Organizational roles for managing in nets
- Case study of a new mobile service development net

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Abstract

This paper examines organizational roles for managing in business nets by applying an initial conceptual framework built on previous net management, role-theoretic and management research to an empirical case of a new mobile service development net. Specifically, we aim to answer the question: What are the managerial action-based roles for managing in business nets? The empirical data of the study consists of fifteen interviews and nine-month participant observation notes in a net that created and piloted a new mobile service directed at the spectators of a sports team. As a result of the study we present an empirically grounded typology of twelve organizational roles for managing in nets. The organisational roles are related to the changes in the net and the service development over time, and to the interpretations of the behaviours by the other actors in the net.

Keywords: Managing in network, organisational role, new mobile service development, R&D network

Introduction

Managing in networks has become an important organisational capability in research and development operations (see e.g. 2003). Ritter, Wilkinson and Johnston (2004) even claim that the ability to combine resources and operate in the networks of various actors is a source of competitive advantage. This is because the ways of performing research and development activities have dramatically changed: the development and fragmentation of technologies has increased the amount of knowledge and resources needed in R&D activities. Companies and research organisations have responded to these changes by cooperation and networking instead of performing development activities internally (see e.g. Axelsson and Easton 1992; Dyer and Nobeoka 2000; Gemünden et al. 1996; Gemünden et al. 1996; Gulati et al. 2000; Peters et al. 1998; see e.g. Powell et al. 1996).

When defining managing in a network context we acknowledge that networks in their broadest sense cannot be managed by a single actor (see e.g. Easton 1992; Ford et al. 1992; Håkansson and Ford 2002). However, along with other researchers of strategic nets, we claim that managing *in* nets is possible (see e.g. Möller and Halinen 1999; Möller and Svahn 2003; Ritter et al. 2002). Similarly to Knight and Harland (2005), we see managing as organizing. This emphasises instances of strategic interventions in nets through shaping inter-organisational cooperation and taking into account the embeddedness in networks (cf. Håkansson and Snehota 1995, p. 10). Through acting in nets of relationships, managers create access and connect resources and activities for the firm.

Management research has long approached managerial work through descriptions of managerial roles (e.g. Minzberg (1980). In addition, there are a number of studies applying the concept of role in order to understand the dynamics within business networks (e.g. Anderson et al. 1998; e.g. Grandori and Soda 1995; Havila 1992; Knight and Harland 2005). Researchers (see e.g. Biddle and Thomas 1966; Linton 1936; Montgomery 1998) have considered role theory to be especially useful for creating an understanding of dynamic research phenomena. It makes it possible to perceive organisational roles through actions of individuals who are creating, interpreting, modifying and organising roles (see e.g. Knight and Harland 2005; Zurcher 1983). This study aims at enriching the discussion on management in nets with the basic ideas of role theory, and the idea of managerial action as a driving force for managing in nets. Specifically, we aim to answer the question: What are the managerial action-based roles for managing in business nets?

In search of an answer to the above research question, we start with reviewing research on managing in business nets. We perceive that managing in nets is performed through managerial action, i.e. behaviours influencing the net, its activities and resources. We define managing in a net as the capability to influence the net. For analysing this influence we utilise the concepts of radical and incremental change by Halinen, Salmi and Havila (1999). We then relate the managing in a net discussion with an analysis of the primary concepts of role theory and existing role typologies. These provide us with two further conceptual dichotomies for analysing the roles for managing in a net. On one hand, role theory provides us with an idea of a role to be defined by the perception of the acting by other actors as either expected or emerging. The management research and previous role typologies, in turn, point to the level of acting, i.e. the acting at either the strategic or operational level.

Relying on the initial conceptual framework providing the three descriptive dimensions for role-acting for managing in nets, we move on to analysing a single case of a new service development net. The net developed a new a mobile service for fans of a sports team. The empirical data consists of two data sets: the first was gathered by 15 interviews of the key managers and the second by over nine months of participant observation. As a result of the study, we present an empirically grounded typology of organisational roles for managing in new service development nets. The organisational roles are related to the changes in the net and the service development over time and to the interpretations of the behaviours by the other actors in the net.

Roles to Manage in Nets

Managing in nets

Firms are, in various ways, embedded in complex networks where both economic and social dimensions are crucial (Gadde et al. 2003). In such structures total dominance over other actors'

resources and activities is not possible, thus management of networks is not possible. However, management of the relationships within a certain focal network or a net, i.e. management in networks, is seen as attainable. A number of academics have adopted this perception in the current network research (see e.g. Ford et al. 2002; Gadde et al. 2003; Möller et al. 2005; Ritter et al. 2004). The contradiction about manageability of networks exists and is pointed out in several studies (see e.g. Ford et al. 2003; Gadde et al. 2003; Håkansson and Ford 2002; Möller et al. 2005; Möller and Svahn 2003; Ritter et al. 2004; Waluzewski 2004). Therefore, according to Möller et al. (2005) managing in networks should be perceived as a relative issue where the type of network and the level of analysis alters the opportunities and capabilities to control and coordinate in different networks. Like Batt and Purchase (2004) point out, firms must focus on managing the interactions between organisations rather than attempting to manage the network. We adopt the viewpoint of Möller and Halinen (1999) and Möller et al. (2005) that networks are manageable at a net level.

A net is a subset of a network defined from a focal firm's view or based on spatial proximity or technological interdependence (Mattson 1997). A focal net consists of all the actors the focal actor perceives as relevant and within the focal actor's network horizon (Möller and Halinen 1999). In some case, net may refer to a special net i.e. subnets or portfolios of relationships analysing innovation or knowledge transfer (Ritter and Gemünden 2003). From a strategic perspective, the concept of net is utilised to depict an interrelated group of actors pursuing a joint strategy within a network (Möller and Halinen 1999). These intentionally developed nets pursuing certain mutually agreed end states are referred to in strategy literature as strategic networks (see e.g. Gulati et al. 2000; Jarillo 1988).

Ritter et al. (2004) point out the twofold nature of the term "to manage", firstly meaning to lead, to determine, to organise and secondly referring to coping with a certain situation. Managing in a net involves initiating and responding, acting and reacting, leading and following, influencing and being influenced, planning and coping, strategising and improvising, forcing and adapting (Ritter et al. 2004). In brief, managing in a net is about managing interactions with others, not about managing others. Managing in a net is a two way process in which organisations are able to influence the resources and activities of each other (Håkansson and Ford 2002; Ritter et al. 2004). Management in nets consists of attempts to influence others and benefit from others' resources, initiatives and creativity where possible (Håkansson and Waluzewski 2002).

The attempts to influence others in a net, if successful, cause changes to the net. To capture these dynamics in business networks Halinen, Salmi and Havila (1999) differentiated between incremental change and radical change in a network. The former involves change in the nature and content of a single relationship. The radical change, in turn, is caused by critical incidents that create changes leading to the dissolving of relationships or the building of new relationships. We see tracking and analysing the changes in the net as one way to create understanding of managing in a net.

