weick, 1995, p. 4). Weick’s concept of sensemaking has received a lot of attention within industrial marketing research recently, particularly with reference to *network pictures* where actors are seen to make sense of their

surrounding network by cognitive and textual representations (Henneberg et al., 2006b; 2010; Mouzas et al., 2008). Making sense means explaining what is happening from some frame of reference. Weick argues that sensemaking is retrospective, where the past is reconstructed knowing the outcome of events. Sensemaking is an ongoing process where *“people are always in the middle of things, which become things only when those same people focus on the past from some point beyond”* (Weick, 1995, p. 43). Weick also says that actors often produce the environment they face - the environment becomes a representation of an actor's perceptions. At the same time, Weick argues that sensemaking is a social process where an actor's conduct is contingent on the conduct of others.

Network change can therefore be studied in terms of how actors perceive changes in their related network, and consequently how they act upon these. This apparent congruence between network changes and network perceptions has been noted by several authors. Halinen et al. (1999, p. 786) for instance conclude that *“the mental process of enactment can be regarded as a key explanation for stability and change in networks”*; and Hertz (1992, p. 121) states that *“...the perceptions of integration might cause greater effects than otherwise might be expected from the actual change.”* Similarly, Mattsson (1984, p. 282) argues that *“managerial action is influenced by cognitive structures based on experiences and belief linked to theoretical frameworks.”* Similar arguments are also found in other theoretical approaches, like the strategy and marketing channel literature. Guiltinan (1974) for instance emphasizes that it is not market forces themselves that represent the change, but the actor's perception of them. Similarly, Achrol et al. (1983) argue that organizations do not perceive the environment as such, but they enact it.

Understanding how managers perceive changes in their surrounding network may therefore allow us to understand their decision-making and managerial behaviour (Bogner and Thomas, 1993; Möller, 2010; Osborne et al., 2001; Stubbart, 1989). In this context it is of

particular interest to gain insights into not only how actors describe changes, but also how they explain or ascribe reason to these changes, because companies base their decisions on their ascriptions (Daft and Weick, 1984; Gronhaug and Falkenberg, 1989; Reger and Palmer, 1996). However, comparing and contrasting different actor's perceptions have not yet received much attention by researchers, especially not in the context of a whole network structure. One way of conceptualizing network dynamics is suggested in fig. 1 below. We distinguish between *descriptions* of network changes (i.e. box 1 – Perceptions of where change happens), and *ascriptions* of network changes (i.e. box 2 – Perceptions of origin/source of change). Both description and ascription of changes may be referred to as sensemaking, as actors seek to make sense of *what* is happening (box 1), and *why* it is happening (box 2). Both these questions (*what* and *why*) relates to the time dimension of network dynamics. Correspondingly, explanations or ascriptions of changes may be classified as to *where* the changes are happening: Whether they result from actions by one actor (A= actor level), or because of changes in the relationship between actors (D= dyad level), or due to changes in multiple or connected relationships (N = network level). This question (*where*) relates to the space dimension of network dynamics. We will further elaborate on time, space and network dynamics in the methodology section.

Insert Figure 1 about here

2.3. Network Positions

Traditionally, a company's position in a business network has been described in terms of its location in the marketing channel, for instance as a producer, an exporter, an importer, a wholesaler, or a retailer (Abrahamsson and Brege, 1997; Achrol et al., 1983; Lebow, 1948;

McVey, 1960). In the industrial network approach the position concept rather describes how an actor is connected to other actors within the surrounding network of actors (Easton, 1992; Johanson and Mattsson, 1992; Mattsson, 2002; Turnbull et al., 1996). One definition of network position as part of the INA is offered by Turnbull et al. (1996) who state that network position is “...*a description of a company’s portfolio of relationships and the rights and obligations that go with it. Network position is both an outcome of past relationship strategy and a resource for future strategy*” (Turnbull et al., 1996, p. 12). Network positions and network change are related concepts as business networks are dynamic and network positions constantly change (Henders, 1992). This is also highlighted by Easton (1992, p. 134) who defines network positions as “... *primarily concerned with network connections. Thus they [network positions] provide a language to talk about network changes.*” But changing one’s network position is not easy to achieve as other actors may resist change. In this context an actor must decide whether he wants to consolidate his existing network position or create a new position by changing the combination of existing relationships, as suggested for instance by Håkansson et al. (2009). Johanson and Mattsson (1992) also contend that actors’ strategic actions must be seen in light of their attempts to influence their relationships with their environment; “*strategic actions are efforts by actors to influence (change or preserve) their position(s) in their network*” (Johanson and Mattsson, 1992, p. 188). For our purpose, we understand a company’s network position to be the sum of all its relationships. This definition is similar to Johanson and Mattsson’s (1992) view that network positions describe how actors in the network structure are related to each other.

However, if an actor’s position in a network is determined by its connected relationships, this implies that there exist different interpretations of this position (Gadde et al., 2003). For instance, the same actor may be seen as a close or distant business partner, because resources and activities will be utilised in different ways in different relationships.

Similarly, an actor may be seen as trustworthy and at the same time as difficult to deal with, determined by different actor bonds across a web of relationships. In more traditional terms, the same actor may be a supplier for one company, and a customer to another. Likewise, an actor may have shifting interpretations of her/his position. Johanson and Mattsson (1992, p. 188) discuss this when they suggest that “... *interrelations between positions can occur at the network level, which means that they are a matter of intentions and interpretations of the actors. They are subjective of nature.*” Johanson and Mattsson therefore suggest that network positions may also be seen as a cognitive construct, shaped and reshaped by interaction. We share this opinion. Thus, merely understanding a company’s network position in terms of its links, ties and bonds is unlikely to fully explain how actors decide on their strategic behaviour (i.e. networking), as their different interpretations of their position will determine how they choose to enact it (and subsequently change it).

2.4. Network Roles

One way to understand how actors interpret their network positions is offered by Anderson et al. (1998), who introduce the *role-and-position concept*. They argue that network positions generally are concerned with expected activities that come with a network position, such as keeping your existing suppliers, maintain your wholesaler functions or being the market leader. These are guided by actors’ expectations regarding norms. Anderson et al. (1998) call this *taken-on-activities*. They argue that a company has a position, but acts in a role which implies that we must take into consideration how an actor interprets her/his position and decides to enact it if we want to understand network change. In their view, one must include the *made-up-activities* that come with the roles actors choose to perform, because role behaviour reflects actor interpretations: “*We use the concept of role to express such actor activities as emanate from the creation of sense-making processes that characterise each actor’s own intentions and interpretations*” (Anderson et al., 1998, p. 172).

