

Evaluation of Governance Networks:

A study on how governance networks around broadband expansion project are managed, structured, and perceived



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Christoph Harald Baller
485511
Management of Governance Networks
Erasmus University Rotterdam
24025
Prof. Dr. Erik-Hans Klijn
Dr. Jasper Eshuis
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Summary

Germany faces a huge challenge. The challenge is about how quick fast internet can be provided for every citizen within the borders. While this sounds quite easy at first sight, it is a very complicated matter. Usually private providers deliver the service, however in rural areas, the benefits are too small to cover the cost for an expansion of fiberglass-network, especially to every house. Therefore, the public hand steps in to fill the gap.

This thesis is an research about how governance networks in the German broadband expansion in rural areas operate. Thereby looking into how the networks are structured, what the level of trust is within the networks, what managerial strategies are applied within the networks, and how all of the three influence he perceived outcomes by the partners. The theoretical sources are mainly taken from the excellent work of Provan and Kenis (2008) on governance networks and how they are structured, Klijn and Koppenjan (2016) about managerial strategies within governance networks, the importance of trust by Klijn, Edelenbos and

Steijn (2010), and how partners perceive the effectiveness of the network they are participating in, also by Klijn and Koppenjan (2016). Thereby, creating a framework to analyze what has the bigger influence.

The thesis starts with explaining why governance networks exist and how they are described before the work of Provan and Kenis (2008) is used to visualize the different forms of networks.

The reader continues with a variety of displayed theories over how governance networks should be evaluated. Important to name are the theories of Milward and Provan (2000) and Provan and Milward (2001), or Chen (2008; 2010) and Chen and Graddy (2010). While all these theories have weaknesses or do not fit to the research construction of this thesis, the work of Klijn and Koppenjan (2016) from the University of Rotterdam provides a framework which complies with all demands for the research. The specific strength of their framework is to find in the approach to look how the network have developed and how the actors within the network perceive such developments. By looking into the form, the applied managerial strategies and trust, this approach matches perfectly to analyze what the influence of every factor is.

The research itself consist of a qualitative analysis of interviews to win the data. The interviews were held within four projects in rural areas of northern Germany where the broadband is going to be expanded and the administration or a public actor takes over the control of the project.

The results show that the form of a network does not, and managerial strategies do have an influence on the perceived outcomes. If trust has an influence cannot be validated. The reason is that all networks show a high level of trust despite having good or very good results.

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1 Introduction

Only 33,8 percent of the German households in rural areas have internet-access with 50 or more than 50 Mbits/s and only 2,1 percent have an actual Fibre To The Home/Building (FFTH/B) connection in 2016 (Die Bundesregierung der Bundesrepublik Deutschland, 2017) while the Fiber To The Home Council Europe stated that the actual FFTH/B rate was 1,6 percent (Fibre To The Home Council Europe, 2017) and in 2017 2,3 percent (IDATE Consulting, 2018). Compared to European countries Germany falls behind in terms of internet speed and the ambitious goal of the government to provide every household with a 50 Mbit/s connection in 2018 seems far away. However, today especially rural areas feel the shortage of fast internet. Businesses and households are often undersupplied with a speed below 5 Mbit/s. In 2012, the German government decided to stay away from the ICT-infrastructure and let the market expand the existing network. In contrast to 2012 the 2018 the elected government decided to create constitutional right for every citizen to have fast internet (50 Mbit/s +) by 2025

The problem is the following one. While the network operators proved to be willing to provide high-speed internet in the urban region, they successfully negotiated to be able to leave rural areas out of their obligation due to economical inefficiency. Thus, the German state and the German federal states imposed several programs to help municipalities and local governments to provide high-speed internet to their citizens. Nevertheless, the broadband roll-out continues very slow and is heavily criticized in the media, politics, and in the public sphere especially as the rural areas remain outpaced (Loehr, 2018).

The funding programs can be mainly distinguished into two models, the operator-model and the profitability-gap-model. For both models, different funding pots are available. The operator-model refers to a model where the municipality receives funds to implement the broadband roll-out themselves. They tender the infrastructure measurements and choose the best offer they receive to implement the network. Before the actual construction process begins, the municipality decides upon a leasing partner the network is leased to. In order to have profitable foresight, between 60-70% of the citizen in the to-be connected clusters need to sign a preliminary contract with the provider. In this model, the county's or municipalities owns the network and provides the maintenance but receives rent of the provider to finance the implementation of the broadband network. In total, this model requires a high amount of financial funds and technological expertise by the administration. The profitability-gap-model refers to a process where incentives are created for a provider to upgrade the current systems. The incentives are paid by the county's or municipalities who can apply for funds by the federal and the national state. In this model, the municipality works as an intermediary between provider and the funders (Henneke, 2017; Niedersächsische Staatskanzlei & Niedersächsisches Ministerium für Wirtschaft, Arbeit und Verkehr, 2016; Niedersächsisches Ministerium für Wirtschaft, Arbeit und Verkehr, 2016).

Looking at the different funding models, they come along with totally different implementation structures, e.g. the status of ownership, management of expansion, or the tendering process. While the profitable-gap-model is often criticized, as provider might only use vectoring technology¹ to speed up the internet, the operator-model comes along with immense costs on the public side to finance the fiberglass wires in the beginning. Thus, both models have pros and cons (Loehr, 2018). While the profitability-gap-model refers to a normal

¹ A technology where old copper cables are upgraded, and disturbances are eliminated

Europe wide tendering process where the best offer is chosen for the roll-out, the operator-model holds more content to analyze. Districts can either decide to keep the project inside their administrative structure, founding a working group, or to establish a limited liability entity or organization as subsidiary of the district who organizes the expansion project. Both forms come along with very different of structural realization of the project.

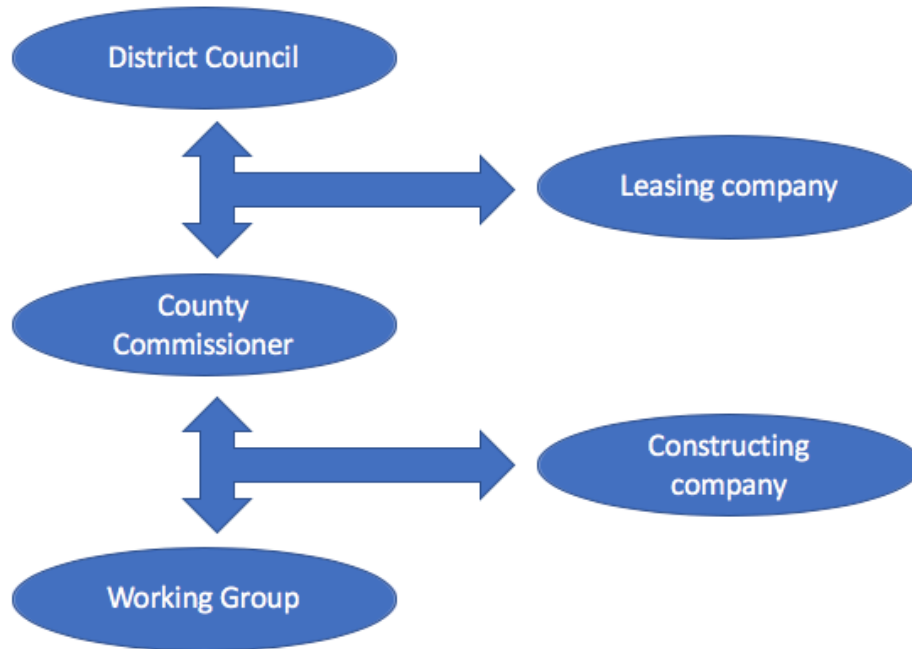


Figure 1: Operator-model with realization by administration, referred to as model A