An important aspect of managing in a net is also the ability to mobilise and coordinate the value activities of other actors. The crucial questions consist according to Möller et al. (2005) of how the hub firm can mobilise the strategic net and what kind of roles it should try to achieve. The focus of net management is then typically on improving the operational efficiency of a net and leveraging the existing capabilities through participation as well as development of new capabilities through creating novel net configurations. According to Möller et al. (2005), "key aspect is the ability to identify the roles, capabilities and goals of other important actors and to modify one's strategy to match the situation [in the net]".

Our viewpoint of the management of networks is based on the assumption that organisations actively and purposefully try to influence their context that consists of relationships with others. This is consistent with, for example, Johanson and Mattsson (1992, 205) who note that actors in networks have intentions, interpret the surrounding context and act to create strategic action. Interactions with others may result in the emergence of a net of actors who pursue a joint strategy towards certain mutually agreed end states. This is the kind of a sub-network in which the managing in a net is relevant to examine (cf. Möller et al. 2005). In previous research (see e.g. Möller and Halinen 1999; Möller et al. 2005) the roles have been linked with the possibility to mobilise and coordinate a net. We focus on the roles that organisations act in while managing in the net. Through acting they perform a role which influences the relationships between the actors in the net. This way they manage in the net.

Acting in roles

Role is a widely used concept in social sciences (see e.g. Biddle and Thomas 1966; see e.g. Linton 1936; Zurcher 1983) and it has been used in management research since Mintzberg's study of managerial roles. The domain of the study of role theory focuses on depicting and understanding the rich tapestry of human behaviour. The concept of role has also been used in a number of studies on interorganisational networks implicitly or explicitly (see e.g. Anderson et al. 1998; Havila 1992; Knight and Harland 2005; Montgomery 1998). According to Montgomery (1998) it is more useful to perceive actors not as purely utility maximisation seeking entities but as a collection of roles, with each role containing information about expected behaviours. Anderson et al. (1998) focused on roles in business networks and took the idea a step further. The role was, according to their description, a concept for describing the intentions of an actor, a construction of the meanings in their situations and a construction of their preferences of changing it by acting in a role. We perceive that actors in a net can be perceived as collections of roles like Knight and Harland (2005) have stated. The roles we see arising from the behaviours of the actors that influence the net.

The concept's origin is from theatre and refers to a part played by an actor (Thomas and Biddle 1966). Thus, it seems reasonable to perceive the behaviours as being constrained by the "parts" and "scripts" in a certain context structured by a number of social actors (Biddle 1986). From this point on we use the concept of actor to refer to individuals, groups or organizations in business relationship context (see e.g. Håkansson and Johansson 1992). The role of an actor is socially constructed and actors should be perceived as collections of several roles (Montgomery 1998, 97). According to Zurcher (1983) "[the role] typically refers to the behaviour expected of individuals who occupy particular social categories." These social categories include statuses of formal (e.g. clerics in churches, professors in universities, [managers in corporations]) or informal social statuses (e.g. mother or fathers in family, movie audience or supermarket customer) as well as statuses reflecting the cultural values of society (e.g. hard worker). Although the role theory typically concentrates on the behaviour of individuals, Katz and Kahn (1966) have used role as a focal concept in their theory of organisations. They perceive that organisations are systems of roles which are constituted of acts with materials, machines and above all of interactions with each other (Katz and Kahn 1966, 173).

A large part of acting can be seen as expected by others in the net because of being strictly related to the role of an actor. Thomas and Biddle (1966) refer to the expected behaviour of social statuses as "designated location in certain structure" and name these statuses as positions. The definitions implying that the roles are perceived closely linked with certain positions in social structures are typical of structural functionalistic approach of Role theory. In organizational setting Katz and Kahn (1966, 174) refer to role behaviour as recurring actions of interrelated actors with appropriate interactions with others performing their own activities and thus creating predictable outcomes. In a formal organisation the expected behaviours may be comprised in coded or written presentations. In formal organizations the roles actors act in are more a function of the surrounding structure than their own personal characteristics (Katz and Kahn 1966, 174). Consequently, the concept of role as such contains elements depicting the static position of an individual among certain structures as well as abilities and expectations of behaviour among these structures. According to Katz and Kahn (1966, 174) the basic criterion for studying role is to identify the relevant surrounding structure and locate the events that fit together converting inputs into outputs.

To the expected role acting is related the role set of an actor. Role set refers to any and all features or subunits in a structure that are able to send role expectations. Role set points out the interdependence between the actors within an organisation (see e.g. Kahn et al. 1964; Shivers-Blackwell 2004). In addition, the characteristics of the organisations serve as role senders providing the minimum core of required duties, activities, standards, objectives and responsibilities that must be met (Shivers-Blackwell 2004). All members of a role set depend upon an actor's performance. Thus, they have a stake in its performance and they develop beliefs and attitudes about what the actor's performance is about i.e. create *Role expectations. Sent role* refers to the communicated role expectations on the focal actor, in other words the expectations created among the role set that are sent to the actor (Kahn et al. 1964).These expectations are communicated directly (e.g. job description) or indirectly (e.g. colleagues admiration) (Shivers-Blackwell 2004). The so called structural functionalists of role theory emphasise these role expectations (see e.g. Ashforth 2000; Thomas and Biddle 1966). They perceive role as stated behavioural expectations related to a given position in a social structure.

Another viewpoint in role theory is held by the symbolic interactionists (see e.g. Ashforth 2000; Thomas and Biddle 1966) who perceive roles as emergent and negotiable between individuals. Based on their preferences, perceptions and interpretations actors coordinate their behaviour, thus jointly defining what constitutes a certain role (Ashforth 2000). Thus, actors are rather active than passive in enacting roles. They conform to role expectations as well as interpret, organise, modify and create them. The later researchers of role theory (see e.g Baker and Faulkner 1991; Callero 1994) have adopted perception of *roles as resources* that combines the determining structures for expected behaviours from the structural functionalist perspective with actor's agency for emerging behaviours from symbolic interactionist perpective. Callero (1994) illustrates the distinction with the concepts of role-playing versus role-making. We acknowledge this duality in the concept of role, and use the expectedness or emergence of the role behaviour as perceived by the others in the net (role set) as one dimension to describe role acting. Thus, role is defined by both expectations of others and intentional construction and changing of the role by the actors themselves.

Management researchers have frequently described a manager's work through description of roles, especially after the seminal work by Minzberg (1980). The explicit use of role theory is however rare. Studies collected in Table 1 depict managerial roles either in specific contexts or at the general level of management. The concept of role is used in varying ways in different contexts and with different perspectives. We reviewed the descriptions of roles in a small sample of existing research to exemplify the pluralism in use of the concept and previous role typologies.