However, Anderson et al. (1998) do not provide a clear definition of these types of activities, but look at the position and role concepts together; therefore, they aid our understanding by positing that actors' perceptions of their positions must be seen in relation to their role interpretations, because "*role is a concept for describing what the actors intend, how they construct meaning in their situation and how they want to change it*" (p. 172). Andersen et al. (1998) argue that it is the interplay between made-up-activities related to network position and taken-on activities related to role that serves as a vector for change in the network, because network positions are related to the stability dimension of the network, and network roles are related to the change dimension as it is the reinterpretation of roles that leads to change activities because "*...actors interpret things in different ways and act according to their intentions*" (p. 183). Consequently, we argue that understanding how actors define their network role vis-à-vis their network position is a key issue in explaining network dynamics - a network role reflects how an actor interprets her/his network position and serves to understand her/his subsequent networking behaviour. The terms role interpretation, role understanding and role perceptions are in fact all examples of what we earlier have referred to as sensemaking: Actors need to make sense of their network roles. But in the remainder of this paper we will use the term role interpretation, as this has more focused meaning.

However, actors never act in isolation, and we need to understand how role interpretations are viewed and shared by other actors in the network. For instance, Anderson et al. (1994) talk about *strategic network identity* where network management is dependent upon a company's ability to be perceived as an attractive exchange partner. Holmen and Pedersen (2003) suggest that interaction takes place within a *network horizon* where an actors' ability to act is dependent on their perceived understanding of the network structure. Similarly, Huemer et al. (2004) talk about *network identity* where network management is dependent on the ability of imaging a 'networked us', helping 'them' in managing 'us' by

shaping the network pictures and theories of others. Kragh and Andersen (2009) suggest that the ability to achieve changes in a network is dependent on the degree of overlap between managers' *network pictures*. Therefore, it becomes important to understand whether changing network positions implies some degree of shared role understanding between connected actors.

Fig. 2 aligns the different concepts used in this paper. As this figure suggests, we look at network dynamics in terms as changes in time and space. We have used these dimensions to create a conceptual framework which allows us to analyse how managers perceive changes in terms of these two dimensions. Our results are then used to analyse the impact network positions changes and role interpretations have on network changes.

Insert Figure 2 about here

3. Research Methodology

3.1. Case Description and Research Design

To address the issues at hand, a case study of the distribution networks of fresh Norwegian salmon to Japan was conducted in 2007 which was part of a larger study (Abrahamsen, 2011). The particular case study setting was selected because the traditional Japanese distribution system, based around wholesale fishmarkets like the Tsukiji market in downtown Tokyo, is facing considerable pressure to change from foreign exporters on the one hand and Japanese retailers on the other. These actors see traditional fishmarket-based distribution as inefficient and costly and demand a more direct route to market, whereas primary and secondary wholesalers related to the fishmarket defend its role in the network

(Bestor, 2004). This context serves as a good example of a network undergoing changes, and exemplifies the challenges this imposes on the actors involved. The case study approach was adopted because it supports a number of features that were found to be particularly useful for our study. Case studies focus on “*understanding the dynamics present within a single setting*” (Eisenhardt, 1989, p. 534) which is a central issue in our paper. Even though case studies are focused on a particular setting, they can be used to develop theory about the general (Eisenhardt, 1989). Case studies have proved to be useful for network research in general, and network dynamics in particular: “... *it is obvious that case strategy is most suitable for the study of business networks. It allows the study of a contemporary phenomenon, which is difficult to separate from its context, but necessary to study within it to understand the dynamics involved in the setting.*” (Halinen and Törnroos, 2005, p. 1286). According to Yin (2003) case studies may be used to explain links, describe contexts, illustrate topics and explore situations. In our study, we try to *explain* how role perceptions have impact on network positions by *describing* how actors seek to influence and align the role perceptions of other actors. This is *illustrated* by a setting which is undergoing considerable changes where we *explore* the resource ties and trace the salmon through a network. Case studies enable close interaction with practitioners as they deal with real management situations (Dubois and Gibbert, 2010). Typical research methods in case studies are “*qualitative research techniques such as interviews, document analysis, various modes of observation, including ethnographical and anthropological strategies as well as the use of quantitative data*” (Dubois and Gibbert, 2010, p. 130). In our study we have relied on a number of these approaches, such as multiple in-depth interviews, observations and secondary sources of information. In finding our specific interview respondents, we utilized *tracer studies*, where an object is traced throughout its journey, such as documents within an organization (Symon, 1994). In our case, we used fresh salmon as the object, as we tried to trace the salmon on its

way from the Norwegian exporters to the Japanese fresh fish retail counters, interviewing managers and observing practices along the way. The semi-structured interview was selected as our main data collection method. According to Bryman and Bell (2003), it allows close interaction with respondents and enables the interviewer to depart from the initial interview guide and ask follow-up questions if necessary. This often produces rich and detailed answers.

During the interviews, we used *what* and *why* questions to address time dynamics (see fig. 1 above), and *where* questions to address space dynamics by asking the informants to reconstruct (or make sense of) developments in their *company* (the actor level), within their *immediate relationships* (the dyad level), and in *multiple connected relationships* (the network level). We were particularly interested in how they made sense of changes to their network roles and positions. In this way, our interview guide was inspired by the propositions of the sensemaking concept. According to (Weick, 1995, p. 18), “*perhaps the most distinguishing characteristic of the present conceptualization of sensemaking is the focus on retrospect*” This idea of retrospective sensemaking was first discussed by Schutz (1967) who claims that people can only know what they are doing after they have done it. This means that we can ask informants about changes from past to present, but their understandings is open to interpretation. Weick (1995) argues that the past is reconstructed knowing the outcome of events, which means things never happened exactly the way they are remembered to have happened. This means that sensemaking can be extended beyond the present: “*As a result, present decisions can be made meaningful in a larger context than they usually are, and more of the past and the future can be brought to bear to inform them*” (Weick, 1995, p. 29). As such, the sensemaking concept allowed us to understand the dynamics of the network by focusing on actors interpretations at a given point in time.