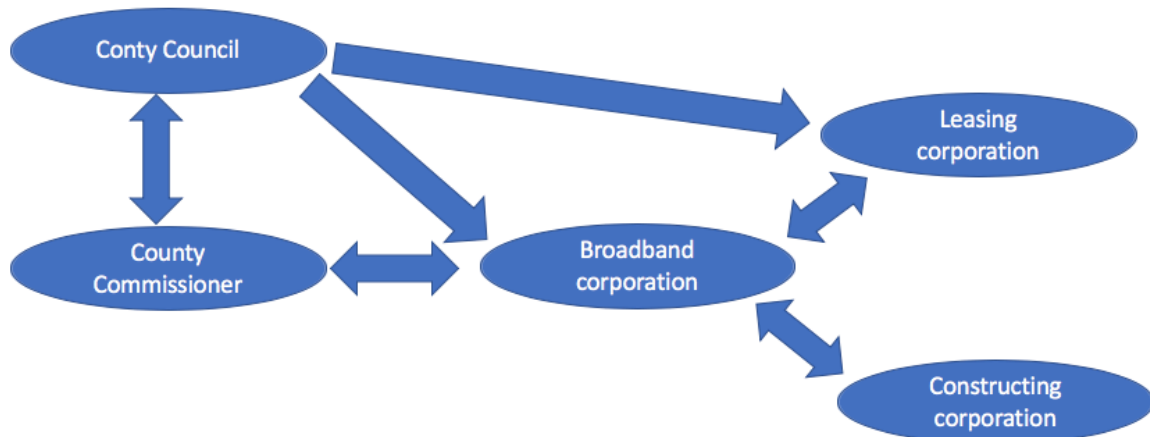


Figure 2: Operator-model with realization by corporation, referred to as model B

While both structures come along with different features, both can be seen as a network with the purpose to realize the broadband roll-out in the area. In the first structure, the county’s council decides upon a model, the financing and the project. The commissioner is in German county’s trusted with all important infrastructure projects. He or she will be most likely constituting a working group consisting of public servants from different departments, external advisors, representatives of the constructing and possibly leasing company to discuss and supervise the project. Most of the decision will be taken within the administrative structure.

The other model, the outsourcing of the project has a different structure. The daily supervision and decision-making happen within the entity, founded for the purpose of managing the broadband network during the

realization and afterwards. Thus, the company acts as a buffer between the leasing and constructing company and the administrative structure. Nevertheless, the entity has to report towards the commissioner and the county on a regular base about the progress and needs to justify its decision to the council and the commissioner. The purpose of the entity, the prerogatives and decision-making freedom is written down in the founding papers. The question asked, analyzed, and answered in this thesis will be, what influence such different settings have on the outcomes.

The theoretical framework will include network governance theories to explain why stakeholders were involved in the process and what comes along with this. Thus, the thesis will begin with explaining what governance means and why the network approach is beneficial for the research. The network theories will lead to different forms of governance structures, mainly through the Provan and Kenis (2008) approach. They state that it is the form of a network setting that has major influence of the success and efficiency of a network. In contrast to Provan and Kenis, the Dutch school around Erik-Hans Klijn stresses another position, according to their findings the most important condition for satisfying outcomes are the managerial strategies and activities applied within a network (Edelenbos & Klijn, 2005; Edelenbos & Klijn, 2007; Edelenbos & Klijn, 2009; Klijn & Teisman, 2003; Klijn, Steijn, & Edelenbos, 2010; Koppenjan & Klijn, 2004; Kort & Klijn, 2011; Steijn, Klijn, & Edelenbos, 2011; van Bueren, Koppenjan, & Klijn, 2003). The two opposing positions will be researched by applying both theories and their core ideas upon the data, trying to receive starting points for further research. Based on the theoretical framework, the following research question.

Research question: What is the influence of form and managerial strategies on perceived outcomes in networks settings within operator-model broadband expansion projects in rural Northern Germany?

Subquestions:

1. How are networks around broadband expansion projects organized?
 - a. What are the actors and how does their interdependency look like?
 - b. Did the frequency of interactions increase over time?
 - c. How can the structure of the networks be characterized?
 - d. How does the actors perceive the level of trust in the network?
2. What managerial strategies are employed to sustain the network?
3. What is the effect of structure, trust and managerial strategies, of the network on perceived outcomes?

The goal of the thesis is to contribute to the ongoing discussion in network governance. Thereby, exploring a new field of governance where the public hand takes over private economy business in order to provide leveling living standards for all citizens. The market failure in the cases have resulted in new settings and new demands towards the administration. Therefore, the whole research is a starting point for future research.

2 Theoretical Framework

The following chapter will give an overview over different theoretical approaches for governance theories and different perceptions of actors, strategic management theories, and how the perception of network participants can be analyzed. The chapter will first explain the meaning and history of the term governance and how this term is used in this thesis with a focus on network configurations. Secondly, the chapter will give a definition of network governance and thirdly, the different configurations and settings of networks are explained, fourthly

the meaning of managerial activities within network governance are presented, and lastly a way to analyze the perceptions of actors within networks about how they perceive the effectiveness and collaboration and what the meaning of trust is, will be introduced.

2.1 Governance

In the last century, the public administration experienced three paradigms of execution (Edelenbos & Meerkerk, 2016; Klijn & Koppenjan, 2016; Levi-Faur, 2012b; S. P. Osborne, 2006; S. P. Osborne, 2010; Sørensen & Torfing, 2007). Stephen P. Osborne (2006) wrote an excellent summary of these paradigms. According to him the Traditional Public Administration, from the late nineteenth's century on to the end of the 1970s and beginning of the 1980s was based on a Weberian tradition. Meaning a clear demarcation between the unitary government and the social sphere, focus on the systems, the implementation, and the execution of policies with a strong public-sector ethos (Hughes, 1998; Osborne, 2006). The successor paradigm, the New Public Management (NPM), had its focus very much on an economic and managerial approach to public service delivery. The central focus of NPM was to slim the state in order to make the public sector more efficient. Thus, economic decision on how the government and the administration runs the state were defined by competition, privatization and measuring of input and output. One of the greatest followers was Margret Thatcher who implemented the Thatcherism, still today it is seen as an example for NPM (Cairney, 2002; Hood, 1991; Levi-Faur, 2012a; Peters, 2012; Rhodes, 1996; Rhodes, 2012; . The paradigm of NPM was replaced around the beginning of the twenty-first century by the paradigm that scholars call New Public Governance (NPG)² (Edelenbos & Meerkerk, 2016; Gerrits, 2013; Klijn & Koppenjan, 2016; Levi-Faur, 2012; Peters, 2012; Rhodes, 2012; Sørensen & Torfing, 2007). But what does governance consist of?