Mintzberg (1980) categorised managerial work in ten roles in three categories: 1. *Interpersonal roles*: figurehead; leader; liaison; 2. *Informational roles*; monitor, disseminator; spokesman; 3. *Decisional roles*; entrepreneur; disturbance handler; resource allocator; negotiator. Later, for example Grendstrand and Strand (1999), described and explained the patterns of leadership roles in different types of organisations. They found that there are no systemic relationships between certain organisation types and managerial roles. In addition, they pointed out that managerial roles are ambiguous, shifting and contradictory and finally loosely coupled with other organisational processes. Vilkins and Cartan (2001) focused on finding the relation between effectiveness of organisations and dimensions of the integrator role. In their analysis they found that successful managers integrated elements from several managerial roles.

Managerial roles have been determined in certain specific contexts as well. Snow, Miles and Coleman (1992) have found three broker roles while describing network organisation. In their study, the broker was an organisation in a proactive role within a network managing a network. The managers in the network were found in architect, lead operator and caretaker roles. Broderick (1999) used role theory as a tool to better comprehend the management of service encounters.

Table 1. Studies on managerial roles.

Author	Role typology	Classification criteria	Context
Mintzberg (1975)	Figurehead, Leader, Liaison, Monitor, Disseminator, Spokesman, Entrepreneur, Disturbance handler, Resource allocator, Negotiator	Target of management: people, information, decision making	Intra-firm management
Snow, Miles and Coleman (1992)	Architect, Lead operator, Caretaker	Target of management: resources, production, people	Inter-firm (supply) management
Shenkar, Ronen, Shefy and Hai-siu Chow (1998)	Spokesperson, Liaison, Monitor, Political, Relationships leader, Allocator	Target of management: People	International inter-firm management
Grendstrand And Strand (1999)	Integrator, Entrepreneur, Administrator, Producer	Target of management: People	Intra-firm management
Broderic (1999)	Buyer, Seller	Target of management: People	Interaction management
Vilkinas and Cartan (2001)	Innovator, Broker, Producer, Director, Coordinator, Monitor, Facilitator, Mentor	Target of management: People, operations optimisation	Intra-firm management
Knight and Harland (2005)	Innovation facilitator, Supply policy maker and Implementor, Advisor, Information broker, Network Structuring agent	Target of management: Coverage of supply chain	Inter-firm (supply) management

Traditionally in management studies there has been a division of decision making to either strategic or operational level. In the broadest sense, the concept of strategic has been used to denote "important" decision. However we apply Ansoff's (1966, 5-6) definitions in which strategic decision making refers to external problematic of the firm with limited resources aiming to produce resource allocation pattern that fills the needs of a corporation in the best possible way. The operational decision making, in turn, focuses on providing maximized resource allocation in current internal operations. As we illustrated in Table 1, role typologies have been made in different contexts with different targets of management. No explicit attention is paid to the two levels of management decision making and the implications of the actions on either of the levels. However, we consider the distinction relevant for understanding management in nets whose functioning requires both strategic level coordination of the cooperation between several organizations and operational level implementation of the activities for the new service realization.

Roles can be perceived as context specific. In a business network context we perceive that all the actors within the focal net form the role set for an individual actor. Within this net the role expectations are created through interconnected actions of actors. Through acting, individual actors enact a certain role. Role theory uses individuals as the primary unit of analysis, but in this research the unit of analysis is organisational actors that are acting in the net through their representatives. Our view is consistent with the view that managerial action in industrial networks is characterised as an effort of an actor to influence its relationships with other actors (Johanson and Mattson 1992, 214). By adopting the concept of role it is possible to better grasp the dynamics in networks as acting in a role defines the structure that an actor is embedded in (Anderson et al. (1998).

Method

Case research has been proposed as a particularly strong research strategy for studying change in network level processes (Borch and Arthur 1995; Dubois and Gadde 2002; Easton 1995; Halinen and Törnroos 2005). The empirical part of this study consists of a single-case study of a net that created and piloted a new mobile service directed at the spectators of a sports team. The mobile service included several types of team-related material ranging from digital player cards to the latest news and real-time material from ongoing matches. The net that developed and tested the new mobile service consisted of several types of actors. The main contributors to the mobile service were the sports team, a content provider, a device manufacturer, an operator and a research project of a university. In addition to these actors, in the net were several other organisations that took part to the actions of the net in all or some of the new mobile service development stages. Notably, the development process of the mobile service was extremely fast - the first piloting of the mobile service was organised only four months after the initial idea had been created.

Data Collection

We chose the specific net under examination because of the possibility of tracking the whole mobile service development process from the initial steps in November 2003 until the commercialisation of the service in May 2004. Access to the data for the researchers was created through participation of a university-based research project in the mobile service development process. The main set of the empirical data of the study consists of 15 interviews of the members of the mobile service development net. Two researchers conducted the interviews during May-October 2004. The interviews lasted from half an hour to one hour and were all tape-recorded. Eleven of the interviews were face-to-face interviews whereas four were made over the telephone. All the interviews covered the following general themes: 1) How was the organization involved in the mobile service development process, 2) How did it join in the process and what were its main contacts in the net, 3) What types of actions and events did the organization perceive to have taken place in the process. In all broad themes the interviewees were also asked to interpret the events from their point of view. The exact questions posed in each of the interviews differed considerably from each other as they were built on the experiences of the interviewees and were often spontaneous reactions to their personal stories.

Although the interviews were conducted after the service development, the researchers also collected in-time observation data. Two of the authors observed the mobile service development within the case net as participant observers during the whole nine months of the service development process. The authors attended both the formal and informal meetings and seminars organized in the net as well as

took part in the piloting of the new mobile service. The observation period included three Operative Steering Group (OSG) meetings of the research project. In these meetings many of the practical arrangements related to the mobile service development were discussed by some of the central actors of the net. However, the net also included actors who were not members of the research project and therefore did not participate in the OSG-meetings. Observation data were also collected through participation in two planning meetings concerning mobile service testing. In addition, researchers had access to data bank and correspondence between the actors in the net. This data included over 100 emails collected by the leader of the research project related to the testing of the mobile service. This kind of triangulation of data was an important element of the case analysis.

Data Analysis

The verbatim interview transcripts, observation notes and emails formed the raw data of the analysis. The time framework from the beginning of the mobile service planning to the commercialisation of the service exposed the initial chronology, which has been the first organising mechanism for the further analysis. In the construction of the chronology attention was paid to key sequences of action that caused changes in the structure of the net and in the service development process. As a result the chronology was built around five key stages: initiation, planning, development, piloting and commercialisation.