Each interview lasted between one and two hours. The interviews in Norway were conducted in Norwegian whereas interviews in Japan were conducted mainly in English. An

interpreter was used for some of the Japanese interviews. To increase confirmability (Guba and Lincoln, 1994), all the interviews were taped and written notes were taken. Transcriptions were made immediately after each interview to ensure ‘freshness’ of the data. Some respondents were contacted a second time to clarify content and meaning. Our starting point was one of the largest Norwegian exporters of fresh salmon to Japan, here called Norway Salmon. This actor was identified by crosschecking information from preliminary discussions with key actors in the seafood industry and official Norwegian export statistics. During interviews with this Norwegian exporter, the respondent was asked to name his most important customer in Japan. This customer was subsequently approached and interviewed, and was in turn asked to name her/his main customers, and so on. Eventually, data was collected by tracing the distribution route of the salmon in all the ways by which seafood enters the market in Japan. Table 1 presents an overview of the chosen informants in the studied network.

Insert Table 1 about here

Figure 3 suggests our representation of the case study network. Salmon is imported by Bluewater Trading, a large Japanese importer. From here on the salmon takes two routes: One is via Shoitachi, a processor, to Asahi retail, a large Japanese retail chain. The other route is to the fishmarket, where primary and secondary wholesalers buy and processes the fish. It ends up at retailers like Asahi retail, but also with smaller retailers and sushi restaurants.

Insert Figure 3 about here

3.2. Coding and Categorizing Data

Template analysis (King, 2004) was used to turn the interview transcripts into meaningful data. Here, the interview statements for each respondent were classified by their actor, dyad or network levels, i.e. as to whether respondents considered any particular change to appear at actor level (A), dyad level (D), or network level (N). Developing criteria for these classifications was also believed to enhance the credibility of the study, and aided the analytical framing of our case study. This has often been seen as lacking in case study research (Easton, 1998). The following criteria were used to classify the changes:

Defining change at the actor level: Examples of change at the actor level may be hiring a new manager, revising a marketing strategy or developing new products. But these examples instantly remind us that a company is a product of its interactions. New employees come from somewhere, strategies are made in response to someone else's moves, and new products are developed as a response to someone else's needs. As such, all changes at actor level are interconnected with changes at dyad level, and changes in the wider network. In the INA tradition, relationships are more important than actors, but they would not exist without them. We need to have some way of classifying changes at the actor level. Generally speaking, we may say that changes at the actor level are concerned with everything that happens *within a company*.

Defining change at the dyad level: Change at the dyad level is concerned with what happens *between companies*. Defining change at this level is perhaps easier as there is a plethora of literature and studies within the INA tradition that serves as a guide. In broad terms, change at the dyad level may be defined as a change in actor bonds, resource ties and activity links (Håkansson and Snehota, 1995). *Actor bonds* may be studied in terms of adaptability, conflict/cooperation/power/dependency and trust/commitment. Why a Japanese importer would prefer to buy salmon from one exporter rather than another, is an example of

actor bonds. *Resource ties* may be studied in terms of manpower, technological facilities, information, financial resources, materials and equipment. Salmon for instance is an example of a resource. It is a good (material) and it has a price (financial resource), it has a certain quality (information), it comes in an iced box (materials and equipment), and it has been handled by a number of people (manpower). *Activity links* may be studied in terms of what companies do together. Production facilities, research and development, sales and marketing, purchasing, distribution, administration are all examples of activities that companies may share. The salmon example indicates that actor bonds, resource ties and activity links are entwined. Buying a salmon (a resource) involves negotiation, sales, purchasing, distribution, storage (a number of activities) and it is conducted in a certain manner between the actors, e.g. friendly or antagonistic (actors bonds). Although these three characteristics of a dyad are interlinked in that a change in one dimension usually results in changes in the other two, we still need to describe them separately for the purpose of this study.

Defining change at the network level: Networks are connected relationships. Change at the network level may therefore be defined as change in *more than one relationship*. For instance, if a Japanese importer buys less salmon from a Norwegian exporter, this is a change at dyad level. But at the same time he may start buying salmon from another Norwegian exporter, or from a Chilean supplier. Thereby a change at the dyad level becomes a change at the network level. It should be noted that statements by respondents referring to more general changes in the “environment” or macro-economic trends have been coded at this level. For instance, if a respondent refers to “a change in Japanese customer preferences”, or a “Western distribution trend”, these are coded at the network level, as this is the most appropriate level of the three to locate them.

3.3. Framework for Data Analysis

By identifying the number of changes (and their different A, D and N levels) mentioned by the respondents during data collection, and locating them using the conceptual model presented in fig. 1, a framework is constructed which allows for a detailed analysis of how individual managers perceive network changes, and enables comparisons between the respondents. This is referred to as within-case analysis (Eisenhardt, 1989). It should be noted that the changes described here are the representations of individual managers (i.e. key informants), not organizations. However, in the subsequent sections we will refer to the respondent by the respective company name. As an example of the analysis, figure 4 represents the changes identified when using the framework to analyse the responses from one of the respondents (Norway Salmon, see fig. 4).

Insert Figure 4 about here

The changes are grouped into three main themes concerning changes perceived by the respondent. For instance, looking at one of the main themes identified, “*Change from fishmarket to direct distribution*”, in the ‘WHAT box’ the respondent identifies a general trend towards direct distribution, where actors are bypassing the fishmarket (change at network level). As a result, Norway Salmon has created new positions within the company (change at actor level). This has improved cooperation with their partners (change at dyad level). Furthermore, the increased ties and integration of the network has led to improved resource ties between specific actors (change at dyad level). The way Norway Salmon explains these changes (the ‘WHY box’) relates particularly to the role of the Japanese retailers who are perceived to be increasingly powerful. Particularly, Norway Salmon see much of the current change explained by retailers adopting new purchasing strategies

(ascription at actor level), but also because Norwegian Salmon itself wanted to develop their ties to the retailers to understand end-consumers better (ascription at dyad level).

Instantly, this tells the main story of what, why and where changes are happening according to this particular respondent and this template allows for a number of comparisons across the entire case.

4. Results

We will now present some results from the study using this framework for analysing the transcripts. Changes in Japanese seafood distribution will be presented from the perspective of each of the respondents in the sample. The next section will then analyse these perceptions in relation to our research question.