In the governance literature and research of the public sector, many different opinions and streams have developed. Thus, there is no inviolable definition on what governance means. Unequivocally, most scholars refer to governance as a way of governing by taking external, factors into account when deciding upon policies (Gerrits, 2013; Klijn & Koppenjan, 2016; Levi-Faur, 2012; Osborne, 2006; Peters, 2012; Rhodes, 1996; Sørensen & Torfing, 2016). Rhodes relates to governance as “a change in the meaning of government, referring to a new process of governing; or a changed condition of ordered rule; or the new method by which society is governed” (1996: 652-653). He thereby stresses the developing character of the approach on the bases of public-private cooperation. Erik-Hans Klijn and Joop Koppenjan (2016) showed in their book over network governance that four ruling understandings of governance exist. Good Governance or Corporate Governance which stresses the efficiency aspect of administration, governance in terms of New Public Management or Market Governance with a view on governance as steering element, rather than as driving force (D. Osborne & Gaebler, 1993). The third approach is the Multi-Level Governance or Inter-Governmental Relations approach, despite the fact that they differ from each other, both are highlighting the multi-actor and multi-level aspects of governance. Hence the approach focuses on actors from diverging state-levels and international-organizations, it cannot be used for national and especially local settings. The most convenient approach to governance on such a level is the approach of governance as governing networks, emphasizing the fact that governance happens in multi-actor settings with public and non-public actors who are connected with each other by a common objective in a broader sense (Klijn & Koppenjan, 2016; Sørensen & Torfing, 2016). Klijn and Koppenjan stress that no unified understanding of governance exists, but “[a]lthough these

² In the following sections, it will be referred to as governance.

conceptualizations are different, they share some elements. All of them emphasize the process of governing rather than the structure of government.” (Klijn & Koppenjan, 2016) These categorizations can be closely linked to the classification of Paul Hirst (2000), with the major difference that Hirst uses five classes, by separating Good Governance and Corporate Governance. While the last approach as governance as self-steering networks is seen as the most accurate by Klijn and Koppenjan, they criticize that scholars overemphasize the self-steering characteristic. In their view, this leads to a misunderstanding of governance as free from external influence as actors from the public sphere, try to interfere the networks but also because of legislative boundaries, market mechanisms or initiatives for a network (Klijn & Koppenjan, 2016). Hence, governance can be initiated by governmental actors as well as by private actors (Edelenbos & Meerkerk, 2016). Furthermore, they stress that the self-governing aspects often end in self-blocking of networks due to different perceptions, strategies and boundaries what makes it necessary for networks to have some kind of structure to overcome such blockages (Klijn & Koppenjan, 2016). Building on that, Klijn and Koppenjan’s main point of critics is that governance should be “understood as governance within governance networks, or in other words: network governance” (Klijn & Koppenjan, 2016). They build their argumentation on the fact that the first three modes of governance make linkages to traditional government in their theoretical conception and in which way existing governmental structures can be improved while governance and therefore network governance theories focus on the relations between actors and how these actors deal with complex issues.

2.2 A Definition of Network Governance

According to Klijn and Koppenjan’s understanding, a definition of network governance has to include limitations for the self-steering characteristic. Starting from this, Eva Sørensen and Jacob Torfing have developed a definition, consisting of five characteristics that belong to governance. In their definition governance consist of:

“1. a relatively stable horizontal articulation of interdependent, but operational autonomous actors; 2. who interact through negotiation; 3. which take place within regulative, normative, cognitive and imaginary framework; 4. that is self-regulating within limits set by external agencies; and 5. which contributes to the production of public purpose.” (2007: 9)

Here, it seems worthwhile to take a closer look at the definition. A network in a governance process consist of actors who are dependent on each other over resources, while remaining autonomous about their perceptions and goals, thus the relations remains horizontal (Klijn & Koppenjan, 2016; March & Olsen, 1995; Provan & Kenis, 2008; Fritz Wilhelm Scharpf, 1997). Inside the network, actors negotiate over the decisions and outcomes of the policies to be decided upon. Due to the negotiations and the mutual dependency they have chances to create a common understanding of the problem as well as over the collaborative framework, the network collaborates in (Klijn & Koppenjan, 2016; Provan & Kenis, 2008; F. W. Scharpf, 1994; Sørensen & Torfing, 2016). The interaction takes places in a rather institutionalized framework, established by the interactions, articulations, and ideas that form rules and codes as concept for the negotiations within the network. Hence, the framework is based on ideals, values, and norms (Klijn & Koppenjan, 2016; March & Olsen, 1995; Scharpf, 1997). Thus, the framework based on “ideas, resources and dynamic interactions, [...], adjusted through negotiations between participating actors.” (Sørensen & Torfing, 2007: 10) But as the

overarching goal of a governance network is to solve public issues, they have to deal within certain political and legislative boundaries, hence they can be categorized only relatively self-regulating (ibid.2016).³ The above definition has its strengths in setting the formal framework of the network but exclude administrative or professional networks by including horizontal, autonomous and independent actors and organizations settings only. Popp et al. in contrast are focusing on inter-organizational networks and describe such networks as “consisting of structure and relationship between actors (individuals and organizations) and the meaning of those relationships”(2014: 7) existing of three or more different organization and “working toward a common purpose” (2014: 15). Thus, equalizing the weakness of Sørensen and Torfing who stress that the network is a horizontal articulation, by focusing on the common purpose, rather than on the horizontal structure the definition features a wider variety of possible networks. What both definitions, Popp et al. and Sørensen and Torfing have in common is the understanding of a network as a collaborative entity that consists of different actors. The weakness of the first definition can be solved by replacing the first paragraph of the definition; “a relatively stable horizontal articulation of interdependent, but operational autonomous actors“ (Sørensen & Torfing, 2007:9) with a “structure and relationship between actors (individuals and organizations)” (Popp et al., 2014: 7) A definition with a better fit would therefore be:

“1. A structure and relationship between actors (individuals and organizations); 2. who interact through negotiation; 3. which take place within regulative, normative, cognitive and imaginary framework; 4. that is self-regulating within limits set by external factors; and 5. which contributes to the production of public purpose.” (*adapted from: Sørensen & Torfing, 2007: 9; Popp et al., 2014: 7*)

The benefit of this definition is the possibility to subsume professional and administrative settings with a hierarchical structure under the term of network governance. The purpose of the network is always the solving of a complex issues that cannot be solved by a single actor. It is the need to work and pull together to solve the issue that is in the heart of any network described (Bryson, Crosby, & Stone, 2006; Klijn & Koppenjan, 2016; Provan & Milward, 2001; Provan, Fish, & Sydow, 2007; Provan & Kenis, 2008; Sørensen & Torfing, 2016). Provan and Kenis refer to this purpose directed network as goal-directed networks, established or emerged to solve a specific issue, when the issue is solved, the network might diminish (Provan & Kenis, 2008). In addition, research on public management too stresses the importance of aims, purpose or objectives for a successful network (Hudson, Hardy, Henwood, & Wistow, 1999; Huxham & Vangen, 2005; B. Nooteboom, 2004).