After construction of this five-stage-process description we proceeded to the analysis of the roles of the various actors in each of these stages. We imported the original, word-by-word interview data to the QSR N'Vivo program and aimed to reorganise the data by coding. Two researchers began the coding through open coding without an intentional conceptual guideline other than the definition of role as acting i.e. the idea of a role becoming determined through behaviour of an actor in the net. After having coded several interviews, the researchers discussed their initial interpretations of what conceptual tools could make sense of the data. After this discussion, the researchers went back to the theory to reflect the early empirical ideas to the existing research. As a result the basic categories of the coding system were defined as the following: incremental vs. radical influence of acting in the net, expected vs. emerging way of acting as perceived by the others in the net and the operational vs. strategic level of acting in the service development. The subcategories in the coding structure, i.e. the names for the roles and the definitions of the roles, were allowed to arise from the data.

Case: New Mobile Service Development Net

In this chapter we, firstly, describe the development process of the mobile service through the five development stages that were found from the case. After that, the organizational roles for managing in the net are introduced and discussed in more detail.

Initiation of the new mobile service idea (November-December)

The idea of the new mobile service for the sports team came up for the first time during a match in November. The idea was initiated and elaborated on by the device manufacturer's representatives who had knowledge about the ways current mobile technologies can be utilized in the creation of new mobile services. As a result of their discussions, a representative who was well-connected to the existing local mobile service development network and to the sports team, begun to propose the idea for a new service to organisations that were seen as central players for this specific type of development work. During the next month, the representative presented the mobile service idea in two streams. Firstly, the idea was introduced to the sports team and its content provider that already took care of all digital content of the team. Secondly, the idea was put forward at a workshop of a local research organization which brings together several organisations focusing on mobile service development and commercialisation.

In the first stream, the content provider and the sports team were immediately enthusiastic to test the mobile service idea in some way, because they both had had plans to further develop the digital content of the team. Hence they joined in the planning process with the device manufacturer; the content provider taking the responsibility of representing the sports team. The device manufacturer also contacted a local software company, which was specialized in mobile applications, and invited it to discuss the development potential of the mobile service with the content provider. Both the content

provider and the software company also had partners, here referred to as subsidiaries Alfa and Beta, who were delivering specific components to the offerings of these companies. They were also seen as potential contributors to the new mobile service.

Secondly, in the discussions at the research organization, its active members, a university and an operator, expressed their interest in joining in the planning process. The operator had created a new delivery channel for mobile content concerning e.g. sports events, and it was interested in testing the channel with the sports team's content. Notably, all these actors, as well as the device manufacturer, were closely connected to a research project of the university which concentrated specifically on the creation and piloting of new mobile services (the responsible director of the project was the university's representative at the research organization). The research project had, for example, tested the new delivery channel of the operator in its previous field tests. Consequently, it was agreed that the discussions concerning the sports team's mobile service were continued within the research project, which had the potential to execute larger scale real-life piloting.
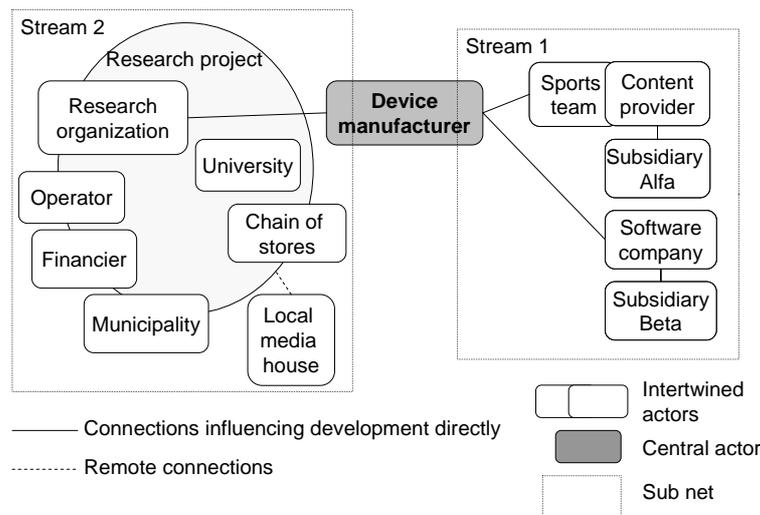

Figure 1. New mobile service development net in the initiation stage

In December the OSG of the research project approved the new piloting. The OSG included representatives from e.g. a financier, a municipality, and a chain of stores. All these actors saw an opportunity in the new mobile service and became interested in joining in the development process. Notably, a local media house was also a partner of the research project, and it was interested in sports-related mobile content creation. It, however, did not take part in the OSG-meeting or other initial meetings where the idea was also discussed. Hence, it was left out from the informal elaboration of the new mobile service idea. The actors and relationships in the initiation are illustrated in Figure 1.

Planning of the new mobile service (January)

After the idea for the new mobile service had been presented to potential development parties, negotiations began concerning the contribution of each actor, planning of the technologies and content to be used in the service. The negotiations first took place within the two streams that were also apparent in the initiation stage, as Figure 2 indicates. In the beginning of the planning, the device manufacturer still took care of most of the contact between distinct actors in the net. However, during this stage, other actors also started to take a greater responsibility for the integration of the actors' plans.

It was agreed that the mobile service should already be operational during the ongoing season of the sports team. This posed a huge challenge for the development work, because the season was already over halfway through. Hence, it was agreed that the service would be a collection of each actor's existing technologies, content and other resources. This decision had a big influence on the net, because each potential actor had to clearly and quickly indicate how they would be able to contribute to the service and its piloting.
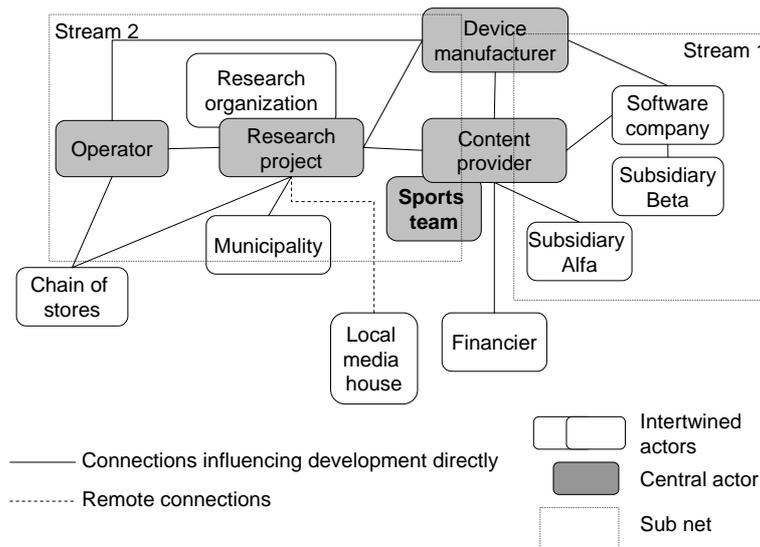
Figure 2. New mobile service development net in the planning stage

All ideas concerning the mobile service had to be approved by the sports team, because it owns the team-related content as well as is responsible for the events that take place at the sports arena during a match. Consequently, the sports team had the final say on which content is allowed in the service and what type of actors can contribute to it. In addition, the team had strictly defined sponsorship contracts. Therefore, the service content had to be created in a way that would not offend the rights of the sponsors.