Norway Salmon:

Our respondent describes that traditionally, seafood is distributed through the large wholesale fish markets where numerous buyers and sellers meet. This structure supports a large number of small retailers and restaurants dependent on a rich variety of seafood. But the fishmarket with its many layers of wholesalers and middlemen is increasingly seen as inefficient and costly, and the network is currently changing progressively to more direct distribution: “Compared to the other main seafood markets things are slow in Japan. But the underlying change which we see accelerating is more direct contact between suppliers and end user, i.e. primary actors in the production and end users in the consumption end.” The respondent explains this in more detail: “What is happening now is that you have a Norwegian exporter which sells to a Japanese importer. This importer has direct contact with retail chains or restaurant chains. This model has grown in magnitude over the last five years”. Another example of change at the network level is closer ties with importers, processors and retailers: “We have developed concepts together such packaging, logistics, tailored products

and feed mix at our fish farm, category management in the supermarkets, and menu development with the restaurants.” As a result, Norway Salmon have created new positions within their company (change at actor level): “We have to share knowledge with our customers. We have recently hired a product development manager and a brand manager. These are resources that we draw upon together with the importers and retailers in Japan.” This has improved cooperation with his partners: “Our company is now in a much better position to negotiate with the retailers.” The increased ties and integration of the network has led to greater commitment between the actors: “We have three companies in Japan that we define as strategic partners. With these three partners we draw on various types of resources. So here we position ourselves much closer than we do in the traditional system.”

The respondent believes that the network will become more integrated: “I am going over to Japan in two weeks. We are negotiating with four primary wholesalers and have described our view of integration to them. We have proposed a strategy where we approach the retail level together.” Further, he explains that he will work directly with Japanese processors: “I also envisage that we are involved at the processor level in Japan, perhaps through a joint venture company. In 5 year’s time we may even have merged with one of the importers.” For this to happen, he needs to find partners which share his view of reality: “To achieve this I have to find partners which share this picture. We have spent a lot of time recently discussing and establishing a common view of the business with our partners. This is also his strategy for his dealings with the fishmarket, but this is much more difficult: “The fishmarket people on the other hand will not accept our view outright. They are resistant and say that it is impossible to approach the retailers together. I have to try hard to convince them.”

Bluewater Trading:

Bluewater's respondent also explains that there is increasing distribution bypassing the fishmarket. Today it is 50/50 between the fishmarket and distribution directly to retailers. One example of such network change is that actors like Bluewater Trading, Norway Salmon and the retailers are working in a more integrated manner. There is more commitment in the relationships, meetings are regular and discussions are open and friendly: "We have more direct access to the retailers now and we often meet them. The biggest change for us is that we now get direct access to the retailers, and we give them feedback directly." The actors have for instance developed retail promotion campaigns together; "Norway Salmon supports us in many ways; such as promotion and pricing. We have promotion activities together with Norway Salmon, with the assistance of the Norwegian Seafood Export Council." Other examples are fish processing activities tailored to the retailer's needs: "I think in the case of Shoitachi we are working really closely. We sell to the supermarkets, but every supermarket needs some processing. They cannot buy salmon by the box. They may process some salmon by themselves, but at busy times they use our processor."

One important reason for the improved cooperation is the retailer's need for traceability of the salmon they buy. "We want to develop a close relationship to the exporter and to the retailers because we want to improve the traceability of the fish that we sell. The retailers are very concerned about this. The price difference between buying from the fishmarket and buying from us is not that big. We may actually be more expensive. But the supermarkets demand traceability, safety and trust." However the fishmarket still has a role to play in that it ensures product variety, the respondent argues. It is the small retailers and restaurants, requiring a rich a varied seafood selection, that are still dependent on the fishmarket.

Shoitachi:

Shoitachi's relationship with Bluewater started when Shoitachi was approached by a large restaurant chain: "After we started working with Norway Salmon and Bluewater Trading, we saw that there was a great difference between how they operated compared to others, like how they approached the retailers. We therefore decided to approach a big restaurant chain together". Explaining why this happened he refers to the increasingly good atmosphere in his relationships to a particular restaurant chain: "They liked working with us and the volume to this customer is now increasing quite a lot, almost doubled every year". He also mentions the good relationship with Norway Salmon and Bluewater Trading, in terms of fewer complaints and improved quality, as an explanation for the change: "Before the big deal with the restaurant chain, Bluewater Trading had very small volumes with us. But we liked their quality and we didn't have many complaints about their products from our customers. That's why we started to increase the volume. And they always send fresh fish to us. They don't send old fish." He has reduced his suppliers from five to only one which is Bluewater Trading: "It is only five years since we started handling Norwegian salmon. Five years ago we had many suppliers, now we only have Bluewater Trading." This has resulted in a closer relationship and strengthened ties to his customers, increased volumes and a more stable supply. This means that Shoitachi has better access to information from the producer and the importer: "First of all, in terms of sales we can sell directly to the retailer or restaurant. Working directly with the importer and suppliers we have very good access to information". This change towards more demanding retailers has had an impact on the actor level. For instance, Shoitachi have recently built a new plant that is located geographically close to their main retail customers. He has introduced new production techniques that enable more tailored production to the retailers' requirements.

Asahi Retail:

This respondent also refers to the change towards direct distribution at the network level, where the fishmarket is bypassed: “At this moment, Japanese retailers are starting to realize that traceability is very important. By Japanese law we are required to document product origins. If we buy from the fishmarket, even though this is Norwegian salmon, I don’t know where it has been farmed or when it arrived in Japan. That’s why we want to have more direct dealings.” This change has improved his relationships with other actors; he now has access to more information, and the relationships are characterized by closer ties, better communication, less conflict and openness: “Traceability is important for Japanese farmed fish as well. Regarding Japanese farmed fish, like yellowtail or snapper, we have a good relationship with the Japanese farmed fish associations. When there is trouble we can communicate with the importer. So that’s why we want to have close relationships with other suppliers.” Consequently, his volume from the fishmarket has reduced. At the dyad level this is related to a change in atmosphere in the relationships between himself and the suppliers at the fishmarket. These relationships are characterised by tension and conflict: “The power-balance between us and the fishmarket has changed. The fishmarket used to have a lot of power, but not anymore, they cannot add value, they cannot supply what we want and we are not satisfied with them.” He is increasingly satisfied with his new suppliers: “We are all working together as a team!”

