FUNCTIONING NETWORK STRUCTURES: THE ROLE OF COLLABORATION PROCESSES AND THEIR MANAGEMENT

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Abstract

The purpose of this paper is to broaden the understanding of network processes (Doz, 1996) and network management (Agranoff and McGuire, 2001; Järvensivu and Möller, 2009) by using Social Network Analysis (Bonacich, 1987; Borgatti and Forster, 2003; Cross, Parker and Borgatti, 2002) and additional qualitative data. We study the structure of the network to understand the success or failure of the studied networking process and its management. We divide our findings into three managerial and theoretical contributions. Firstly, we suggest that a network should foremostly concentrate on the development of the network before allocating majority of the time and resources to the development of the substance. Development of the substance refers to, for example new innovative services for elderly care or product development in gaming industry. The development of the network instead refers to the creation of trust and commitment. We comprise the findings into a framework of evaluating collaboration processes and their management. In the network management also lies the managerial contribution of this study. Secondly, we highlight the value of combining Social Network Analysis data to qualitative data. Thirdly, we reflect the role of network management to the eco network of the most important actor in the networks structure by looking into constructs like structural holes (Burt, 1992; 2004; Ahuja, 2000) centrality (Freeman, 1979; Borgatti, 2005) power and influence (Bonacich, 1987) and reflect on the role of the network broker to network manager. Katri Nykänen, Aalto University School of Economics

INTRODUCTION

With this paper we aim to contribute to the understanding of the network processes and network management by using Social Network Analysis (Bonacich, 1987; Cross, et al, 2002) to indicate network structures and the roles of various actors both in systemic network and at an eco network level, focusing on the role of network management. We also take a look into the actions of the project (collaboration processes) to create a network and compare that to the network structure at the time of conducting the Social Network Analysis (SNA). That is, we look into the attempt to create a network, which was stated as one of the goals of the studied project. We emphasize the role of research methods in acquiring processual data and acquiring holistic understanding of collaboration and networks and refer to Elo, Halinen and Törnroos (2010) who propose that there is a shortage of suitable research methods for doing research on processes especially in inter-organizational network context. Some research suggests longitudinal research for acquiring processual data, but longitudinal research is often time consuming and access limited. As a research method SNA is a structured way of analyzing relationships within groups (Mizruchi, 1994; Cross et al, 2002) while historical data has the potential to explain the results of SNA. Therefore, we propose the combined use of SNA and historical data with interviews of what have been done.

Further, in this paper we illustrate the use of this research collection method that combines SNA and historical data and show the kinds of results that can be achieved through this type of combination. We claim that the combination of these data collection methods provide us with a better understanding of the role of the collaboration process and the role of network management in the creation of successful and functioning network structure. Quatman and Chelledurai (2008) also suggest that supplementing quantitative analyses with qualitative or even graphical data brings the analysis closer to practice instead of remaining in abstract level. We conclude our paper by presenting a framework for analyzing and managing a collaboration process taking into account the requirements of a successful and functional network structure. Within the network structure we are interested both in the structure as a whole and the eco network and within these centrality (Freeman, 1979; Borgatti, 2005) power and influence (Bonacich, 1987) and network density, which each provides insights on understanding of network characteristics or performance (Reagans and Zuckerman, 2001). SNA could also reveal strong and weak ties (Granovetter, 1983; 1985) and structural holes (Burt, 1992; 2004; Ahuja, 2000).

Network management research in IMP approach has concentrated mainly on the management of business networks (For example, Mitronen ja Möller, 2000; Möller and Halinen, 1999; Turnbull, Naude and Leek, 2002). The discussion has been broadened by bringing in public management literature on network management (for example, Järvensivu and Möller, 2010; Järvensivu, Nykänen and Rajala, 2011; Huuskonen and Kourula, 2012) and implementation of the theoretical frameworks in the management of health and social care networks (Järvensivu, et.al., 2011; Lukkari and Parvinen, 2010; Nykänen, Järvensivu, and Möller, 2009). We aim to continue and contribute to the above theoretical discussions and to do so we analyze the network structure on two distinct levels, the focal co-creation network (Generic network) and eco network of the key actor. Focal co-creation network was created within a project to develop tailored solutions to customers and their close relatives following

the idea that customers are no longer thought of as isolated entities, but they are increasingly thought of in the context of their own networks (Vargo and Lusch, 2008). The capability to integrate and coordinate value activities of each member in a network is of high importance in the strategic nets perspective (Möller, 2006), including the customers as network actors.

CREATING NETWORKS: COLLABORATION PROCESSES AND MANAGEMENT

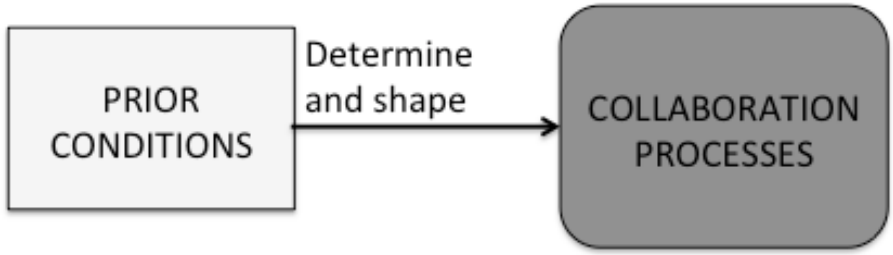
Here we will first take a look into the process of building inter-organizational collaboration and second into network management. At times researchers use these interchangeably without differentiating between the action that is collaboration and the action that is management of the network. On a similar note, what other researchers incorporate into the process of collaboration may be incorporated into the process of network management by others. However, the key difference between these two is in the logic of either enabled or managed networks and what is meant by the concept of management (see e.g. Järvensivu and Möller, 2009).

Here, we define the evolution of collaboration (Doz, 1996) as the process of systematic networking that comprises of events, actions, and activities that can be individual or collective and unfold over time. (Van De Ven, 1992) Within these processes formal, legal, and informal sub-processes (Ring and Van de Ven, 1992) evolve in either sequential or cyclical manner as a joint effort towards the jointly defined goal through jointly decided procedures and practices. Yet, even if collaboration processes can be identified as dynamic and cyclical, there are events, actions and activities that have to be performed in a certain systematic order. We will propose an order in our framework.

From inter-organizational collaboration to systematic networking

To begin with, initiating network activities requires a driver for collaboration. The driver builds on the actors' mutual understanding of the fact that working together is more effective than working outside a network and that it delivers benefits to all actors (Nambisan and Sawhney, 2011). The driver is a product of favorable prior conditions (Doz, Olk and Ring, 2000) that precede the actual collaboration of joint activities and are relevant to the form and effectiveness of collaboration processes (Doz et al, 2000), in fostering (generative type) or blocking learning (static type) and leading the collaboration to the cycles of the development of shared trust, which take place during the actual collaborating process (Doz, 1996).