As described above, networks emerge to solve a common issue, a single actor would not be able to solve without external support. It is the adding of different resources, knowledge, experiences, and skills that makes a network valuable and creates the advantages above individual structures. As Huxam and Vangen put it “the possibility from collaborative advantage rests in the most cases on drawing synergy from the differences between organizations; different resources and different expertise.” (Huxham & Vangen, 2005)

³ Issue or problem is hereby defined as “perceived gap between an existing or expected situation and a desired situation.” Klijn & Koppenjan, 2016: 45)

2.3 Configurations of Networks

When talking about networks, the question about the form of such networks emerge automatically. To analyze forms of networks, one has to take a close look into network analysis. Keith Provan and Patrick Kenis (Provan & Kenis, 2008) wrote a widely recognized article about the different forms of network governance.

In their article *Modes of Network Governance: Structure, Management, and Effectiveness*, they linked network analysis with theories of governance to describe three forms networks. They categorize the networks along two dimensions, on one hand how brokered a network is, varying from completely brokered organization-to-organization contact to very equal roles and communication of all participating organizations. On the other hand, they separate networks by how the network is governed, either by the organizations themselves or by external actors. They propose three different forms networks, based on their findings in network analysis. Firstly, they introduce the form of participant governance, the most common form in which a shared coordination of the members take place. The shared governance can be either formalized through fixed meetings and reports or decentralized with a loser structure. “Shared participant-governed networks depend exclusively on the involvement and commitment of all, or a significant subset of the organizations that comprise the network.” (Provan & Kenis, 2008) In the most extreme form, this shared governance mode is completely self-organizing. In both forms, formalized and decentralized, the major coordinating actors are the members of the network themselves (Klijn & Koppenjan, 2016; Provan & Kenis, 2008). Secondly, Provan and Kenis name the lead-organizational structure of network governance. A mode in which “all major network-level activities and key decisions are coordinated through and by a single participating member, acting as a lead organization.” (Provan & Kenis, 2008) The lead-organization or actor provide administrative support to facilitate the networks collaboration however, remaining as an active partner to the network with additional purpose than only the organization. Lastly, the introduce the Network Administrative Organization (NAO). The NAO, a “separate administrative entity is set up specifically to govern the network and its activities.” (Provan & Kenis, 2008) In contrast to the lead-organization, the NAO is not a member of the network itself because of its interested in the network’s outcome but rather an official and nominated coordinator for the network’s activities. The NAO typically is installed to provide legitimacy or to reduce the complexity that comes along with the organization. Usually, the NAO has the form of a legal entity (Kenis & Provan, 2006; Provan & Kenis, 2008).

Furthermore, Provan and Kenis give advice which form would be the most efficient for which setting of networks. They use the indicators of trust, number of participants, goal consensus and need for network-level competencies to predict the effectiveness of distinct form for network (Provan & Kenis, 2008).

Predictors	Trust	Number of Participants	Goal Consensus	Need for Network-Level Competencies
Shared Governance	High density	Few	High	Low
Lead organization	Low density, highly centralized	Moderate number	Moderately low	Moderate

Network administrative organization	NAO monitored by members	Moderate to many	Moderately high	High
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Table 1: Organizational forms adapted from Provan & Kenis, 2008

By giving these advices, they make a link between the efficiency, effectiveness, and the form and configuration of a network (Kenis & Provan, 2006; Macciò & Cristofoli, 2017; Provan & Milward, 2006; Provan et al., 2007; Provan & Kenis, 2008).

Several authors including Hudson et al. (1999), Nooteboom (2004), Provan and Milward (2006), Provan and Lemaire (2012), Ansell and Gash (2008), Weber and Khademian (2008), Imperial (2005), and Amsler and O’Leary (2017) among others stress the importance of collaborative capacity in networks.

In contrast Kenis and Provan’s positions, several authors, mainly from the Dutch school around Erik-Hans Klijn, Geert Teisman and Jurian Edelenbos (Klijn & Teisman, 2003; Klijn et al., 2010; Kort & Klijn, 2011; Steijn et al., 2011) state that managerial strategies and behavior have a greater impact on outcomes than the form of the network.

The key in the position, opposing the theory of the major influence of the form upon the effectiveness, is the meaning of managerial activities and as said above, collaborative capacity. It is important to mention in this moment, that with collaborative capacity, a different capacity is meant than the collaborative capacity within collaborative governance, which refers to process of civic political participation rather than managerial capacity (Ansell & Gash, 2008; Ansell, 2012). The collaborative capacity used in this thesis therefore refers to the capacity of actors in the network to collaborate and work together and thus, enhancing the effectiveness of the network (Klijn & Teisman, 2003; Klijn et al., 2010; Kort & Klijn, 2011; Steijn et al., 2011; van Bueren et al., 2003).

In their article about Public-Private Partnerships in Urban Regeneration Projects, Michiel Kort and Erik-Hans Klijn state that “[t]he form of cooperation is only of limited importance to the outcomes achieved and cannot replace the necessity for good management” (Kort & Klijn, 2011). Especially in complex situation and issues, the managerial strategies outweigh the form on a large scale (ibid).

To summarize the above. Two different scientific positions exist, while the position of Provan, Milward, Sydow and Kenis (Kenis & Provan, 2006; Kenis & Provan, 2009; Milward & Provan, 2000; Provan & Milward, 2001; Provan & Milward, 2006; Provan et al., 2007; Provan & Kenis, 2008; Provan & Lemaire, 2012) is that the form of the network is of major importance to the outcomes, the position of the Dutch School (Edelenbos & Klijn, 2007; Klijn & Teisman, 2003; Klijn & Koppenjan, 2016; Kort & Klijn, 2011; Steijn et al., 2011; van Bueren et al., 2003) is that the managerial activities are of greater importance. Nevertheless, both sides recognize that the focus of the other side is of importance to the network’s success and efficiency (Kort & Klijn, 2011; Macciò & Cristofoli, 2017).

A logical consequence is, that either the Dutch school or Provan and Kenis are right. A third possibility would be, that the form has an influence on the managerial strategies applied within the network.

Expectation 1: The form of a network will have influence on the managerial strategies and perceived outcomes.

2.4 Managerial activities in Networks

“Public Managers are increasingly being held accountable for performance outcomes while being expected to achieve these results collaboratively by coordinating networks [...]. The dilemma raises the question whether a manager’s strategic approach to network coordination makes a difference in network’s performance.” (Joaquín Herranz, 2010a: 446) But what are the managerial activities network managers apply in a governance settings and why are they needed? In general, little research has been done on the relationship between managerial strategies and network outcomes (Joaquín Herranz, 2010a).

“The deliberate attempt to coordinate processes in networks is called network management.” (Klijin et al., 2010) By attempting to govern the network, managers try to create and facilitate an environment that enhances interaction and collaboration between the actors. The strategies the managers use can be categorized as strategies of process management or institutional design (Edelenbos & Klijin, 2009; Klijin et al., 2010; Ysa, Sierra, & Esteve, 2014). The strategies are aimed at altering the network’s form, by changing actor’s positions, entry rules, or the structure of the network (Klijin et al., 2010; Koppenjan & Klijin, 2004; Steijn et al., 2011). Hence, we can see them as directed towards the actors, what refers to the hands-on metagovernance of Eva Sørensen and Jacob Torfing (2016).