Tokyo Fishmarket:

This respondent also comments on the trend towards direct distribution. Volumes traded through the Tsukiji are falling: “Ten years ago the volume going through the market was in excess of 70 per cent...now it’s down to 63.” The respondent explains that the fishmarket and direct distribution have different functions, and different resources are utilised in the two distribution channels. In short, the fishmarket has its advantages when a customer

wants a variety of species, whereas direct distribution is favored when it comes to large orders: “Well, the retailers are also utilising the market. They’re trying to get the best out of the market as well as out-of-market transactions, so they are selective. The reason why they come to the market is that they will be able to access a large product variety. But when they want something in a large volume at low prices they go outside the market. So they’re trying to be very selective and get the best out of both.” Another reason for the shift in distribution is that the number of small independent retailers in Japan is falling. Retailers merge or they are forced to go out of business. These traditional Japanese retailers get their fish from the fishmarket: “For one thing the so-called retailers are disappearing from the market. Consumers no longer go to the fish store or fish retailer, but prefer to go to the supermarket. In Japan there are many small retailers, so-called mom and pop shops. There were many of these in Japan before, but recently they have disappeared and the retailers have merged.” To meet these challenges, the Tsukiji market is changing its strategy: “We are trying to reactivate the market, and this is a nation-wide effort which is made by all the markets in Japan.” The Tsukiji now targets retailers and supermarkets and seeks to offer new functions for retailers such as repacking and storage facilities. To create these functions the entire Tsukiji market will move to new premises by 2013: “We believe that it is best to move to new quarters and to open the path to create a new era, so to speak. At the new location we will have adequate space to accommodate a distribution centre, so that we will be able to provide space for the retailers and the supermarket.” The need for improved traceability and quality is one of the main reasons for this move. Traceability is difficult at the present location: “We have issued instructions to place priority on traceability because there are sometimes very malicious operators who fabricate the place of origin.” Quality control will also be improved with the moving of the market: “Now we have refrigeration equipment installed only two places, where we have the tuna auction, live fish and shrimp. With the new building, we will have

temperature control conducted throughout the entire operation. The space given to the intermediate wholesalers will be larger than it is today. Sanitation measures will be improved, as well as temperature control”. Nevertheless, the decision to move the Tsukiji is resisted by the intermediary wholesalers: “There are about 800 outlets that are currently accommodated here in Tsukiji, and many of these do not want to move...One of our serious concerns is how we are going to convince the intermediate wholesalers.” The intermediate wholesalers are increasingly finding it difficult to survive: “The intermediate wholesalers at Tsukiji have a very poor business performance now.” The number of intermediate wholesalers operating at Tsukiji is falling: “Every month we learn that one or two of the 800 are failing, going bankrupt or going out of business. This means that 25 companies each year are withdrawing from Tsukiji, because the changes in the distribution system have really hit them hard.”

5. Analysis and discussion

In this paper we have introduced several concepts such as network dynamics, time and space, network roles and positions and sensemaking (see fig. 2). We have used the concepts time and space to arrive at a framework which can help us describe what changes are happening, why they are happening and where they are happening. Using this framework, we have presented results from a case study. We will now discuss how these results may help us understand network dynamics in terms of changes in network positions and roles.

Our initial research question addressed whether changing network position implies some degree of shared role interpretation between the connected actors. We defined network position as the sum of an actor’s connected relationships. Thus, if an actor wants to change her/his network position they need to alter these relationships. Our results indicate that actors actively seek to change their network position by strengthening their ties to some actors and weakening ties to others. One key reason for this networking behaviour seems to be motivated by gaining better access to resources. For instance, the Norwegian Salmon and Bluewater talk

about the need to “get closer” to the retailer/processor, to “cut layers” or to “bypass” the fishmarket. These are metaphorical statements, but emphasise their strategic intentions. Norway Salmon has strengthened their ties to importers and processors such as Bluewater and Shoitachi at the expense of the traditional fishmarket, because this implies improved contact patterns with Japanese retailers. This also implies access to resources such as processing facilities and market information. Similarly, retailers such as Asahi Retail want to have better access to resources such as information about product quality and origin. As a consequence, they stop buying from the fishmarket and start buying directly from importers with strong ties to exporters or producers. Further, when Shoitachi was approached by a large restaurant chain, they decided to connect to importers like Bluewater because this importer had access to a Norwegian salmon exporter, and they did not use the traditional fishmarket. Finally, actors like the fishmarket want to improve their network position by using resources and activities in new ways (such as offering new facilities and functions to retailers) in order to become more attractive. These reported changes are all examples of changes in the space dimension, and illustrates that if actors wants to change their network position, this has an impact on the actor’s own organisation (the actor level), their connected relationships (the dyad level) and ultimately the surrounding network (the network level).

In our research question, we asked whether these network changes could be explained by how the actors interpret their network roles, and whether changes implied some degree of shared role interpretation. Our results give several examples of how role interpretations (and re-interpretation) serve as vectors for network dynamics. The general impression is that Norway Salmon, Bluewater, Shoitachi and Asahi Retail all share the same role interpretation of who is doing what: Norway Salmon is seen as a dependable producer of high quality salmon, Bluewater is seen as a well-connected supplier of Norwegian salmon, Shoitachi is seen as an efficient and adaptive processor, and Asahi Retail is seen as customer with high

potential. These actors have become highly integrated, and the roles they perform are shaped by mutual understanding. For instance, activities such as fish filleting is performed between the processor and the retailer, depending on sales levels generated by campaigns at the retail outlets. More specifically, Norway Salmon has deliberately targeted actors sharing their understanding of the challenges facing the Japanese distribution system. This actor has a clear strategy of working with Japanese importers sharing their view. Having similar role interpretations serve as a good starting point for moving the network in a desired direction. Norway salmon, Shoitachi and Asahi Retail also share the same perception about the role of the fishmarket. In their view, this is becoming obsolete because it provides insufficient market access and product information.

The fishmarket management partially shares the interpretations regarding the shortcomings of the fishmarket, but also defends its role. As such, the fishmarket manager's view is at odds with the views of the actors outside, because the actors do not see the fishmarket as playing an important role anymore. It does not provide information transfer and it does not facilitate contacts between exporters and retailers. The fishmarket therefore is not an attractive partner, and the ties to other actors are weakened. The market manager is aware of this, and is currently redefining or re-interpreting their role. The respondent believes that if the market can provide better storage and processing facilities, as well as improved sanitary conditions, it will become more attractive to the other actors. But such a role interpretation needs to be shared with these actors, and this is currently not the case. Another issue facing him is that he needs to realign role perceptions within the fishmarket itself. At present there are a large number of intermediary wholesalers that are resisting the move to another location. They need to be convinced before such a move can take place.