In the first development stream, the content provider, the software company and the device manufacturer continued to discuss their mobile service ideas and current technological solutions with which to create the service. As the content provider created all digital content of the sports team, it evidently was becoming one major actor in the net. In order to be able to create all the content that was required from it, it applied for and was given funding from a financier.

In the second stream, the delivery channel of the operator was ready for use and this, together with the research project's existing in-depth knowledge on piloting mobile services in real-life environments, brought them into the middle of the planning process. Both actors were closely connected to the device manufacturer, who was well-informed of their plans. The local research organisation remained in the planning process through its close connection with the research project, but did not influence the content of the service. Also, the chain of stores was discussing the possibility of offering content to the service with the operator and members of the research project. The operator took care of the connections to it, as they had similar interests in the piloting. The research project was discussing the piloting with the municipality, which offered another type of delivery channel that could be utilised in the piloting, in parallel with the operator's channel.

During the planning process, the device manufacturer introduced the content provider to the research project, hence connecting the two parallel planning streams into one. As a result, the research project introduced the delivery channel ideas to the content provider and the sports team, and initiated negotiations between these parties. Also, the chain of stores took part to these initial negotiations, but was left out of the planning process, as its content ideas did not fit with those of the sports team.

The content provider and the device manufacturer (as well as the software company) had somewhat diverging interests in the mobile service than the operator. These differences were however not at the centre of the planning discussions. This was mainly because of the haste of the planning process, and the research project's task of taking care of the piloting - its partners were hence easiest to be involved in the development work. The local media house was not informed about the service at this point of the development process either.

Development of the new mobile service (January-March)

The actual development work began, in a meeting in January. There, the mobile service ideas and potential implementation strategies were negotiated, and as a result each actor was given its tasks in

the development process. Only the actors that had been able to adequately indicate their contributions to the mobile service in the planning stage were invited to the meeting. Hence, the chain of stores and the local media house were not present.

The actors that were present in the meeting all introduced their potential resources for the mobile service and their ideas concerning the development of the service. Hence, each actor tried to include their own interest areas into the piloting. Therefore, the resulting plan of the mobile service was a compromise of many service ideas. The content provider took the main responsibility for the creation of the content in collaboration with the software company and the subsidiaries. Also, the research project contributed to the creation of content. Its main responsibility was however in pre-testing the service idea in collaboration with the content provider. The content provider and the university also started to plan the piloting events. The operator provided the main delivery channel for the service, but took also part in the planning of the piloting. The municipality took care of the other delivery channel for the service in close collaboration with the research project. The sports team followed the development more from the sidelines, though the content provider kept the team well-informed about the development work. Also, the device manufacturer stepped aside from the active development work after the tasks for the development were distributed. It however remained in close contact with the content provider and the research project. The local research organization and the financier also followed the development process from the background.

At this point of the process the local media house also found out about the new mobile service development plan. This caused friction between the research project, the device manufacturer and the local media house, because the local media house had misunderstood that the mobile service piloting would be a part of the research project-led activities, which it should have been entitled to take part in. However, the research project was only one actor in the development net, not being fully responsible for planning and testing decisions. The device manufacturer took the responsibility of resolving the situation for the research project.

Figure 3 sums up the connections and the main responsibilities had by the actors within the net. As can be noted, the responsibilities were intertwined in that some of the actors took part in more than one development stream. The device manufacturer indirectly influenced all development streams, even though it did not "officially" participate in the operational development activities. The financier and the research organisation are included in Figure 3 with dash lines to illustrate their staying in the background during this stage of the development process.
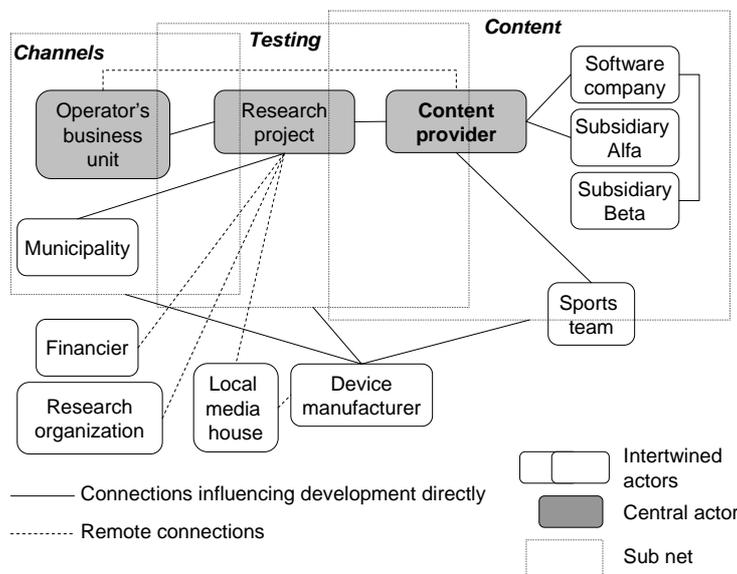

Figure 3. New mobile service development network in the development stage

Piloting the mobile service (March-April)

The relationship between the university and the content provider became increasingly close as the time for piloting drew closer. The university was in a central position in the piloting stage, as it took care of most of the piloting operations. The university and the content provider integrated the elements

of the service content together and cooperated with the operator in order to assemble the final mobile service. Notably, just before the piloting the operator added an additional mobile service to its delivery channel, through which the sports team's new mobile service was also distributed. The additional mobile service was a demonstration of the type of general mobile services that could be distributed through the channel, and no other actor contributed to this demonstration in any way. In addition to the delivery channels, the operator took part in the communications concerning the piloting and producing various types of PR material.

The piloting of the mobile service began in mid-March. During this stage, the net was affiliated with new actors. The first new actor was the national league which controls the matches of the sport in cooperation with the sports teams. Therefore, its permission had to be gained in order to be able to pilot the service during real matches. The sports team and the content provider had close contacts with the national league, and hence they took care of the negotiations concerning the permissions.

In addition to pre-created content, the mobile service also included real-time content of the game, produced by the content provider and the university. This real-time content got noticed by a national media house, the second new actor within the net. It owned broadcasting rights to the games of the national league. It contacted the net in order to find out whether the piloting was acceptable. The sports team and the content provider took the responsibility of negotiating for approval for the piloting with the national media house. The device manufacturer, with its existing relationships, took also part in these negotiations.