Figure 1. *From prior condition to actual networking*



During the prior conditions, before the actual collaborating process and joint efforts to create a network, the actions are built on initial trust between the actors. This is a trust that is based either on experience or preconception of the other potential actors. (Möllering et al, 2004) Indeed, Gulati (1995) states that trust is the force that ties network actors together. Moreover, Doz, Olk and Ring (2000) highlight the role of previous social relationships between the actors in starting the collaboration, on the path taken, and on the progress of the process. The previous relationships thus determine the level of initial trust (Möllering et al, 2004) while the level of initial trust determines the easiness of developing a network and making a network work effectively (Doz et al, 2000). We conclude that there are activities that proceed the collaboration processes and those activities and the prevailing conditions determine and shape later collaboration and thus emphasize the importance of the pre-conditions (Figure 1).

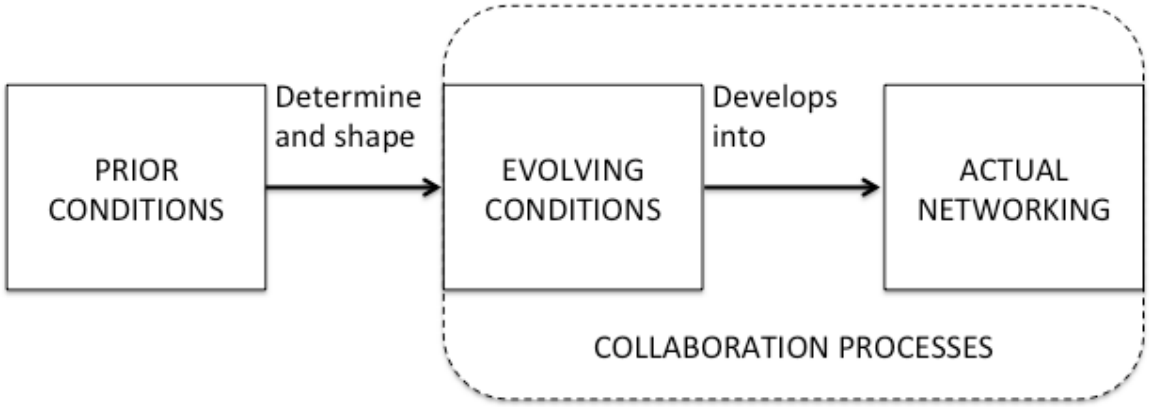
Larson (1992) refer to activities that take place before actual networking. According to him pre-networking is a phase where the pre-conditions are created and the relationships established. However, we suggest that establishing the relationships is already a step further from prior conditions, where actors still work based on prior experience or preconception of potential network actors. At these early stages of actual collaboration there is relatively little need for the reliance on trust because the beginning of the process involves little risk, but trust (initial trust) and collaborative objectives create the climate for, and shape interaction between the partners, while later in the process, in evolved relationships, learning and trust (evolved trust) co-evolve. (Möllering et al, 2004). Therefore we propose that to proceed from the prior conditions such conditions should be established that create a willingness to step out of organizational roles, foster positive expectations and enable the collaborating actors to improve on the prior conditions (Doz, 1996) and to negotiate and agree on the positions and roles in the network where the individual organizational positions and roles do not (necessarily) apply. (Agranoff and McGuire, 2004) We call these conditions evolving conditions to capture the developmental nature of the phase and stress that these conditions differ from prior conditions in how they are a joint effort towards a functioning network.

The joint effort during evolving conditions, alongside with trusting atmosphere, requires a feeling of "fair dealing" between the actors. In actor level this translates to a willingness to reconcile one's own interest with the need to maintain social relationships. In organizational level the feeling of fairness comes from receiving benefits proportional to the investment placed on the collaboration. (Ring and Van de Ven, 1992) We also propose that the evolving conditions during actual collaboration should entail negotiations about the resources required and the benefits received and create this feeling of fair dealing before the network can move to the phase where they can place considerable effort to their attempts to create the substance. To achieve this, the actors should interact in their joint efforts to build collaboration and within allow personal relationships to become increasingly important over the organization-based role relationships, psychological contracts supplement the formal legal contracts that are set at the beginning of the process, and the formal agreements increasingly reflect the informal understandings and commitment. (Ring and Van de Ven, 1992)

Furthermore, we suggest that there is another phase of actual collaboration that follows evolving conditions and, which we call actual networking. Actual networking includes by definition the further development of the network and conditions that favor networking, but this takes less time and effort and is mainly due to the dynamic nature of networks (Nykänen, forthcoming). Dynamics materialize through, for example, adding of new actors, leaving actors and changing relationships between any two actors in any point of time in the process of collaboration. (Quatman and Chelledurai, 2008) Further, we draw attention to the piloting

and implementation phase of the network presented by several network researchers (For example, Järvensivu et. al., 2011). We suggest including these all under the phase of actual networking. Figure 2 represents the proposed process of systematic networking build on the inter-organizational collaboration and network process literature.

Figure 2. *The process of systematic networking*



Network Management

Agranoff and McGuire (2004) propose that networks require new type of management that they call information-based management. The basis of this information-based management is not organizational roles, but the knowhow and capabilities required by the network. This translates to management capabilities, which are different in networks than in hierarchies (Agranoff and McGuire, 2001). Moreover, based on the discussion above, initiating collaboration in networks requires skills to enable social processes, which can be transferred to sustaining and managing the collaboration in a long run.

Management of networks, in its simplest definition, means ensuring the process of evolving to evolved conditions (Inkpen and Curral, 2004) and ensuring that there is a place for mutual dependencies and adaptations between the actors (Gulati, 1998). According to Freytag and Ritter (2005) network management is active survival in networks while Williamson (1975) writes that network management is a way to organize service production through networks. Jarillo (1988), Powell (1990) and Borgatti and Forster (2003) add that network management is a way of organizing independent actors that work together regularly and base their cooperation on trust and commitment**.** We would however add that the independence of the actors may occur in organizational level, but the individual actors that participate in the networks most likely are dependent either to their originating organizations (Agranoff and McGuire, 2004) or other actors within the network.

Network management functions provide one of the most explored perspective to the management of networks (Tsoukas, 1994; Agranoff and McGuire, 2001; Mandell, 2001). The functions can be divided into two major categories; structuring the network and enabling social processes. Restructuring a network includes activities such as reacting to changing internal and external environments by removing or adding actors and resources to the network (Kickert et al., 1997). In a similar way Agranoff and McGuire (2001) divide the

network manager functions in four types: Activating, framing, mobilizing and synthesizing. These functions have been criticized for not taking into account the process-nature of networks management; how the functions differentiate or progress over time (Rethemayer and Hatmaker, 2008) and the framework we present in this paper is an attempt to this direction.