Our research question implies that for change to occur there must be some alignment of role interpretations. As these interpretations are individual to the actor, role interpretations

will be different because people are different. This further implies that interaction always represents a confrontation between two different views of reality or role interpretations. If an actor wants to change her/his position in the network, they need to confront the role interpretations of other actors. A similar argument has been put forward by Johanson and Mattsson (1992), who suggest that actors may change the structure of a network by influencing the network theories of other actors, making the network theories more consistent, or creating a *dominant network theory*. At the same time, an actor's interpretation of her/his role will be reflected by their position in the network. When an actor's network position changes, so does their interpretation of their role. Role interpretations are therefore both inputs to and outcomes of network change. They help actors to understand their network position and the strategic options available, but they are also the results of previous interactions. Furthermore, as the network position of one actor changes, other actors' positions are affected. This implies that other actors also make cognitive changes and perceive things differently, again representing new challenges to their connected relationships. As such, this is an ongoing process.

What is the optimal alignment of role interpretations that will facilitate change? The previous discussion suggests that there needs to be some kind of role interpretation alignment for changes to occur. Parallel discussions are found in the literature on inter-firm organisation theory (Uzzi, 1997), creativity (Perry-Smith, 2006; Shalley and Gilson, 2004) and learning (Cohen and Levinthal, 1990). Kragh and Andersen (2009) found that "*Managed change in networks has a higher likelihood of leading to the intended changes when the different network pictures of the routines subject to change are neither too distantly removed from one another nor entirely overlapping, but instead exhibit some degree of complementarity*" (Kragh and Andersen, 2009p. 29). Their study looked at similarities and differences in network pictures, but this claim is also valid for our case as network pictures represent ideas and

perceptions of who is doing what in a network. Kragh and Andersen's (2009) results suggested that actors are increasingly able to manage change up to a point where further network picture amalgamation becomes ineffective as a change agent: "... *if a certain level of network support cannot be mobilized, changes will not take place. When network pictures are highly dissimilar, change projects that appear rational and fruitful to the initiating actor may lie so far outside the frame of reference of other actors that these actors are not receptive to these initiatives*" (Kragh and Andersen, 2009p. 27). This is notable in our study, where the Tsukiji fishmarket manager has a different perspective on the future of Tsukiji, but his view is not shared by the wholesalers. In this situation, his ability to change the fishmarket network is minimal. However, if the actor perceptions become too alike, if they agree too much, the ability to change will diminish because the network is in danger of becoming static, or what Henneberg et al. (2006b) refer to as *ossified*. For instance, wholesalers inside the Tsukiji seem to have very similar views about the efficiency of the market. Porac et al. (1989) refer to this as a *cognitive oligopoly* where "*beliefs are reinforced by a mutual enactment process in which the technical choices of firms constrain the flow on information back to decision-makers, thereby limiting their vision of the marketplace to that which has already been determined by existing beliefs*" (Porac et al., 1989 p. 412). Their studies of the Scottish knitwear industry show how collective views inside an industry acts as a barrier to change. The best opportunity for change is where "...*different network pictures incorporate partly shared network understandings and therefore complement each other. Here, actors have sufficient insight into the roles and positions of other actors to devise change projects that incorporate the views of others, yet their activities and identities are still so separate that flexibility and dynamics are preserved*" (Kragh and Andersen, 2009p. 28). In terms of our study, exporters like Norway Salmon have been able to develop an efficient distribution structure with Japanese importers (Bluewater), processors (Shoitachi) and retailers (Asahi

Retail). The role perceptions of these actors seem to be overlapping in the sense that they agree on the allocation of resources (e.g. where should the salmon be filleted?) and activities (e.g. how should the marketing campaign be organised?). In this situation the actors chose to cooperate about these issues and not challenge the view of other actors. But if the actors agree too much, no new ideas come into the network and the network will be less likely to change.

Thus, established role interpretations need to be confronted to facilitate change. This idea bears resemblance to Lundgren's (1992) suggestion that stability is a prerequisite for change, and also to Håkansson's (1992) claim that change is a dialectic evolution where resistance is met by an opposing force creating new patterns. As such, networks are always in transition where new ideas challenge established patterns. The following model is one way of illustrating this process (fig. 5):

Insert Figure 5 about here

In scenario 1, there is little overlap of role interpretation and the ability to change is low, as is the case where the Tsukiji fishmarket manager has a different perspective on the future of Tsukiji, but this view is not shared by the wholesalers. In scenario 2 the overlap is high and the network may become static ossified according to Henneberg et al. (2006b). In scenario 3, the situation is optimal as the degree of alignment is medium, i.e. high enough to create understanding but low enough to create change. This is where actors such as Norway Salmon, Bluewater, Shoitachi and retailers Asahi Retail have overlapping perceptions about role interpretations. This model suggests that role interpretation will act as a change agent up to a point where there are no new ideas coming into the network and the network becomes inefficient (scenario 2). This is how the fishmarket is perceived today. But inefficiency leads to frustration, conflicts and disagreements between the actors, and new role interpretation

may be proposed as a way of bringing the network forward. Hence we see a move from scenario 2 to 4 as the ability for network change is improving. Pressure to change may come from inside the network where the actors increasingly question its logic (such as the fish market administration), or more likely from the outside where new actors challenge the established ideas (such as importers and retailers). In any case it is the conflicting role interpretations which act as change agents, not the overlapping role interpretations. The conflicting role interpretations appear at the time where the network is perceived as inefficient by the actors. For change to occur, the actors must share an understanding of the best allocation of resources and activities. The actors' ability to manage change will only become effective when there is a higher level of overlap of the network pictures (scenario 4). If the network pictures become too similar (5) the network again becomes static.

6. Conclusion, contribution and limitations

In this article we have examined the extent to which actor interpretations, or their sensemaking, of network positions and network roles can be used to better understand networks dynamics in time and space. Our literature review suggests that these concepts are pivotal for understanding network dynamics, as actors continuously strive to change their network position on basis of their understanding of their wider network, thus creating changes to the network structure. To address this, we have analysed differences in perceptions of network changes across a network of actors in the Japanese seafood distribution system. Using the dimensions time (past, present and future) and space (actor, dyad and network), we have create a conceptual framework that has permitted an understanding of how actors perceive changes in terms of descriptions (what is happening) and ascriptions (why it is happening).

Our findings suggest that network dynamics may be understood in terms of actors seeking to change their network position, and their networking behaviour must be seen in relation to the roles which the actors undertake. However, their ability to change their position is dependent on a shared interpretation of roles between the actors. Shared role interpretations make it easier to change the network in a desired direction. However, if interpretations are too aligned, a network may become static. Network dynamics is therefore a process where role perceptions are shaped by mutual understanding and interaction, but also by actors challenging these understandings by bringing in new ideas to the network as to how it should be organised and how roles should be performed.