In the following section I will focus on the strategies described above as process management. While one big challenge of evaluating network outcomes is the situation that actor change or re-organize their objectives and goal (Klijin et al., 2010; Klijin & Koppenjan, 2016; Koppenjan & Klijin, 2004; Steijn et al., 2011). In the case of this master thesis, it is unlikely that the objectives, the provision of broadband connection in rural areas, experience big changes.

The fact that complex issues demand a variety of actors to be solved is widely recognized in research (Edelenbos & Meerkerk, 2016; Kickert, 1993; Koppenjan & Klijin, 2004; Levi-Faur, 2012). In addition, many results emphasize that it is not only the pure number of linkages between the actors who have an impact, but that actual the quality of the relationship is of higher importance referred to as embeddedness (Agranoff & McGuire, 2003; Edelenbos & Klijin, 2009; Hudson et al., 1999; Huxham & Vangen, 2005; Ysa et al., 2014). At this point, the network management strategies come into play. The role of a network manager is to provide the environment in which such relationships, who are crucial to tackle complex issues, can exist and evolve (Agranoff & McGuire, 2003) which has a positive relation with network outcomes as Meier and O’Toole (2001), Klijin et al. (2010), and Sørensen and Torfing (2016) showed.

The remaining question is, how does network management help achieve a higher quality of these outcomes. Chris Huxham and Siv Vangen (2005) stress the importance of managing aims, negotiating, trust, power, identity and leadership in their book about *Managing to Collaborate*. Starting from this point of view, a multitude of different managing strategies can be found in various literature (Agranoff & McGuire, 2003; Klijin et al., 2010; Meier & O’Toole, 2007; O’Toole & Meier, 2001; Ysa et al., 2014). Especially the setting of local comes along with several limitations as Backoff, Wechsler and Crew (Backoff, Wechsler, & Crew, 1993) highlight. According to them the strategies actors can choose are limited by the origin and the legal setting of the network, the goals and the type of service that should be provided, the control of the process, derived from the public ownership and the last limitations is based on financing and the allocation of necessary resources. Several authors, but mainly in the work related to Erik-Hans Klijin of the Erasmus University, managerial strategies are separated into four different types of strategies e.g. Kort and Klijin (2011), Klijin, Koppenjan and

Termeer (1995), Klijn, Steijn and Edelenbos (2010), Klijn and Koppenjan (2004), or Steijn, Klijn and Edelenbos (2011). These managerial strategies are distinguished between strategies to enhance process agreements, measurements to explore the content, strategies to arrange the network, and strategies to connect and select the members and the resources.

Types of strategies	Process agreements	Exploring content	Arranging	Connecting
Main strategies deprived from the literature	Rules of entrance and exit, rules over conflicts and decision-making, rules about usage of information	Searching for goal congruency, offer different solutions, influencing perceptions, management and gathering of information, creating a competitive environment	Establishment of new organizational settings (meetings, board, projects)	Selection of actors and their resources, mobilizing and initiating interactions, mediations, appointing of project/process managers, creating incentives to co-operation

Table 2: Managerial activities adapted from Klijn, et al., (2010)

A limitation of these strategies is that they only focus on strategies to facilitate and organize interactions and network collaboration. However, trying to focus on the substantial explanation why network succeed, it is possible to exclude strategies focusing on other settings and points of research. Thus, an exhaustive list of possible strategies in field of interest cannot be provided due to limitations by external factors such as guidelines for the thesis but also academical reasons as they would take away the focus from the substantial strategies. Nevertheless, as described above, empirical research shows a positive correlation between network management strategies and outcomes.⁴

2.5 Network Performance and Outcomes

Most of the research done on network performance focuses on three different aspects of collaboration; the first aspect focuses on the state of the art of the collaboration within the network members, the second aspects analyzes the development of the process with a focus on information sharing, common decision-making, joint resources and respect within the network, and the last aspects focuses on perceived outcomes from the members by emphasizing whether the objective of the network and the members have been achieved or if the network has joint organizational learning as a result (Chen, 2010). In contrast to this, research done on network outcomes focuses on whether policies have been implemented, if the desired impact have been achieved, and if the expected outcomes have been matched. However, one has to integrate into the research that goals, ideas and perception of such processes are possible to change (Klijn & Koppenjan, 2016). Thus, scholar tried to find other ways of evaluating networks.

While most of the research is based on ex-post analyzes, this is impossible in this case as the projects are currently in progress. For such projects and research, Klijn & Koppenjan (2016) are pleading for an ex-durante satisficing approach to assess the project during the planning or implementation phase. Like other scholars, they argue that it is possible to evaluate a networks performance by assessing the actors or costumers' satisfaction with the perceived performance and effectiveness⁵.

Provan and Milward (2001) argue that the satisfaction of costumers is a rather invalid way of assessing public service projects as the costumer usually rely on a number of certain services and thus, the evaluation of a single service by the means of customer satisfaction would not offer a valid result. This seems to be a valid reason,

⁴ E.g.:(Edelenbos & Klijn, 2009; Klijn et al., 2015; Koppenjan & Klijn, 2004; Kort & Klijn, 2011)

⁵ E.g.: Herranz (2010a; 2010b), Chen (2008; 2010), Chen & Graddy (2010), Klijn et al. (2010).

however Klijn and Koppenjan (2016) reply that nevertheless, the focus on network participants would allow a valid evaluation of the network's performance. A possibility to assess such networks is the evaluation of the participants perception on the project (Chen, 2008; Chen, 2010; Chen & Graddy, 2010; Cristofoli, Markovic, & Meneguzzo, 2014). Thus, analyzing the matching of overall perception of all actors of the network and their perception on how the network works towards the goal (Klijn & Koppenjan, 2016). The major challenge in terms of assessing the effectiveness of networks is the little research done in this field. The general assumption is that the benefits of cooperation outweigh the downsides of cooperation. A second prediction is the scarcity of resources in public service projects, the single focus of public servants and a multitude of problems. And a third prediction is, nevertheless of the difficulty to assess customer's satisfaction, the very same (Provan & Milward, 2001). To evaluate the network outcomes Milward and Provan (2000) and Provan and Milward (2001) have developed a three-level concept of effectiveness of networks, the Community Level, the Network Level and the Participant Level.

Expectation 2: Managerial strategies will have a greater influence on perceived outcomes, than network structure in the respective networks

2.5.1 Community, Network, and Participant Levels

“At the broadest level of analysis, [...] networks must be judged by the contribution they make to the communities” (Provan & Milward, 2001: 416) by understanding community as a local area like a district or county. With this approach, they focus on the fact that networks tackle a social issue that could not be solved by a single actor. The effectiveness on the community level can be evaluated either by assessing the customer satisfaction, what remains difficult due to possible different perception of good service provision by the costumers or the plurality of services the costumers receive (Provan & Milward, 2001). Another possibility to analyze the effectiveness of the level is the contribution of the networks to the social capital the actors (Provan & Milward, 2001; Putnam, Leonardi, & Nanetti, 1993).