In *activating* a network management's function is identifying the participants and their resources. Deactivation of members is considered equally important to the effectiveness of the network and is usually done to change the network dynamics. (Agranoff and McGuire, 2001) The activating takes place when the network is being formed or when the composition of network changes so that the network becomes less effective. *Framing* translates to shaping interactions in networks by establishing and influencing the operating rules, norms, and perceptions prevailing in the network. It is the actions the network manager takes in creating a shared purpose and vision by offering the network with new ideas or suggesting decision-mechanisms. (Agranoff and McGuire, 2001; Kickert et al., 1997) *Mobilizing* is all efforts of a network manager to commit the network participants to the network (Rethemayer and Hatmaker, 2008) or the process of bringing together separate entities to form a collective unit with shared goals (Keast and Hampson, 2007). According to Keast and Hampson (2007) this entails the creation of common vision and purpose as well as common ownership of the network. *Synthesizing* includes creating and enhancing the conditions for favorable productive interactions among network actors. Often, synthesizing means developing new rules of interaction and cultural adjustments, as well as changing roles of the actors and their organizations from competitive to cooperative (Kickert et al, 1997; Agranoff and McGuire, 2001; Keast and Hampton, 2007). Also, one of the most important parts of synthesizing is sharing and transmitting information through effective communication the ensuring of which is a responsibility of the network managers. (Agranoff and McGuire, 2001)

Taken together, our approach to the management of networks follows the understanding that managerial actions can be specified from the actions that have to be performed in order to create and maintain a network for the network to meet its purpose and management can be performed by anyone or all actors of the network (see for example Järvensivu and Möller, 2009; Järvensivu et al., 2011) while networking is something that all actors in a network do by suggesting, requesting, requiring, performing and adapting activities.

Managing the process of systematic networking

Furthermore, we wish to emphasize the process view and highlight both the structuring and the enabling dimension within the network management. Therefore, we suggest that the role of network management is to enable the creation and fostering of evolving conditions towards actual networking. According to Doz (1996) this necessitates defining the task of the collaboration, the routines that originate from the participating organizations, a design for interface, and expectations about the collaboration. To build the sense of trust, good relationships and feeling of fairness, already during the prior conditions the actors should have motivation and be provided with conditions, which support the collaboration, so that the shared process and the outcome can be efficient and equitable (Ring and Van de Ven, 1992). While the actors need to have a **desire** to high commitment relations (Ring and Van de Ven, 1992, 92) they should be enabled to create a structure that supports actual networking. Network management should also foster the actors' personal relationships since they have the potential to shape and modify the evolving structure of collaboration (network) (Ring and Van de Ven, 1992).

Agranoff and McGuire (2004) point out that the social production processes inside the network have to reach the point of joint goal before actual collaboration can take place, ensuring this, we suggest, is part of managerial action in networks. Since trust is an important component of inter-organizational collaboration it should be build up as a part of goal formation, in other words, during the evolving conditions, by facilitating interpersonal interactions in a systematic but careful manner (Ring and Van de Ven, 1992). Also, trust raises from an assessment of the other network actors, and through learning, evolves to potentially have a positive effect on actors' willingness to participate in collaboration (Inkpen and Currall, 2004).

RESEARCH METHOD

Triangulation in a single case study

This is a single case study, in which we use qualitative and quantitative research methods. Case study has faced criticism for being non-scientific and for lack of generalization (Dubois and Gadde, 2002) as well as being situation-specific. However, case studies provide full and deep descriptions of complex situations (Easton, 2010) and Partanen and Möller (2012), to give an example, consider case study suitable for studying complex phenomena in their real contexts, which is also desirable regarding the research goal of this study. Moreover, case study has the potential to emphasize contextual understanding and allow longitudinal and holistic approach, with application of both quantitative and qualitative methods and data (Stake, 2005). Also, Piekkari, Plakoyianniki and Welch (2010) show that there is a growing awareness of the limitations of interviews as a data source and based on their findings the researchers suggest that there is a call for more innovative practices concerning methodology. According to them Industrial Marketing research would benefit from more innovative research practices, which could question existing conventions about 'good' case research and provide inspiration for methodological experimentation in the field.

We use a combination of multiple data collection methods to build triangulation (Saunders, 2007) to improve the quality of research (Patton, 2002; Silverman, 2006) and the reliability of the results (Gummesson, 1991). The use of quantitative data in case study provides means to indicate relationships in data and reduce complexity of the phenomenon. (Eisenhardt, 1989) Qualitative data on the other hand allows deeper understanding both of the phenomenon and the context to the analysis and description of the case. (Stake, 1995; Dyer and Wilkins, 1991) and as we earlier suggested, supplementing quantitative analyses with qualitative or even graphical data brings the analysis closer to practice instead of remaining in abstract level (Quatman and Chelledurai, 2008).

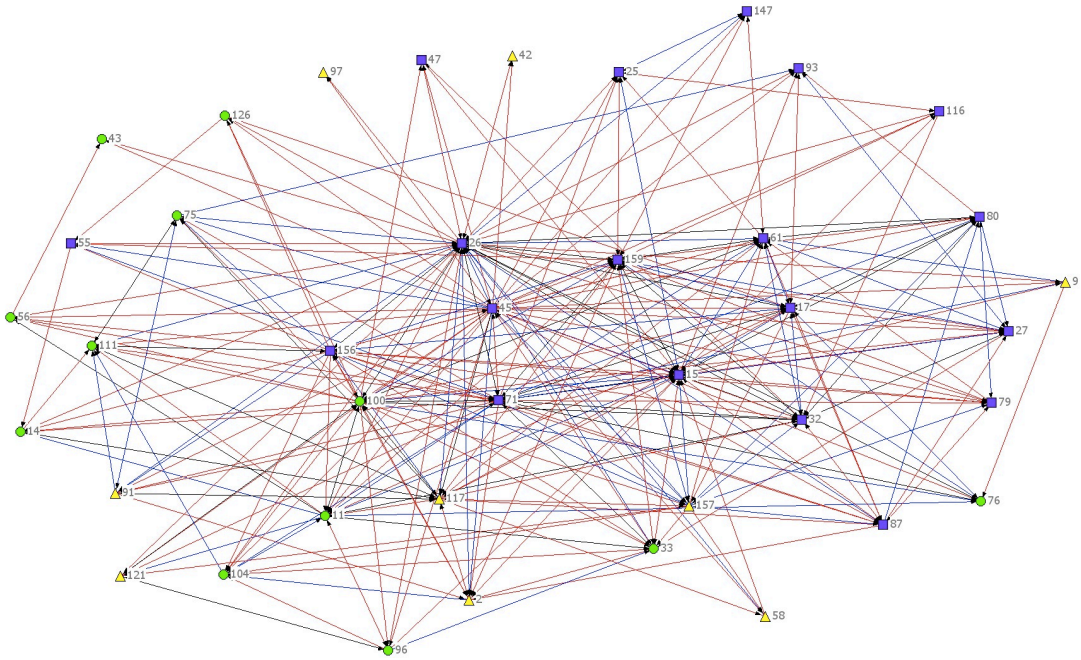
The formation process of the network is analyzed through materials provided by the network actors and through key actor interviews and emails between the researcher and key actors. Further, the written material includes reports and memos from important network events, which mainly are workshops held locally in the area that is the operating ground of the project. We study the actor positions and the extent of the network, i.e. the success of the process of the network through Social Network Analysis (January-February 2013). In addition, we have made a small questionnaire to all participants (5 questions, 41 answers) to fill in the information of the network process and the management of these networks.