The main contribution of this paper is that it introduces sensemaking to understand network dynamics, both as a methodological tool and as a theory explaining the factors influencing network dynamics. As one of the contributions to network research, we show that it is possible to study network dynamics by comparing actors' perceptions of changes in their company, their relationships and their wider network. Using a coherent conceptual framework, we have gained meaningful data which has allowed a rich case analysis. Using sensemaking of past, present and future changes, we have seen that it is possible to say something about change processes in a network by focusing at a given point in time. Our main contribution to network theory is that we have addressed the impact which role interpretation has on network changes. As our theoretical discussion has indicated, there have been a lot of conceptual discussions and research into the relationship between network positions and network change, and our paper gives support to the idea that changing a network position means strengthening ties to some actors and weakening other. But our paper introduces the role concept in an attempt to understand these change processes. There have been few attempts looking at change in these terms, Anderson et al. (1998) being an exception. Their study concluded that we need also to take into account how actors

conceptualise their network roles to understand network dynamics. Our paper goes one step further by suggesting that these role conceptualisations in themselves have impact on network change, as actors try to shape and align role interpretations to create changes in their network.

For managers this has a number of implications. Our paper shows that there are several strategies used to handle changes. One way may be to target actors sharing the same understanding of how roles should be performed because this serves as a good starting point for moving the network in a desired direction. Another strategy may be to change the role interpretations from within the network, and to use mutual interaction as a basis for shaping roles. A third strategy may be to openly challenge and question the role interpretations of other actors. But an actor's ability to change the network is dependent on the other actors sharing her/his views. One way to resist change is therefore to defend one's network role and not being willing to discuss how it should be performed. Our discussion also highlights the importance of deviance in role understanding. Established perceptions need to be confronted by new ideas about how the network should be organised. If not, a network will become static.

When interpreting our results care should be taken that our research design also has some limitations. We have deliberately compared managers' perceptions at a given point in time. A longitudinal study of perceptions over time would perhaps have aided our understanding. Participant observations of discussions and meetings with the various actors would also have given new perspectives about how perceptions are challenged, changed and defended. We may also raise an epistemological question about whether perceptions of changes are representative of changes themselves. Are we really addressing the "real" or "underlying" changes in a network by comparing managers' perceptions of them? Our study represents a perceived reality, i.e. a socially constructed view of the world. It bases its foundations on sensemaking, where reality is an idiosyncratic construct. There may be

changes affecting the actors, but the actors are not aware of them. This resides within a more profound methodological discussion as to whether personal interviews used in qualitative research are applicable in addressing tangible constructs. Another limitation is the dimensions in our study. We have been concerned with time and space dimensions, and we have not taken account of dimensions such as company performance. This study it is not backed up with financial information, only addressing the actors' view of their own performance. However, further research may shed light into these issues.

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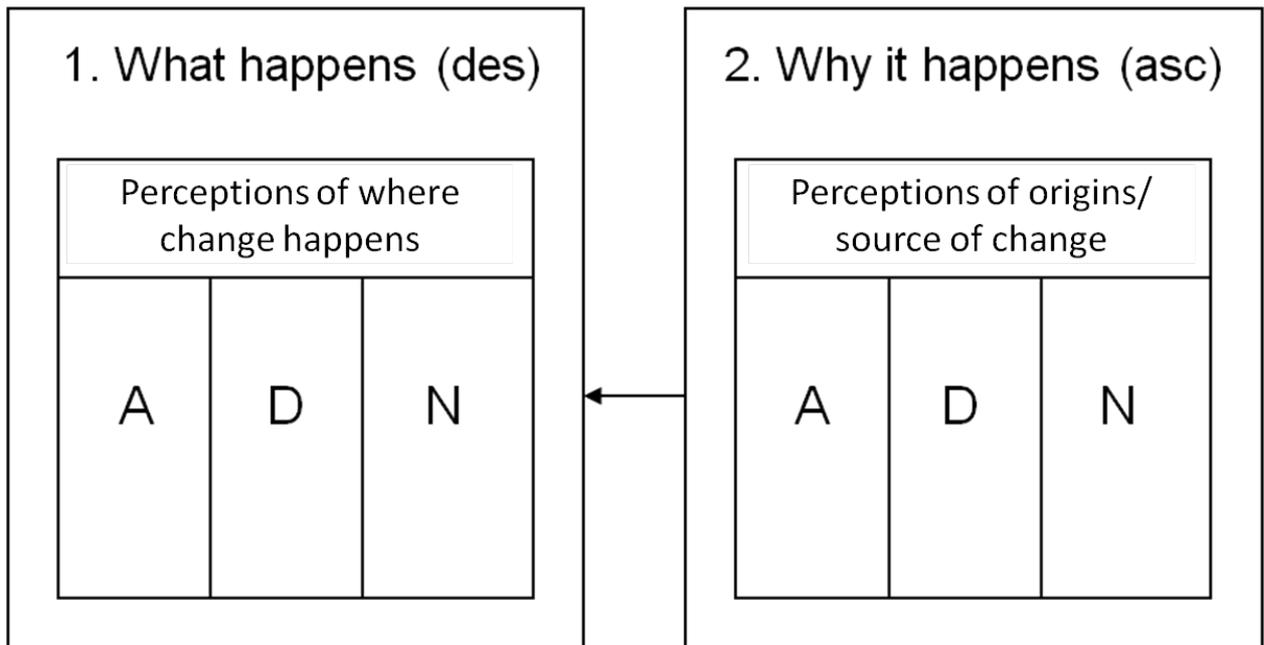


Figure 1. Conceptual model for the descriptions of network changes (what) and ascriptions for these changes (why) over time. (Note: A – Actor; D – Dyad; N – Network)