Fountain (1998) uses the concept of analyzing public service efficiency by researching the increase of the social capital. He discusses the outcomes of cooperation among actors by focusing on organizational learning and trust. Especially the learning of the actors is important, not only for the current process but also for future as it can “be drawn on for the smooth and successful implementation of a later program” (Provan & Milward, 2001: 417).

Looking at possible ways to analyze effectiveness on the Network Level we have to remember the fact that a network consists of several actors with different perceptions, goals and ideas. To assess the effectiveness of a network on the Network Level several possible ways have been mentioned by Provan and Milward. They either focus on the entry and exit rules⁶, by assessing the scope of the services provided by the network⁷, to look into

⁶ Once a network is well established it may attract more and more members which can be beneficial due to political power or financial resources (Provan & Milward, 2001) on the other hand a too brokered network is likely to work less efficient (Provan & Milward, 2006; Provan & Kenis, 2008).

⁷ This can be done by measuring “the extent to which services that are actually needed by clients are provided by the network.” (Provan & Milward, 2001: 418). These services usually consist of a mixture of different kind of services provided by the network for example in healthcare the service of a network can range from the treatment of mental illnesses to the provision of sexual education within one network (Provan & Milwar, 2001).

the strength of the relationships among the participants and across the whole network⁸ and lastly by evaluating network-level effectiveness is the analyzation of the administrative structure⁹.

Looking at the Participant Level “it is important to recognize that individual agencies and their managers are still motivated partly by self-interest. For organizations [...] the relevant question is, how can network involvement benefit my agency?” (Provan & Milward; 2001: 420). The involvement of stakeholders can be measured by four criteria, client outcome, resource acquisition, legitimacy, and costs. Client outcome in this context refers to the possibility of stakeholder to provide an additional service to their customers. Resource acquisition refers to a process where mostly funds are acquired by a network and a single actor would not be able to receive these funds. Legitimacy refers to the striving to gain public legitimacy and acceptance by participating in a public service project (Provan & Milward, 2001). By being member of the network, the stakeholders are trying to minimize the cost by spreading them across the members. Because the entry costs to the network can be high, the benefits have to outweigh the cost in order to attract participant (Klijn & Koppenjan, 2016). Thus, the estimated costs for a participation must be lower than the expected benefits (Edelenbos & Klijn, 2005; Klijn & Koppenjan, 2016; Provan & Milward, 2001; van Bueren et al., 2003). The approach of Provan and Milward is summarized in one sentence, as they stress that “the task for network organizers is to minimally satisfy the needs and interests of stakeholders at network or organization levels, while emphasizing the broader needs of the community and the clients the network must serve.” (2001: 422)

2.5.2 Collaborative Outcomes

The Community Level approach is of no interest to the thesis because of the research goal of the thesis. The Network Level and Participant Level in return are the levels this research is based on to analyze the outcomes within the networks. However, it is necessary to define what actually outcomes from and in networks are. For this the work of Chen (2008; 2010) and Chen and Graddy (2010) is helpful. Chen analyzed a collaborative process on the base of five collaborative outcomes, starting from the expectation that enhanced collaborative outcomes increase the quality of the overall network outcomes and its effectiveness (Chen, 2008; Chen, 2010). He defines effectiveness “as a subjective judgement among partners that their collaborative effort has achieved what it was intended to achieve, that it worked smoothly, and that it was reasonably productive. I focus on perceived outcomes because a subjective managerial evaluation of collaboration outcomes is based on the experience of those who know the collaboration best.” (Chen, 2010: 389). He considers a three-dimension concept of network effectiveness: (1) goal achievement, (2) increased interorganizational learning, and (3) enhanced interorganizational interactions (Chen, 2010). Goal achievement refers to the reason for being of the networks and the alignment of the individual goals of the members with the overall goal of the network (Chen & Graddy, 2010; Klijn & Koppenjan, 2016). The second, increased interorganizational learning is closely related to the leading actor or organization as enhanced learning is likely to increase capabilities to compete with future issues and is often closely linked to the interaction with other organizations. Hence, if a leading organization or actor exist, she or he is likely to have the highest number of ties with other stakeholders (Gray, 2000). Furthermore, the drive to enter a network with other organizations or actors is seen as a response to changing external and environmental circumstances and the learning process through the knowledge of these

⁸ A network consisting of close and strong relationships and a possible multiplexity can be seen as better-developed compared to a network based on loose and fragile ties and (Milward & Provan, 2000).

⁹ A way to evaluate the network effectiveness through the network form is the distribution of resources by the guiding agency or structure to maximize the utilization of funds for the community (Provan & Milward, 2001).

partners who may now better to compete with the issue (Kogut, 1988). The last dimension, increased interorganizational interactions captures the benefits of partnerships as enhanced communication and exchange increase problem-solving capacity (Gulati, 1995; Provan & Milward, 1995). When interactions become more frequent the density of the network increases which enhances institutionalization and capacity building (Chen, 2010; Chen & Graddy, 2010). However, the approach is very broad, and Chen misses out to give clear definition. Furthermore, the approach misses an explanation how the possible increased effectiveness is created.

2.5.3 Content, Process and Institutional Outcomes

In contrast to Chen, Klijn et al. (2010) in their widely recognized article about *The Impact of Network Management On Outcomes In Governance Networks* give clear definition and explanations. They differentiate between outcomes related to the content and such outcomes related to the process. Both outcome categories are derived from the literature. The outcomes named as content outcomes refer to outcomes which evolve due the governance settings, they embrace;

1. The elements of innovation in the results (Bart Nooteboom, 2002)
2. The way in which environmental factors are included in the decisions (De Jong & Edelenbos, 2007)
3. The recognizable contribution by the stakeholders to the decisions (Edelenbos & Klijn, 2005)
4. The extent the outcomes addresses the initial problem (Innes & Booher, 2003)
5. The expected future robustness of the results (Koppenjan & Klijn, 2004)
6. The relationship of cost and benefits and to which amount the cost are justified (Mantel, 2005)

In contrast to that, the process outcomes refer to such outcomes, which can be traced back to the quality of the process. The process outcomes include:

1. The actors' satisfaction in relation to the management of the network (O'Toole & Meier, 2001)
2. The way in which conflict has been avoided or solved (Susskind & Cruikshank, 1987)
3. The way the project avoided deadlocks or stagnancy (van Eeten, 1999)
4. The frequency of contact between the actors (O'Toole & Meier, 2001)
5. The way in which different perspectives have been compromised (Koppenjan & Klijn, 2004)
6. The satisfaction of stakeholders with the achieved outcomes (ibid.)

These typology gives an extensive overview about possible outcomes of a network evaluation with a focus on the quality. Nevertheless, they seem to be too extensive to be analyzed in this thesis.