We analyze the data generated by SNA by focusing on the different levels of networks. Firstly, we take a look into the general network and secondly, on the eco network of the actor identified as the key actor in the network. After gaining insights from SNA analysis, by identifying the network structures, we deepen the analysis by using the materials and interviews to understand the process influencing the discovered structures at the chosen network levels. These factors are reflected vis à vis the theoretical concepts and the results from previous studies.

We use SNA to analyze the success of the network formation process in a point of time where the network process has lasted close to two years. We use UCINET to analyze the data and create visual network pictures (figure 1). In general SNA data can be analyzed using quantitative calculations, but the analysis of visual data is also used. UCINET provides different views of networks. Here we take a look at the general network, the eco network, hierarchical network picture and a networks picture, which shows the connections between different groups (here sectors). We sent a questionnaire to all actors identified to have participated in the networking efforts. Out of the total of 164 participants 40 answered to the questionnaire. The questionnaire included the list of persons identified to have participated in the networking efforts and thus the list of names was the same as the participants to whom we sent to the questionnaire to. We analyzed the network of the 40 participants that answered and the connections between them. However, we are aware of the limitations of analyzing only the actors that provide data and therefore also produced network pictures of the network as a whole (n= 164) with all the identified participants. (Quatman and Chelledurai, 2008). The analysis of both all participant and the 40 answered participants allowed us to identify the same key actors among the participants.

Based on the results we identified the key actors to interview. We identified the key actor who was the most connected and who most people identified as the most important person in the network. Figure 3 depicts the network picture for the whole network with all the participants and all the connections.

Figure 3. *The actors of the project network and their connections (40 answered participants)*



CASE: CUSTOMER CENTRIC SERVICE NETWORK

The purpose of this research has been to evaluate the network that has been created during a development project in a certain geographic area to support local elderly customers to get more personalized help, i.e. tailored health care services. The development project has been a city-led attempt to create a service network of public, private and third sector actors. The development has had several other goals, namely piloting self-budgeting in public setting, establish care managers and build customer centric service provider network for elderly care. The creation of customer centric service network is analyzed here. The tentative model for the service network around case manager that would allow co-creation with the customer was created 2011 and the care network was created and piloted 2012. Developing and piloting the network model was done through meetings, workshops using service design methods, and public events for the inhabitants of the area. The evaluation project was started at the beginning of year 2013.

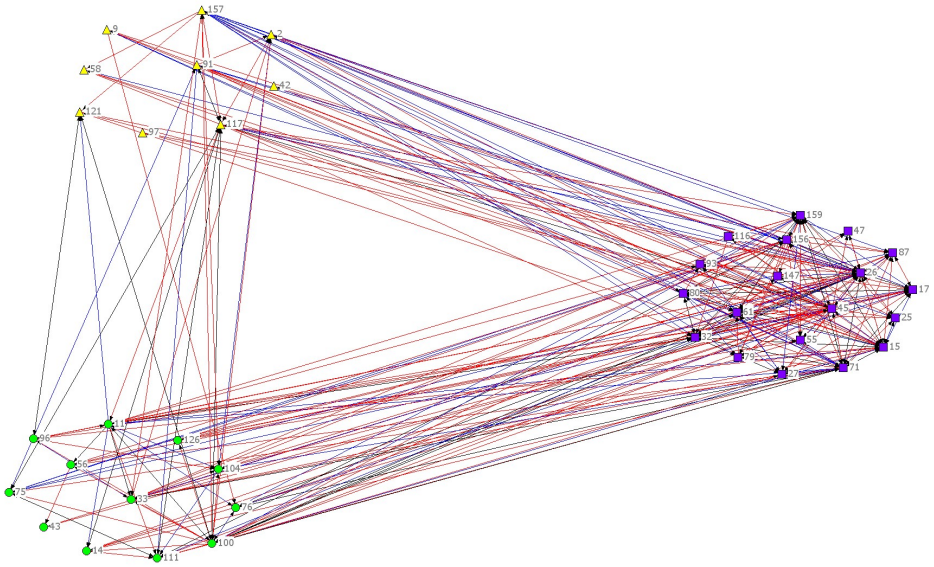
The customer centric network has four main tasks. Firstly, the service network should develop the customer services in co-creation with the customers, develop the service tray, and increase the awareness of service supply in the area. Secondly, the network should maintain a service tray, develop it further and promote the services. Thirdly, the network should maintain systems that support the development projects general goals, enabling usage of self-budgeting and the work of case managers. Fourthly, the customer centric service network needs to ensure continuity, i.e. manage the network.

The management of the network and the connections between the actors from the private sector was identified as a challenge. The prevailing attitudes in the public sector officials towards networking and the traditional ways to work were seen as the main possible hinders of creation and maintenance of the network. The network analysis and identifying the network managers and their functions was seen as means to tackle the challenge. Next we will discuss the network analysis and the key issues identified to enable a successful customer service network.

The SNA analysis of the network and the achievements of the project network

The Social network analysis prevails that the network is rather loose and using only 26 % of the potential ties, which translates to low density of the network and the existence of structural holes (Burt 1992; 2004). Moreover, the analysis clearly accentuates the differences among the three sectors that were present in the network. If we look at the sectors in the figure 4 as groups we can see that the public sector (square), i.e. the municipal actors, is overly represented in the network and their connectivity is on a larger scale than other sectors. This is explained by the fact that municipal actor has been the organizer of the project and has managed the efforts to create the network and the model for how it should function. In addition, the public sector in Finland is the major provider of elderly care services and has the responsibility to organize these services (Heinämäki, 2012).

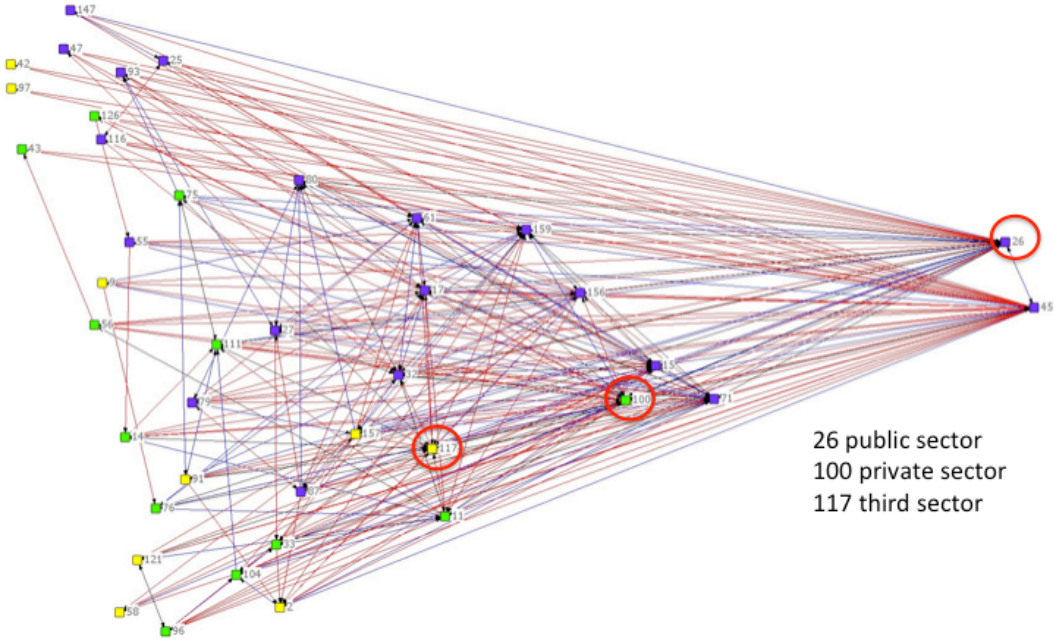
***Figure 4**. The different sectors as groups and connections between these groups*