Figure 4 depicts the net in the piloting stage. The IPR issues are illustrated as a distinct development stream, in which also the new actors, the national league and the national media house joined in. During the stage it became evident that each actor wanted to assure that it will get all the essential data and information out of the piloting events, to be utilized in their own future plans. This caused discussions in the net, as the actors were not fully aware of the real interests of each others in the piloting and the mobile service.
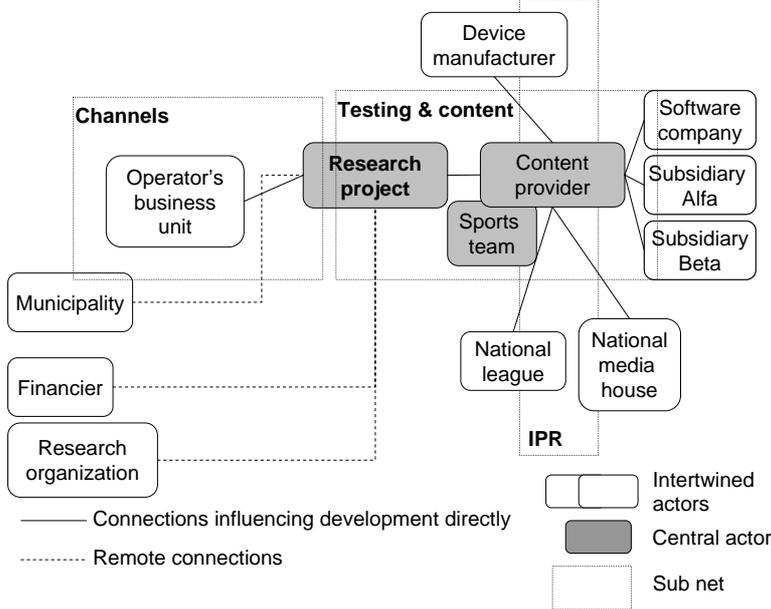

Figure 4. New mobile service development network in the piloting stage

Commercialization stage of the new mobile service (May onwards)

After the piloting, the new mobile service development net was unravelled into many separate nets, as each actor continued to pursue its own commercialisation goals for mobile services (see also Figure 5). The local research organisation and the university communicated the success of the field trial in several venues, which caused confusion for the content provider, who had not been aware of the local research organisation's part in the development process. The local research organisation and the financier did not, however, take further actions in the commercialisation stage of the mobile service.
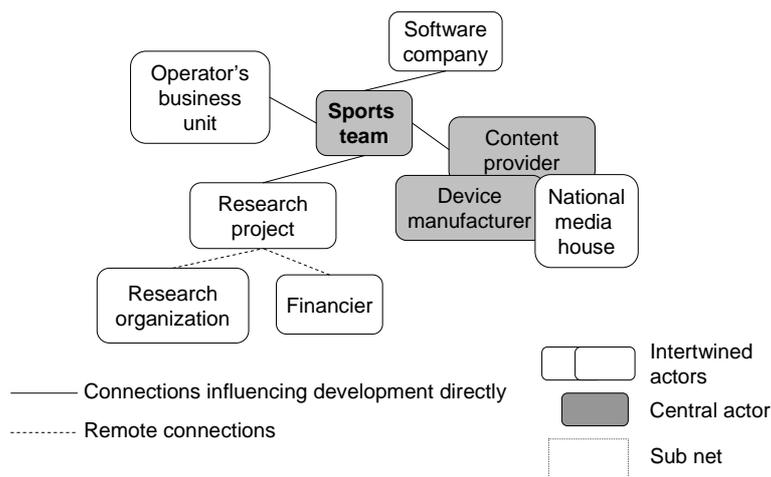
Figure 5. New mobile service development network in the commercialisation stage

The sports team was in a central position in the commercialisation stage, as it administrated the mobile service content. Hence, it took part in all commercialisation streams of the mobile service. The device manufacturer and the content provider pursued their own mobile service development interests by initiating a new collaborative relationship with the national league. The operator continued to further develop its delivery channel in collaboration with the sports team. The software company extended its content idea to a nation-wide mobile service. Even though the research project's main interest had been in gaining research data from the mobile service development process, it also produced a new system for recording real-time video clips from the match, and it sold this system to the sports team.

Roles in the case net

This section introduces the roles that the actors were found to act in during the new mobile service development process. In order to specify the roles, the analysis began by examining the actions executed by the actors in the net. More specifically, as managing in the net was perceived as influencing the net, the analysis of the empirical data concentrated on the influence different actions had on the net and its operations. The influence of the actions was analysed from three partially distinct standpoints: 1) did the action take place on the strategic or operational level of the service development operations, or was the actor remote in that it did not directly influence the service development; 2) did the actors within the net perceive the actions as expected or emerging; and 3) did the action cause radical or incremental change in the net. Altogether 12 roles were then found from the case net. They are summarised in Table 2 and introduced more thoroughly in the next section.

Table 2. Categorisation of roles for managing in a net

	Level of acting Strategic vs. operational vs. remote	Interpreted action Expected vs. emerging	Influence of acting Radical vs. incremental
Webber	strategic	expected	radical
Instigator	strategic	expected	incremental
Gatekeeper	strategic	emerging	radical
Advocate	strategic	emerging	incremental
Doer	operational	expected	radical
Planner	operational	expected	incremental
Unexpected entrant	operational	emerging	radical
Auxiliary	operational	emerging	incremental
Facilitator	remote	expected	radical/incremental
Compromiser	remote	expected	incremental
Aspirant	remote	emerging	radical/incremental
Accessory provider	remote	emerging	incremental

Expected strategic roles

Webber
The Webber initiates net connections by deciding, which potential actors are contacted for service development. Notably, previous research has also discussed the role of a Webber in the initiation stages of R&D nets (see e.g. Heikkinen and Tähtinen 2006). The Webber influences the net radically through its power to influence net composition. Consequently, the Webber creates new connections between distinct actors by "matching" them and by facilitating the organisational activities. Hence, it influences purposefully the development of the mobile service at the strategic level. This means that although Webber is interested in completing the mobile service, it does not take part in operational development work. The actions of the Webber are seen by others as an agreed upon behaviour. Therefore, others perceive its role in the net to be an expected one. Notably, because the Webber is a strategic level role, actors only participating in operational level actions may not acknowledge the role of Webber as clearly as others. In this case, the device manufacturer clearly acted as a Webber in the initial stages of net development.

Instigator
Instigator causes changes to the net through influencing other actors' decision making processes in some way, e.g. by encouraging actors to take new tasks by ensuring them back-up, if needed. The Instigator's interest in this type of encouragement may stem from e.g. its existing offerings that would be useful for the use of the net, or in executing some specific actions within it. In comparison to the Webber, the Instigator's acting has more to do with influencing the content of the existing relationships in the net than creating wholly new ones. Consequently, the Instigator's actions do not cause as radical changes to the net than the actions of the Webber. Overall, however, the Instigator is more of a strategic level role, because its goal is to get other actors active in the net. The Instigator's actions are usually expected by other actors, because the Instigator does not hide its interests and motivations from others. In this case e.g. the operator acted as the Instigator when it promoted its own delivery channel to the other actors in the net. Another example is the device manufacturer, who instigated the content provider to start the development work and to ask for financing from the financer.