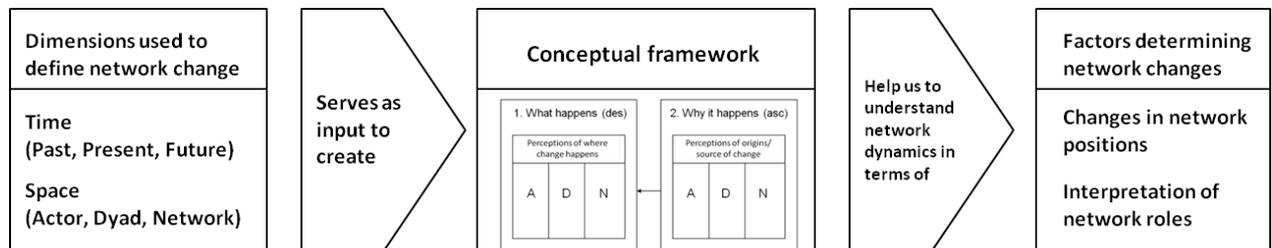


Figure 2: Aligning the concepts used in the paper

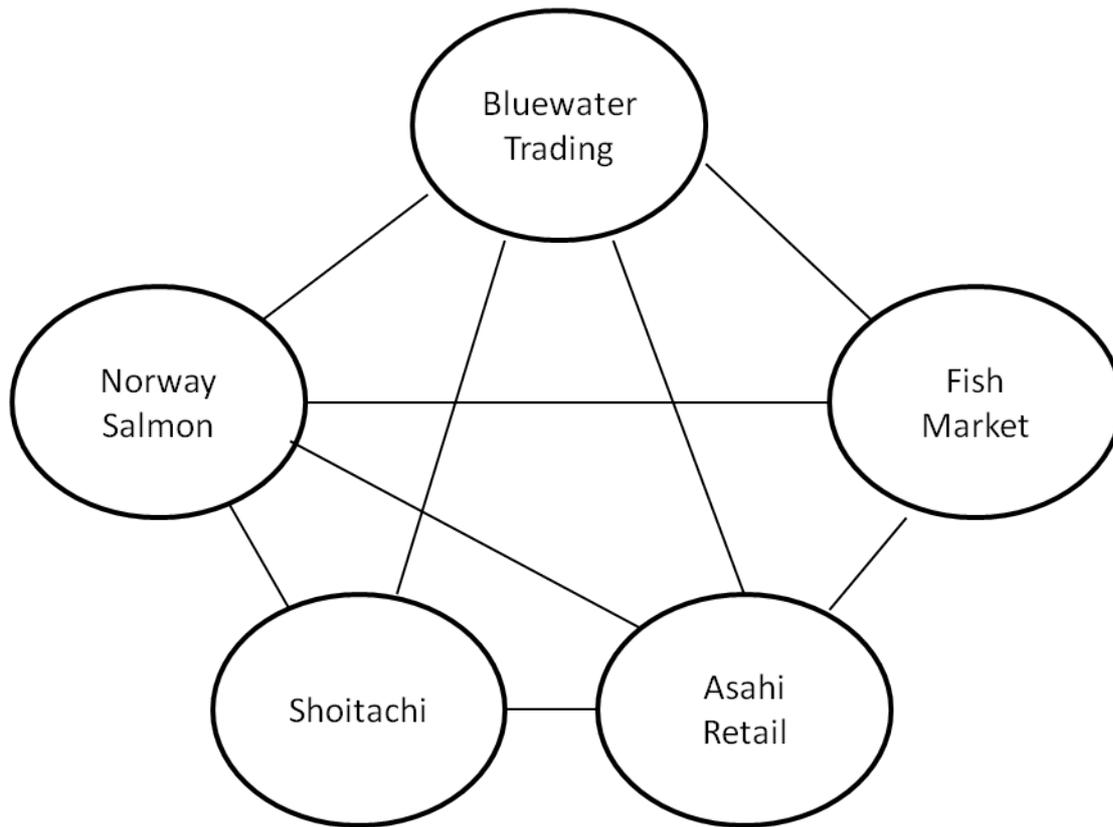


Figure 3. : Case study network: Norwegian/Japanese salmon distribution

What happens: Perceptions of where change happens			Why it happens: Perceptions of change origins		
Actor level	Dyad level	Network level	Actor level	Dyad level	Network level
1. Change from fishmarket distribution to direct distribution					
• We have created new positions within the company	• We have improved cooperation with our customers • We have improved resource ties	• We see a general trend where exporters are bypassing the fishmarket	• Japanese retailers are adopting new purchasing strategies • Retailers are increasingly powerful	• We deliberately wanted stronger ties to the retailers	
2. The fishmarket is slow to change					
		• The fishmarket is still used by many importers		• Pricing is more effective at the fishmarket	• The fishmarket has distinct functions that are not easily replaced
3. Change from whole fish to fillets					
	• We increasingly produce fillets		• Fillets are cheaper to produce		• The network will save costs by switching to fillets

Figure 4: Detailed analysis framework applied to Norway Salmon

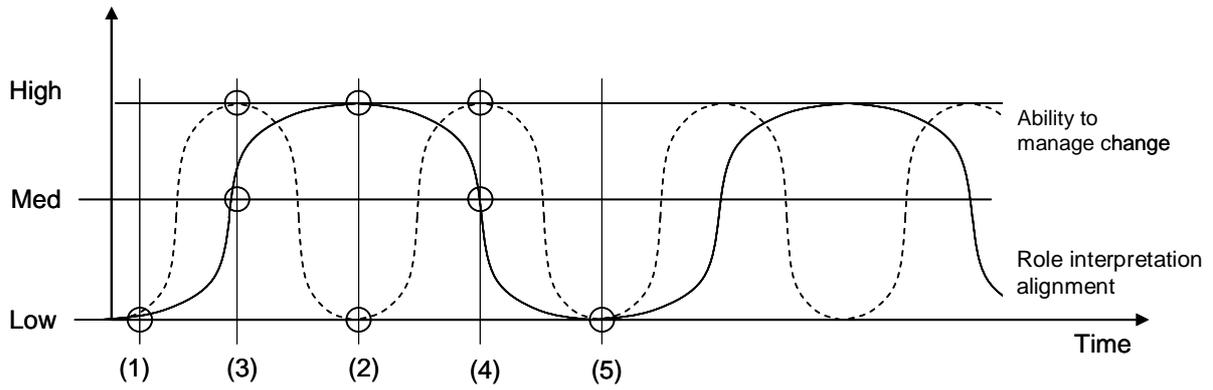


Fig. 5: Relationship between ability to manage change and role interpretation alignment over time

Company	Type	Key respondent
Norway Salmon,	Farmer and processor. One of Norway's largest salmon exporters	Team manager, Asia
Bluewater Trading,	A large Japanese seafood importer	Vice President
Shoitachi	Seafood processor	President
Tokyo Metropolitan Fishmarket (Tsukiji)	Japans main wholesale seafood market. Handles approximately 2400 tons of fish worth about US\$20m every day	Director General Managers of primary and secondary wholesalers
Asahi Retail	Large supermarket chain with 135 outlets mainly in the Kyoto/Osaka area	Head Buyer

Table 1: Company/respondent description for the study (names have been altered)

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