Within the groups the public sector is well connected, as the connections of public sector actors to private (circle) and third sector (triangle) are tighter than connections between private and third sector. This might be due to the mediating task of the public sector within the project. The ties within the other groups are rather week, for example the third sector actors seem weakly connected to each other within their group. (Appendix 1 shows the descriptive statistics of the network). The independence and low connectivity of third sector actors was also expressed in an interview. In the figure 5 the key actors are identified from the three sectors.

Considering the fact how hierarchically organized municipal sector is and how separate the different sectors inside the municipality are, we have to give recognition to the project for being able to create contacts between different departments inside municipalities. Creating cross-departmental services within the city was in fact one of the aims of the development project. The emphasized centrality (Freeman, 1979; Borgatti, 2005) of one actor raises the questions of role of the central actors power and influence (Bonacich, 1987) and its effect on the network. Moreover, the network density (Reagans and Zuckerman, 2001) being rather scarce might influence the success of the network.

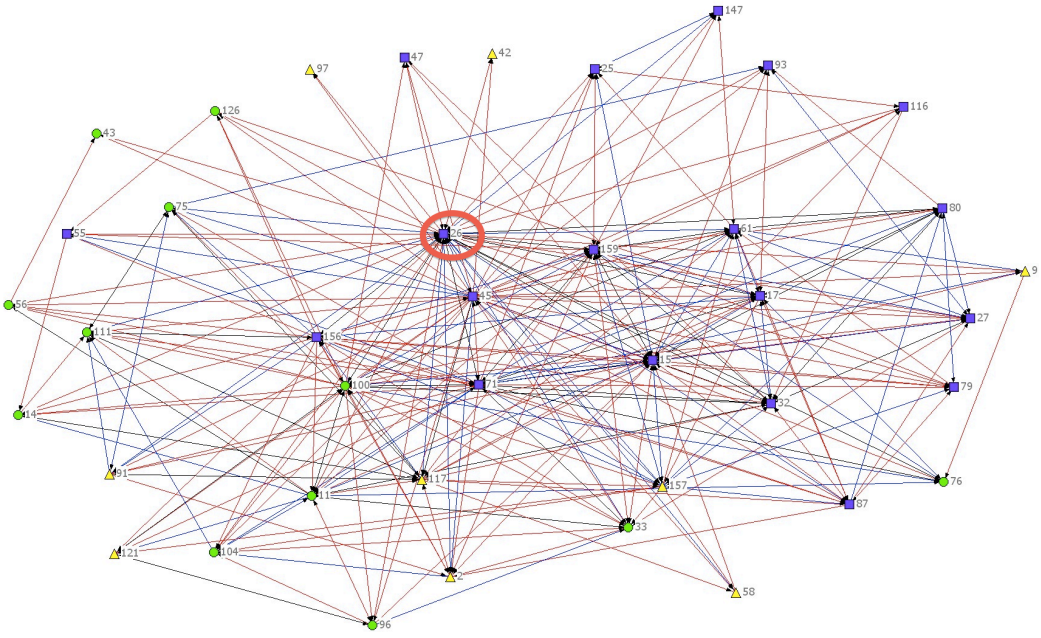
***Figure 5**, Hierarchical clustering and the number of connections*



A care manager as network manager

The focal network of the care manager is significant and encompasses various actors from different sectors. In fact, this focal network (Figure 6) is very similar to the general network structure that portrays the project network as a whole, but illustrates only direct (1-step) connections of the key actor, which again demonstrates the importance of the care manager in this network structure and the collaboration process of creating the network.

***Figure 6.** The eco network of the care manager in the service network created by the project network*



As we identified earlier (see also appendix 1) regarding the whole network structure, the care manager has the most connections to other actors in each of the sectors (eco network output) and the others are well connected to her (eco network input). Further, the eco network of this person reveals that she/he has the brokerage position to connect other actors (appendix 2) inside her own organization as well as to actors in other sectors, her network has little structural holes and only 9/39 contacts are constraining. The low number in constrain-scale means that other actors have little influence and possibilities to constrain this person. In other words, the care manager has a strong focal network and her connections to actors in her eco network are strong enough for the connections between other actors to be of low relevance to the functionality of her focal network, which is the care manager network for the service model. Table 1 illustrates the importance of the care manager both within public sector and towards other sectors. Moreover, the table illustrates that the network manager as a consultant is the only source between several actors in the third sector. The strong eco network is partly explained by the fact that within the project this actor has participated in all of the functions organized to create the network. However, the strong role of the care manager as the network manager means that while the eco network of the network manager is strong the network as a whole is very vulnerable and it's functioning depends on the participation of the network manager.

Table 1. *The role of care manager as a broker for the service network*

Node 26 as the network manager
acts as broker between sectors (groups)