Like Chen (2010), Klijn and Koppenjan (2016) in their book on governance network use three types of outcomes to analyze the performance of a network. The first outcomes are called (1) content outcomes, which relate to joint image and some type of alignment. They urge research to look into how actors organize their knowledge and information gathering and to what extent understanding and perception are aligned. A second way of analyzing content outcomes is whether "goal intertwining and a win-win situation have been achieved." (Klijn & Koppenjan, 2016: 278). A third way would be the analyze of the enriching of solutions and content by the actors. The second kind out outcomes are the (2) process outcomes. "[They] include the evaluation of duration, transaction costs, process quality, its democratic legitimacy, and the level of accountability." (Klijn & Koppenjan, 2016: 278). While it is very difficult to assess the duration and costs and benefits, especially during the process of realization and planning, assessing process outcomes in terms of

quality should include a comparison with other similar cases as not standards are set for quality. A criterion to assess such outcomes could be actors' satisfaction with the process. Looking at the legitimacy and accountability these two specific outcomes can be neglected in this thesis because of the characteristics of the case. The third sort of outcomes are the (3) institutional outcomes which focus on "how the institutional structure of the network has changed during the process." (Klijn & Koppenjan, 2016: 279) To analyze these three outcomes, Klijn and Koppenjan (2016) are mainly focusing upon actor's enrichment and satisfaction.

2.5.4 Enrichment and Satisfaction

Enrichment is characterized by the learning capacities and achievements of the actors through the network. In their book, they distinguish between three different forms of learning, cognitive (1), strategic (2), and institutional (3) learning.

„Cognitive learning (1) effects are visible in the alignment of perceptions, the enrichment of solutions pursued, and the realization of policies and services that actors agree upon and that take the varying interests and objectives of actors within and outside the network into account.” (Klijn & Koppenjan, 2016: 247) Furthermore, they split cognitive learning into joint image building and goal intertwinement. While joint image building can be evaluated by the degree to which actors share the same perception of the problem based on scientific knowledge. Goal intertwinement refers to whether all actors of the network perceive their participation in the network as beneficial. This can be analyzed by looking into the degree of satisfaction of the actors and if they were able to incorporate their individual goals with the network goals. Another possibility would be to look into whether solutions are substantively enriched by the actors' participation in the network.

Strategic learning (2) refers to the actors' "growing consciousness of one another's involvement and on their mutual dependencies." (Klijn & Koppenjan, 2016: 250) Hence, looking at the actors' capabilities to deal with conflicts and to cooperate. To analyze these capabilities, Klijn and Koppenjan evaluate the transaction costs and duration, the quality, and the democratic legitimacy and accountability of the process. High transaction costs and long duration can indicate a poor network performance but not necessarily have to, the same as low transaction costs and short period do not automatically mean a successful network, hence decision could be made to quick and funds might not be used sustainable. Analyzing the quality of the process demands an evaluation of process including "the degree to which parties acknowledge their interdependencies and succeed in making shift from go-alone strategies and power play towards collaboration and negotiation." (Klijn & Koppenjan, 2016: 251) Here a special focus is put on blockages and stagnation and if breakthroughs have been achieved as result of the collaboration. Thus, stagnation and blockages can lead to the failing of a network but since they are solved, they can show that the actors are able to "serious invest in negotiation and collaboration" (Klijn & Koppenjan, 2016: 251) and shows that they have learned. The research for democratic legitimacy and accountability can be neglected in this thesis and thus will not be further discussed.¹⁰

Institutional learning (3) refers to "the degree to which parties in policy games have developed enduring relations, joint perceptions, institutional rules, and a high level of trust that will support their interactions in ongoing and future games. Institutional learning goes beyond temporary relationships, rules, and arrangements that guide interactions within a specific arena or game." (Klijn & Koppenjan, 2016: 253). It refers to the development of relationships with certain institutional arrangements and rules. These rules and relationships are reducing the complexity which comes along with a problem as well as with a governance setting. Thus, the

¹⁰ For more information about legitimacy and accountability reed Klijn & Koppenjan, 2016: 252

actors become linked to each other which favors beneficial conditions. Institutional learning can be enhanced by the by certain institutional arrangements (Pauly, 2001) which corresponds with Provan and Kenis (2008). Hence the governance system will be more stable and resilient to tensions and conflicts when the relations are institutionalized. Thus, the implied change in the structure and relationship that are related with institutional learning have to be analyzed.

Klijin and Koppenjan (2016) argue that if the three types of learning occur within a network, the perceived effectiveness is likely to be higher compared to other networks. Thus, to evaluate a network, they promote to look for the level of these types of learning.

2.6 Trust

As described above, trust is of great importance for the success of a network as it has positive impact on the quality of relationships between actors and thus upon the network performance itself (Edelenbos & Klijin, 2007; Klijin et al., 2015; Provan, Huang, & Milward, 2009). “[T]rust refers to a more-or-less stable perception of actors about the intentions of other actors, that is, that they refrain from opportunistic behavior.” (Edelenbos & Klijin, 2007: 30). Thus, trust is “the expectation of an actor A that another actor B will abstain from opportunistic behaviour when an opportunity for that emerges “(Klijin, Edelenbos & Steijn, 2010: 196). Meaning that actors A expect actor B to take his concerns into account and does not tend to opportunistic behavior whit negative outcomes for actor A (Klijin & Koppenjan, 2016). Trust is an expectation which does not exist from scratch but has to be built through succeeding interaction (Huxham & Vangen, 2005), develops over time (Klijin & Koppenjan, 2016), and is usually a stable perception (Nooteboom, 2002). The definition furthermore emphasize that actor A is vulnerable to violations or exploitation of actor B. Therefore, he needs to give actor B the benefit of the doubt on the bases of earlier interactions, its reputation, or the expected outcomes through later collaboration. Another specification of trust is the goodwill trust, the perception of actor A that actor B’s intention is good towards himself and the network. Two other conditions for trust are the expectation that actors live up agreements made between the actors and that they keep their partners intention in mind (Klijin & Koppenjan, 2016).

However, trust is a very vulnerable perception of actors that can be damaged easily but if the level of trust is strong between actors, it enhances the likelihood of a successful network performance. The reason why trust has a positive impact on network performance can be found in the understanding of trust. If actors trust each other, they are more likely to exchange information the other party could potentially use with negative repercussions. “A high degree of trust decreases transaction costs between cooperating actors, enhances the probability that actors will exchange information even when the results are uncertain, and encourages learning and innovation.” (Klijin & Koppenjan, 2016: 119) It is the collaboration despite a certain degree of uncertainty that creates the value of trust.

Expectation 3: Trust will positively impact the perceived outcomes.

3 Conceptualization

The chapter leads through the conceptualization, methodology, and implementation of the research. The concept is described below and the methodology, a qualitative analyzes based on interviews, will be explained in the sub-chapters.

Looking at the research questions; “What is the influence of form and managerial strategies on perceived outcomes in networks settings within operator-model broadband expansion projects in rural Northern Germany?” it becomes obvious that the dependent variable are the perceived outcomes, while the independent variables are managerial strategies, trust, and the form. The research question is sided by several sub-questions. Sub-questions:

1. How are networks around broadband expansion projects organized?
 - a. What are the actors and how does their interdependency look like?
 - b. Did the frequency of interactions increase over time?
 - c. How can the structure of the networks be characterized?
 - d. How does the actors perceive the level of trust in the network?
2. What managerial strategies are employed to sustain the network?
3. What is the effect of structure, trust and managerial strategies, of the network on perceived outcomes?