Emerging strategic roles

Gatekeeper
The Gatekeeper causes radical changes in the net. The Gatekeeper possesses resources (technologies, knowledge, etc.), connections or other types of key elements that are significant for the activities of the net. In other words, a gatekeeper has the power to decide, at the level of the whole net or at some event/relationship within a net, who or what is included in the actions, and who/what is not. A gatekeeper typically acts at the strategic level in the development process, i.e. it influences the strategic decisions behind development operations. Notably, an actor may not even want to "end up" as a gatekeeper, but e.g. technological requirements, or timing, can turn an actor into a gatekeeper. Examples of this from the case are the delivery channel suppliers, whose technical requirements for channel shaped the mobile service. On the other hand, the actors within the net can misinterpret some actor as a Gatekeeper, as e.g. in the case of the local media house using the research project as a Gatekeeper of the net. An example of a strong Gatekeeper from the case is the sports team, whose permission was needed in order to realise all of the content ideas for the mobile service.

Advocate
The Advocate follows the development process mainly from the background. The Advocate spreads the word about the mobile service under development to actors outside the net, in that way contributing to the development process. Consequently, its actions – even though from the background – can cause incremental changes to the net. The Advocate acts at the strategic level and it does not interfere with the operative level actions of the net. Because it stays in the background, most of the net actors do not know of its existence in the net, and hence its contribution can come to them as a complete surprise. Examples of an Advocate in the case are the financier and the municipality, who both contributed to the mobile service, but only through relationships with certain other actors in the net.

Expected operational roles

Doer

Doers are very active in the actual operative level of the development process. They contribute to the mobile service by concretely working toward its creation, i.e. they contribute a significant amount of time, work and other resources for the development of the service. Hence, the work of Doers influences the mobile service directly and concretely, e.g. in the form of software code, mobile service content, and selling efforts for the completed service. Their work determines the result of the mobile service development process, and also influences the work of others. Consequently, they are in a powerful role, even though they are not acting at the strategic level. The Doer's role is acknowledged as expected by the other actors in the net, because the Doer's actions are very visible to others. The content provider is a good example of an actor operating in the Doer role during the development process. Also, the university was in this role during the piloting stage.

Planner
A planner participates in the development process by giving input to the development process, aiming purposefully to influence the outcome of the process. Hence, they make their (more) intangible resources, mainly knowledge, available to the development process. They operate at the operative level; their actions are base on what the net has to offer. Consequently, they connect the existing resources of the net actors, attempting to maintain an overall picture of the development process and its potential outcome. Their influence in the net is, however, incremental, because they do not cause any big changes in the net composition. Their actions have more to do with the final form of the mobile service. Because of its connecting actions, the Planner is well acknowledged in the net, and its actions are expected. The university, the device manufacturer, the operator, and the content provider all acted as Planners in different stages of the new mobile service development process.

Emerging operational roles

Unexpected Entrant
The Unexpected Entrant is a role that at least some of the other actors consider as interfering with the ongoing development process. Consequently, the actions of the Unexpected Entrant are interpreted as emerging. The Unexpected Entrant gets involved with the development net through its existing resource base and its connections with the larger network surrounding the focal net, i.e. when the mobile service relates very closely to the expertise and proprietorship of it. Hence, in order to protect its own rights, the Unexpected Entrant intervenes in the development process. The influence of the Unexpected Entrant on the net is substantial, because it influences the composition of the net by joining in the development process. The role is operational, however, because the Unexpected Entrant does not participate in the strategic planning process, but only ensures its own rights during the process. This requires that it participates, in some way or another, in the operative process. The national league and the national media company are examples of an Unexpected Entrant in this case.

Auxiliary
The Auxiliary gets incrementally involved in the development process of the mobile service. Consequently, an actor that was not perceived to have any role in the whole operative process of the mobile service development, or in parts of it, surprises at least some of the actors within the net by actively taking part in the process. On one hand this is because this role evolves during the development process, as the Auxiliary can notice that it possesses resources that are useful for the planned mobile service or can bring new unexpected features to it. On the other hand, the Auxiliary can itself be very well aware of its part in the development process, but the other actors in the net comprehend its influence only later on in the process. In the end, the Auxiliary's role may even be quite influential in the creation of the final mobile service, hence representing incremental change in the net. Examples of the Auxiliary role are the university and the software company. The university incrementally became a very influential actor in the development net through its existing resources. The software company then developed its own module to be added into the mobile service, and the importance of this module to the whole mobile service piloting surprised some of the net actors.

Expected remote roles

Facilitator
The Facilitator offers venues, or other types of corresponding resources, for the use of the net. The Facilitator, however, stays in the background in the net and does not participate in the actual development processes. In other words, the Facilitator provides possibilities for development actions to take place without intervening in the development process. The Facilitator may, however, influence

the mobile service development net even quite radically in that without its existence the net might not be formed at all or its operations were severely hindered. The Facilitator's activities, in the same way as the Instigator's, are perceived by others as expected, because they are transparent to others. The research organisation is an example of a Facilitator in the initial stage of the development process.

Compromiser
As the name indicates, the Compromiser balances the actions and relationships of the net. This means that they are ready to step aside (or even give up some of their own goals) during the development process in order to avoid contradictions or conflicts in the net. Another viewpoint of the role of the Compromiser in some stages of the development process is that their interests in the process are so different that they do not counteract with other actors' interests. Their "passiveness" in the development process results in other actors perceptions of them as Compromisers, who even up the often inconsistent development process. During the development process of the case net, the university was regarded by others as a Compromiser, which was willing to change its piloting plans according to other actors' demands.

Emerging remote roles
Aspirant
The Aspirant is a role, which almost all net actors have before they have become members of the net, i.e. the Aspirant aims to be a part of the development net. Some of the Aspirants will become that, whereas others will stay outside the net. In this case the local media house and the chain of stores can be regarded as Aspirants. In their opinion they would have been able to contribute to the development process, but other actors within the net did not perceive their contribution as adequate (i.e. as expected from someone who belongs to the net). The Aspirant is remote in that it does not directly influence the mobile service under development. In spite of that, the Aspirant causes strategic level discussions in the net, as net actors must deal with each Aspirant case and deliberate their possible contribution to the mobile service development and the influences in the surrounding network. In addition, in this case the Aspirants belonged to vaster network surrounding the focal net, and hence the actors had to consider their relationships with Aspirants carefully.