	Private	Public	Third
Private	71	145	76
Public	164	150	136
Third	60	96	46

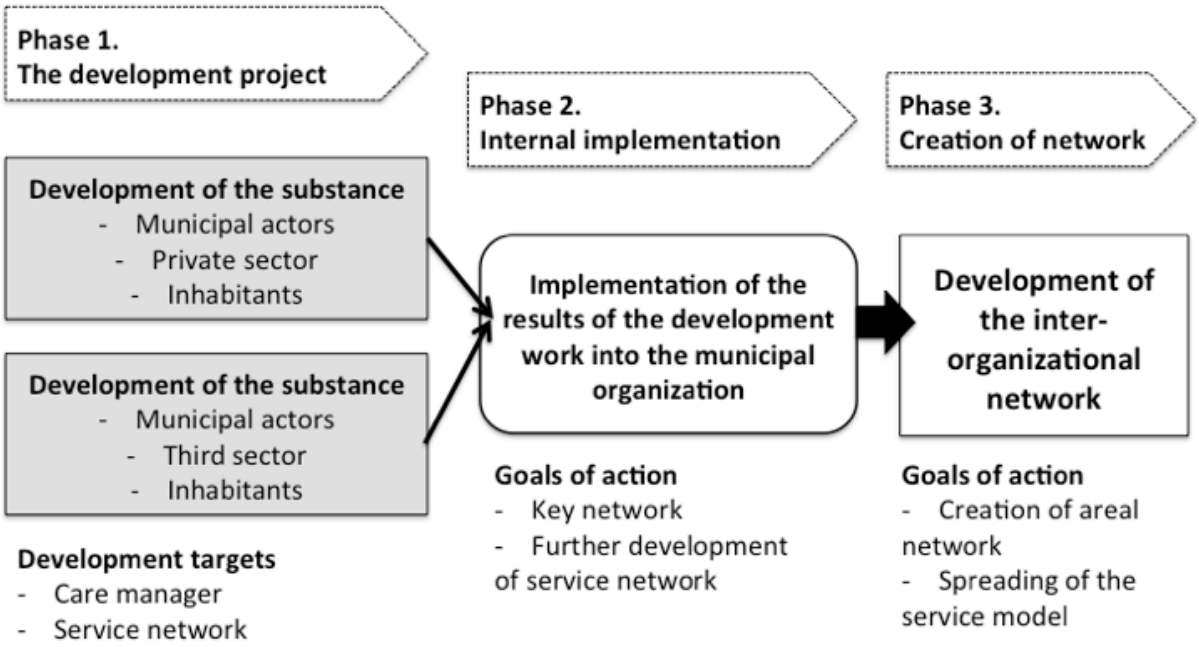
Analysis of the processes and network management

The interviews and material provided by the key actors in the project network suggest that the differences in connectivity and the overexposure of municipal actors are due to the process of how the network has been created and to network management or lack thereof. Although the process has been systematic and extensive with several meetings and workshops, the different sectors have been working separately to achieve goals that have been identified for them. Figure 5 portrays the development process of the project in the attempt to create a service network. The process started with the development of substance and then shifted from this joint development (phase 1) to internal development with municipal departments (phase 2). The final stage is the development of the network that should implement the solution into their work routines (phase 3).

In other words, the actors from different sectors have not had a common goal for networking and hardly any social function where they have been able to meet and learn to know each other and to create required trust and commitment or mutual learning to create successful

networks. The network creation efforts have concentrated on developing the context rather than the network itself, as depicted in the figure 7. Also, the short questionnaire and received feedback suggest that there has not been a visible appointed network manager. In the questionnaire 17 out of 41 expressed that they did not know whom the network manager was and additional 9 noted that there has not been an appointed network manager. Taking these findings into account, we would question whether there is a (functioning) network.

Figure7, *The development process of the project*



The interviews shed light into the results of SNA analysis and explain the process of development. Firstly, the municipal actors have participated in most of the meetings and workshops, which explain the connections between municipal actors from different municipal sectors. Secondly, this strong role of the municipality as the organizer of the networking efforts explains the differences between the eco networks of key actors within the three groups. Thirdly, we suggest that the relatively low density of connections between private and third sector is explained by the fact that the development work has been done separately with the actors from the private and third sectors (Figure 5). Only occasionally have these sectors met within the project. Fourthly, the project has concentrated on developing the context and allocated little time to developing the network itself. In other words, the network placed little value on creating joint understanding of the purpose and goal of creating the network and creating trust and commitment. However, several network management researchers highlight the importance of allocating time to the creation of trust and commitment at the early phases of creating networks. (see for example Morgan and Hunt 1994; Järvensivu, Nykänen and Rajala 2011)

DISCUSSION AND THEORETICAL FRAMEWORK

As described, analyzing the network structure and the process of creating the network has revealed weaknesses in the network. We also propose that to analyze the network structure in two levels, the whole network structure and eco networks of selected actors is beneficial in getting a deeper understanding of the process of the project and the management of this network. Regarding the process of networking the study has revealed several interesting findings. Firstly, in the project the development of the substance has gained priority, which Järvensivu et al. (2011) already warn about and, which is against the understanding that the shared goal formation (Agranoff and McGuire, 2004) as well as the enabling of trust and commitment should begin a networking process (Morgan and Hunt, 1994; Möllering et al., 2004; Luhmann, 2000) and that there should be room for mutual learning (Doz, 1996). Secondly, the networking of a municipal actor seems to require time and resources placed on internal implementation of a result that has been created together with other sectors. In the studied project we could identify a whole phase of the process for internal implementation. Thirdly, we want to bring out the changing ownership of the process in the case. At the beginning the ownership of the development is on public organizations, private and third sector organizations and the inhabitants of the area, but in between the process the ownership is into municipality with an intention to at the last phase give the responsibility to a network and at the same time assume that they can create a network that is willing to take the ownership of a result created elsewhere.

Therefore, based on the literature review and the analysis of the case we propose the following division and order of action in the efforts to create networks and engage in systematic collaboration. Firstly, the actors wishing to engage in systematic networking needs to create conditions that favor networking, first within their own organizations and then jointly with all potential network actors to develop the network (Doz, 1996; Agranoff and McGuire, 2001; 2004) Secondly, only when the network has been able to negotiate new roles, create conditions to support the creation of joint rules of interaction, and been able to create a cooperative culture, the network should develop the context, which we interpret as the ultimate motivation for the network to start the collaboration process. We also identified three phases of collaboration and network management and in the following framework (Figure 8) suggest when the development of the network could shift into the development of the context.

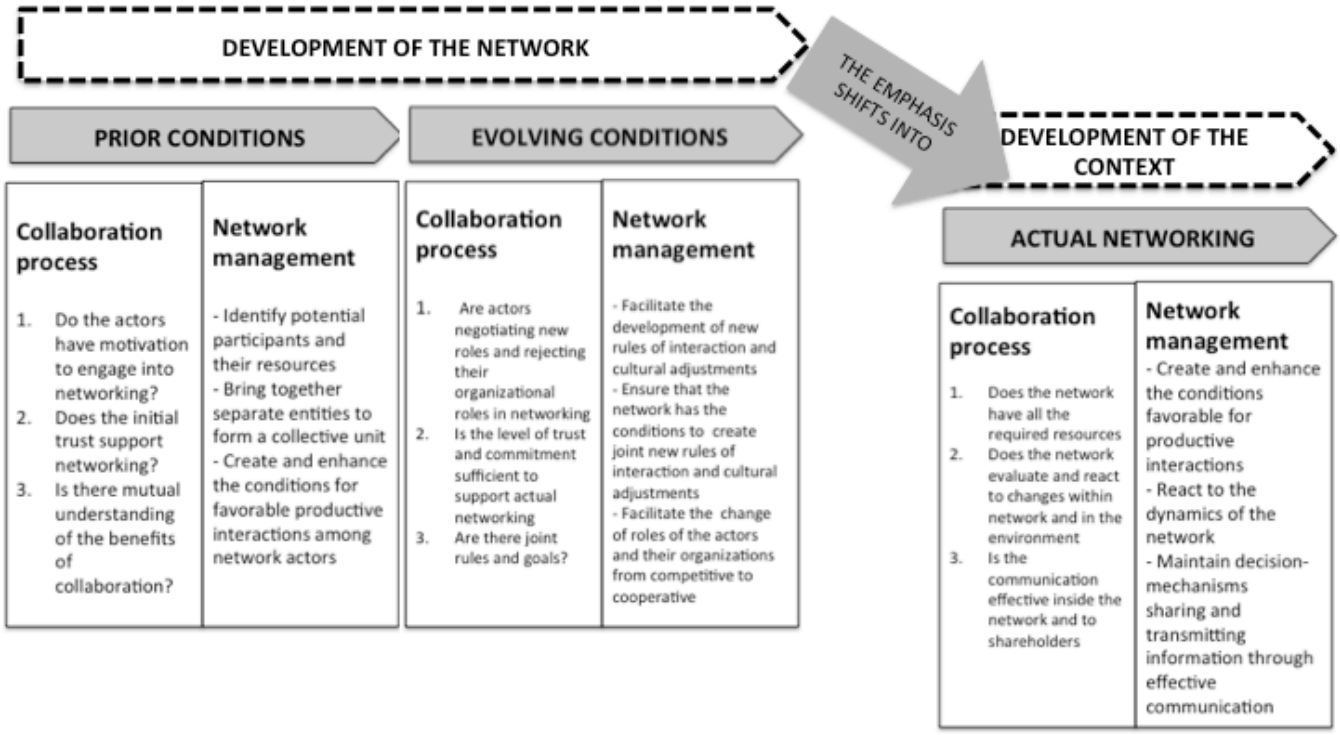


Figure 8. *The framework for evaluating networking and network management*

As suggested in the theoretical part, the framework divides the collaboration process into three parts; prior conditions, evolving conditions and actual networking. Prior conditions refer to the climate and conditions that support collaboration in each of the potential organization. It includes the birth of an idea and motivation to collaborate inside one or several organizations that eventually will be parts of the network (Ring and Van de Ven, 1992). It also refers to identifying an idea that requires collaboration. It's essential to have a mutual understanding of the benefits of collaboration and initial trust towards the potential actors. Favorable prior conditions lead to evolved conditions, which prepares the actors to actual networking where both the network and the context development.

The project network didn't go through the phase of creating the network, which we, logically, see as the main reason for the failure to create a network. Not going to through this phase will also result in challenges in implementing the results. In fact, in this project, there are two implementation phases: implementation of the idea to the municipal organizations and implementation of the solution to the geographical area. It is also assumable that the network was unable to step away from their organizational roles and truly engage in the networking. We suggest that initial conditions is the phase where the actors' role relationships that stem from their originating organizations give room to personal roles as the network shifts from formal contracts to psychological contracts. During this phase it's essential to negotiate joint procedures, routines, and interfaces and discuss the expectations of the actors and their home organizations. This provides the network with motivation and conditions to start the actual networking.

As showed in the network process description, in the project all started from developing the substance, finding a result to challenges identified by municipal organization. We place the development of the subject to the end of the process and call this phase actual collaboration phase the network create conditions that support collaboration. Trust and commitment should be built systematically to support mutual learning and keep the actors engaged in the collaborating process and allow implementation of the results. This follows the results of a study of Doz (1996) who showed how failure to behavioral learning lead to heightened suspicions and lowered expectations. Moreover, he showed the dependence between suspicions and expectations to the level of commitments. In the model low commitments lead to failure of the process. Therefore commitment plays a crucial role in networking and the process must entail actions that build and strengthen the commitment between actors. In the project network, we would claim, most of the actors have been committed only to the phase at hand.

Actual networking includes the networking activities to solve the challenge or collaborate through the network with the chosen networks. Some researchers regard this as the last phase of the networking process, but we have included implementation of the challenge or the network as the way to collaborate to the generalization. This responds at least to the innovation network management literature where piloting and implementing the innovation is regarded as important parts of the process. (Nambisan and Swahney, 2011)

When it comes to the service tray that is offered to customers by actors from all the participating sectors, we argue that the service tray provided for the customer is encompassing and provides services from all the groups. To lessen the burden of the customers who in this case most often are overly exhausted by their everyday life and cannot perceive taking the task of co-creation with separate service providers or to manage the service tray themselves. The care manager thus provides a vital added value in creating the service tray and mediates it usage –and for example, encouraging the service providers for collaboration to create needed (new) services identified in customer interaction, for example through using service design methods. Moreover, based on the analysis of the eco network and other research material we further propose that the care manager mediates the network by providing the service providers means for customers' orientation and co-creation. Thus, we wish to emphasize the role of care manager as network manager; her/his role being the mediator and enabler of creating the service tray and translating the needs of the customers to service providers, more broadly to all sectors and not only with one service provider in mind**.**

CONCLUSIONS

The social network analysis revealed the lack of ties and the existence of structural holes in the studied network. A closer look in the network structure showed that the ties are strongest within the public sector and weaker within private and third sector. Also the ties between private and third sector was shown to be weaker than ties to public sector actors. The SNA results helped us to identify a key person that has a strong role in the network and a closer look in to the research data showed that this actor is the unofficial network manager and the eco network of this actor is so strong that it makes the network vulnerable. We came into the conclusion that there is no functioning network to the extend that was aimed at and therefore took a closer look into the collaboration processes and the management of these efforts and mirrored these findings to the theories of inter-organizational collaboration processes and

network management. This is to say that the results of the SNA analysis motivated us to take a closer look at what had happened in the process of failing to create a network and how existing theoretical discussion on collaboration processes explain the failure.

To conclude we wish to highlight few interesting issues rising from the analysis of the study regarding the evaluation of collaboration processes, the combining of Social Network Analysis data to qualitative data, especially interviews, network management and finally to network in municipal context.

Firstly, we need to point out that analyzing only through SNA method the care managers role and focal networks might remain unseen. Thus we propose that using interview and other qualitative data to complement the SNA analysis provides us more understanding on the topic at hand. Also the combination of these two methods can provide us a better tool for understanding the success of networking and network management processes. Here we have created a framework by first looking into the structure of the network. Then we have taken a look into the theoretical discussion of what a networking process should entail and how different actions and managerial functions proceed alongside the process. Even if there is still no clear understanding of how the network management functions follow each other (Rathemeyer and Hatmaker, 2008) there is some kind of order suggested by the collaboration process and network management researchers. For example, commitment follows trust (Morgan and Hunt, 1994) and trusting requires mutual learning (Doz, 1996). Finally we have looked at the process of the project and by comparing it to the theoretical process of systematic networking created a tool for analyzing networking process with managerial implication.

Secondly, the role of project manager as network manager seems over emphasized in many development projects. As the project manager was able to create pivotal relationships with the city actors and with other two sectors involve; the private and third sector providers, the role of unofficial network manager, the care manager, in direct interaction with customers seem even more important, especially in the context of this particular customer group, facilitating co-creation and engagement with service providers, through his/her focal network and the service tray created. Regarding the eco network of the care manager, the unofficial network manager, we also point out the vulnerability of a network that is so strongly “owned” by a person.