Accessory Provider
This role represents actors that notice significant opportunities for promoting their own products, services and/or expertise in the operative development process. Hence, the Accessory Provider tries to place as much emphasis on its offering to the process as possible. This role is emerging, as different types of possibilities emerge to actors at different stages of the development process. Therefore, their reactions to these possibilities come as surprises to other actors. Accessory Provider is a remote role, because it does not directly influence the net or the final offering it produces, but deals more with the operative level activities or supplementary services of the finalised mobile service. An example of this role is the business unit of the operator, which added its demonstration to the delivery channel. Most of the actors also wanted to have some publicity with regard to the new mobile service and provided their own PR-material with which to present their contribution to the process to the wider network and stakeholders.

Discussion

In the present study we aimed to enrich the research on managing in nets with role theoretic conceptions to provide further understanding of the dynamics existing in new service development networks. The study presented a case study of a new mobile service development net focusing on the organizational roles influencing the development process. The roles of the actors in the case study were perceived to be determined through three dimensions of acting: level of acting (strategic-operational-remote), perceived acting (expected-emerging), and influence of acting (radical-incremental). Consequently, it was argued that the actions of actors determine the roles, which they possess during a new mobile service development process.

Altogether 12 roles were found from the case net. They were classified under four role categories based on whether the actions behind them were seen as expected or emerging and whether their influence on the net was radical or incremental. In each category there were then three roles that differed in the scope of their influence on the service development, i.e. whether they influenced on strategic or operational level decision making or if they influence on the service development was very

remote. The roles and their dimensions are summarised in Figure 6, in which strategic level roles are indicated with bold text, operational roles with italics and remote roles with plain text.
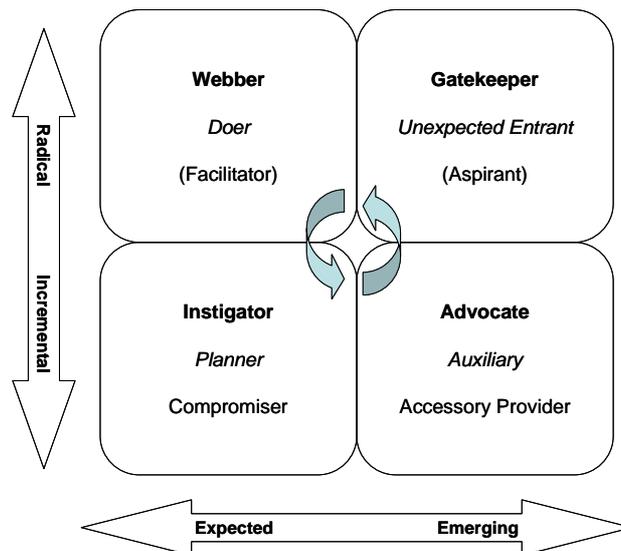

Figure 6. Roles in the new mobile service development net

On the basis of our findings, we argue that the actors act very differently in distinct stages of the development process, depending on e.g. their ambitions, connections, and resources in each of the stages. This leads us to point out that the roles in which the actors act are also dynamic: none of the actors acted only in a single role, but changed roles during the development process (see also e.g. Anderson et al. 1998). Hence, the empirical findings support the viewpoint that a role is not a static characteristic or position of an actor in a net, but actors can and do act in many roles during a new mobile service development process. As an example, almost all actors in the case net were firstly Aspirants that aimed to be members of the development net. Later on, these actors had several strategic and operational roles. In addition, the actions of an actor can be interpreted very differently by other actors. In other words, some of the actions of an actor were perceived by others as expected and even agreed well beforehand, whereas other actions were not as well planned or clearly communicated to others. Overall, on the basis of the case study, it can be argued that the roles the actors act in can change from one to another rapidly. This leads us to argue that the way an actor influences the net can change during a new mobile service development process.

Consequently, we argue that actors in a net have an influence on the new mobile service development net through the roles in which they act. That is to say, during the new mobile service development process the actors execute actions which are aimed to influence the net (see also Johansson and Mattson 1992). The influence is, however, different depending on the role the actor has in different stages of the development process. In other words, the way an actor can influence the net varies from one role to another. The roles of Webber, Gatekeeper, Doer and Unexpected Entrant influenced the net radically by altering the net composition. This is because their actions were based on a possession of certain resources (e.g. connections, resources, capabilities) that were of crucial importance to the development process. Therefore, they were able to manage the development process substantially.

The roles of Instigator, Advocate, Planner and Auxiliary influenced the net incrementally by shaping the development process (e.g. plans, development work, final mobile service and its testing) through their expertise and existing connections with the other actors. Hence, their influence on the net was not as transparent as with the radical roles. However, the actors acting in these roles in different stages of the development process were able to integrate their individual goals and ambitions into the development process. The roles of Facilitator, Aspirant, Compromiser and Accessory Provider then describe actors whose influence on the net remains remote. In other words, their actions did not cause substantial changes in strategic level planning and the mobile service. Their actions, however, did influence other actions in the net, e.g. by facilitating them or creating new ones.

Overall, managing in a net can be comprehended as acting in order to influence resources and activities of other actors in the net, however, also constrained by the actions of the others in the net.

Hence, as previous research has pointed out (see e.g. Möller and Halinen 1999; Möller et al. 2005) managing in a net can be perceived through acting in roles. On the basis of this study it can be stated that examining a net from the viewpoint of roles brings novel insights into studying managing in a net. This is because roles are defined through the level, interpretation, and scope of actions the actors of a net execute. In other words, the roles that were indicated in this paper describe how different actors acted in the net, on what basis and how others interpreted their actions. Consequently, it can be argued that roles capture the dynamics and multiformity of actions in a net, in that way making the analysis of intentions to manage in a net easier.

When considering the applicability of the role typology presented in this paper, some closing thoughts must be made. Knight and Harland (2005) have stated that roles are context-specific and therefore the applicability of specific role typologies beyond their contextual boundaries is not possible. This means that the specific role typologies cannot be properly implemented in studying managing in nets in general (see e.g. Grendstad and Strand 1999; Knight and Harland 2005). Thus, the roles related to management are often named differently in different contexts. However, we used existing research to ground in theory the three dimensions for role determination. Therefore, we could expect similar kinds of roles to be found in many other development nets too. For example, such role as Webber, whose acting creates radical changes to the net and is seen as expected by others because of its activity in the strategic planning of the end-result of the cooperation, is easy to imagine to other development nets too. Naturally, the context of new mobile service development is seen in the detailed descriptions of the roles and these details are best applicable with consideration to new service development nets. Also all development nets do not necessarily involve all the roles in the presented typology. However, we suggest that analysing the acting and its influence on both the service/product and on the net structure in relation to the interpretation of the other network actors is relevant for understanding the possibilities and constrains that different actors have for managing in nets.

Acknowledgements

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