Thirdly, the findings suggest that there will be considerable challenges in implementing the created result in the new network that has not participated in the development. This finding highlights the importance of **ownership** in networking and especially the changing ownership in the networking processes.

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Appendix 1

Descriptive Statistics of the network

Descriptive Statistics

	1 Mean	2 Std De	3 Sum	4 Varian	5 SSQ	6 MCSSQ	7 Euc No	8 Minimu	9 Maximu	10 N of O	11 N Miss
1	0.154	0.361	6.000	0.130	6.000	5.077	2.449	0.000	1.000	39.000	0.000
2	0.128	0.334	5.000	0.112	5.000	4.359	2.236	0.000	1.000	39.000	0.000
3	0.410	0.492	16.000	0.242	16.000	9.436	4.000	0.000	1.000	39.000	0.000
4	0.077	0.266	3.000	0.071	3.000	2.769	1.732	0.000	1.000	39.000	0.000
5	0.513	0.500	20.000	0.250	20.000	9.744	4.472	0.000	1.000	39.000	0.000
6	0.385	0.487	15.000	0.237	15.000	9.231	3.873	0.000	1.000	39.000	0.000
7	0.128	0.334	5.000	0.112	5.000	4.359	2.236	0.000	1.000	39.000	0.000
8	0.949	0.221	37.000	0.049	37.000	1.897	6.083	0.000	1.000	39.000	0.000
9	0.256	0.492	10.000	0.242	12.000	9.436	3.464	0.000	2.000	39.000	0.000
10	0.333	0.471	13.000	0.222	13.000	8.667	3.606	0.000	1.000	39.000	0.000
11	0.205	0.404	8.000	0.163	8.000	6.359	2.828	0.000	1.000	39.000	0.000
12	0.026	0.158	1.000	0.025	1.000	0.974	1.000	0.000	1.000	39.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.000	0.000
14	1.000	0.000	39.000	0.000	39.000	0.000	6.245	1.000	1.000	39.000	0.000
15	0.077	0.266	3.000	0.071	3.000	2.769	1.732	0.000	1.000	39.000	0.000
16	0.103	0.303	4.000	0.092	4.000	3.590	2.000	0.000	1.000	39.000	0.000
17	0.077	0.266	3.000	0.071	3.000	2.769	1.732	0.000	1.000	39.000	0.000
18	0.051	0.221	2.000	0.049	2.000	1.897	1.414	0.000	1.000	39.000	0.000
19	0.308	0.462	12.000	0.213	12.000	8.308	3.464	0.000	1.000	39.000	0.000
20	0.692	0.462	27.000	0.213	27.000	8.308	5.196	0.000	1.000	39.000	0.000
21	0.128	0.334	5.000	0.112	5.000	4.359	2.236	0.000	1.000	39.000	0.000
22	0.154	0.361	6.000	0.130	6.000	5.077	2.449	0.000	1.000	39.000	0.000
23	0.179	0.384	7.000	0.147	7.000	5.744	2.646	0.000	1.000	39.000	0.000
24	0.231	0.421	9.000	0.178	9.000	6.923	3.000	0.000	1.000	39.000	0.000
25	0.308	0.462	12.000	0.213	12.000	8.308	3.464	0.000	1.000	39.000	0.000
26	0.154	0.361	6.000	0.130	6.000	5.077	2.449	0.000	1.000	39.000	0.000
27	0.077	0.266	3.000	0.071	3.000	2.769	1.732	0.000	1.000	39.000	0.000
28	0.154	0.361	6.000	0.130	6.000	5.077	2.449	0.000	1.000	39.000	0.000
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.000	0.000
30	0.615	0.487	24.000	0.237	24.000	9.231	4.899	0.000	1.000	39.000	0.000
31	0.154	0.361	6.000	0.130	6.000	5.077	2.449	0.000	1.000	39.000	0.000
32	0.103	0.303	4.000	0.092	4.000	3.590	2.000	0.000	1.000	39.000	0.000
33	0.128	0.334	5.000	0.112	5.000	4.359	2.236	0.000	1.000	39.000	0.000
34	0.385	0.487	15.000	0.237	15.000	9.231	3.873	0.000	1.000	39.000	0.000
35	0.051	0.221	2.000	0.049	2.000	1.897	1.414	0.000	1.000	39.000	0.000
36	0.051	0.221	2.000	0.049	2.000	1.897	1.414	0.000	1.000	39.000	0.000
37	0.103	0.303	4.000	0.092	4.000	3.590	2.000	0.000	1.000	39.000	0.000
38	0.564	0.496	22.000	0.246	22.000	9.590	4.690	0.000	1.000	39.000	0.000
39	0.385	0.487	15.000	0.237	15.000	9.231	3.873	0.000	1.000	39.000	0.000
40	0.538	0.499	21.000	0.249	21.000	9.692	4.583	0.000	1.000	39.000	0.000

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Appendix 2

Brokerage scores for Eco Networks

In-normalized Brokerage Scores

	1 Coordinat	2 Gatekeepe	3 Represent	4 Consultan	5 Liaison	6 Total
21	0	0	4	1	4	9
22	0	3	0	0	2	5
3	15	16	15	2	4	52
4	0	1	0	0	2	3
30	16	76	28	13	38	171
36	0	0	1	0	0	1
17	2	2	0	0	0	4
28	0	6	0	0	3	9
11	0	3	14	2	5	24
32	3	0	5	1	2	11
13	0	0	0	0	0	0
31	5	7	1	0	1	14
9	7	0	6	0	0	13
5	85	110	50	13	17	275
15	0	0	0	0	0	0
14	22	21	61	15	12	131
7	8	0	0	0	0	8
8	150	241	300	117	136	944
19	35	23	6	0	1	65
20	46	76	111	31	31	295
6	23	31	25	2	6	87
27	0	2	0	0	0	2
23	5	1	0	0	0	6
24	9	0	10	0	0	19
25	10	2	10	0	0	22
16	0	3	1	1	1	6
37	1	0	0	0	0	1
33	1	0	0	0	0	1
39	10	10	27	3	4	54
10	44	20	6	0	0	70
40	79	63	66	5	13	226
2	0	0	0	0	1	1
1	0	3	4	2	4	13
34	6	27	15	11	34	93
18	0	0	0	0	0	0
26	0	2	0	0	1	3
12	0	0	0	0	0	0
38	0	10	9	17	39	75
29	0	0	0	0	0	0
35	0	0	0	1	4	5

.egend: (given flow 1-->2-->3, where 2 is the broker)

Coordinator:	A-->A-->A	(all nodes belong to same group)
Gatekeeper:	B-->A-->A	(source belongs to different group)
Representative:	A-->A-->B	(recipient belongs to different group)
Consultant:	B-->A-->B	(broker belongs to different group)
Liaison:	B-->A-->C	(all nodes belong to different groups)