I expect to find that; (1) networks with a lead-organizational structure will have better outcomes than networks without such a structure; (2) employed managerial strategies will have a positive influence on perceived outcomes; (3) a high level of trust will have a positive influence on perceived outcomes.

To analyze the questions and the expectation, the thesis is based on a conceptual model and research design by Philip Mayring (2010; 2014) and Klijn and Koppenjan (2016).

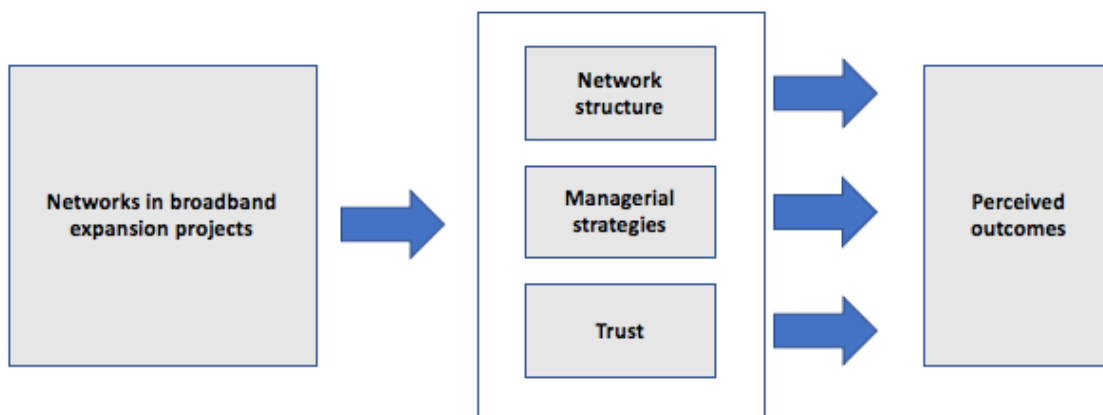


Figure 3: Conceptual Model

3.1 Research design

The research questions demand a specific type of conceptualization that aims at identifying the different parameters to allow making claims about what the influence of the independent variable on the perceived outcomes is in a specific network setting. Klijn and Koppenjan (2016) developed a research design to evaluate networks. They promote a nine-step procedure to analyze a network. These nine steps include; (1) the identification of relevant actors, (2) the understanding of the actors' perceptions, (3) an assessment of the position and dependencies of the actors, (4) the identification of arenas, (5) the identification of rounds and

actions within the rounds, (6) evaluation of the process, (7) the identification of managerial efforts, (8) assessment of interaction patterns, and lastly (9) the identification of patterns of trust and perception.

These nine-step model will be used as guideline with small adaptations. The steps that are not taken in this research are step four, five, and six as they aim at evaluating the quality of the decisions what is not part of this research. To analyze the other steps, it will be necessary to analyze a comparable number of projects to receive validate amount of information. Thus, the researcher decided to analyze four projects in northern Germany.

To organize the research, several projects have been contacted. A first breakdown between all projects has been made by the mode of the funding model. The researcher had to eliminate those districts and projects which did not decided for the operator-model but the profitability-gap-model. In addition, the researcher had to eliminate all districts which did not had taken a decision or were right at the beginning of their project and did not decided upon an operator and leasing partner yet. Another important factor for the decision which projects the research will focus on was made by the project managers or districts which have been contacted. While many did not reply at all, some of the projects were not eager or open for my research proposal¹¹. In the end, four projects have been found which have been willing to support my request. Thereby the projects where selected upon their form and thus, of the independent variable, form and structure of the network, with the objective to look into the influence of the independent variable on the other independent variable managerial strategies as well as on the depended variable of perceived outcomes.

To receive important information and admission to use this information, interviews with the major actors in the project have been conducted. Usually, these actors have been the project managers from the district or administration, the operator, construction company representative or consultants. Hence, in any of the four projects, one or two representatives of the administrative side will be interviewed and one or two representatives of the private business. Thereby receiving a comparable amount of perceptions and information on how the network works

The four projects are located in Samtgemeinde Marsch-Geest, Landkreis Osnabrück, Landkreis Harburg and Landkreis Hameln-Pyrmont. To unveil the needed information from the interviews, several indicators where created to assess the content. In total 12 interviews have been conducted.

¹¹ Six projects did not reply, five denied my request.

Indicator	Definition	Explanation	Operationalization
Organizational Structure			
Mode of governing	“Whether the network is participant governed or externally governed [...] or by a single network participant that takes the role of a lead organization.” (Provan & Kenis, 2008: 234)	Who does the agenda-setting, calls for meeting or hold the ties	Analyzing the network structure based on the received information Participants perception about central actor and task assignation
Degree of brokered	Number of clear rules the network has decided upon (Provan & Kenis, 2008)	Decision made to guide the interactions and measurements taken by the participants	Number and grade of implementation of written down rules
Managerial strategies			
Process agreements	“a temporary set of rules for interaction that structure the interactions (Klijn, Steijn & Edelenbos, 2010: 1070).”	Perceived number of enforced rules for interactions, decision-making, and the usage of information	Perceived number and grade of implementation of agreed rules
Exploring content	Action taken to achieve goal congruency and a variation of solutions, and collecting information (Klijn, Steijn & Edelenbos, 2010)	Perceived quality of the network in exploring and managing the diverse perceptions of the actors, solving issues and gathering of information	Number and implementation of rules and measurements for goal congruency, the regulation of information sharing, and issue solving capability
Arranging	“Creating new [...] organizational arrangements (Klijn, Steijn & Edelenbos, 2010: 1069).”	Capability of the network to organize itself or to be organized	Number and implementation of arranged settings, grade of flexibility, and organizational capacity
Connecting	Activities in order to start the project, interactions and mobilization (Klijn, Steijn & Edelenbos, 2010)	How did the project started and how did the interaction emerge	Number of measurements and their grade of implementation to connect the actors

Trust			
Trust	„trust refers to a more-or-less stable perception of actors about the intentions of other actors, that is, that they refrain from opportunistic behavior.” (Edelenbos & Klijn, 2007: 30)	Perceived level of trust to other participants	Average results of a scale from 1 (very little trust) to 5 (very much trust)
			Source of trust
		Perceived trust between the participants	Average results of a scale from 1 (very little trust) to 5 (very much trust)
Perceived Outcomes			
Cognitive learning	Cognitive learning effects are visible in the alignment of perceptions, the enrichment of solutions pursued” (Klijn & Koppenjan, 2016: 247)	Perceived intertwinement of individual goals with the network goals	Grade of awareness about intertwinement of own and other goals with the network goal
		Perceived input of actors for solutions	Increased quality of decision due to collaboration
Strategic learning	The “growing consciousness of one another’s involvement and on their mutual dependencies.” (Klijn & Koppenjan, 2016: 250)	Perceived benefits due to the collaboration within the networks	Awareness about the benefits of the collaboration
		Perception over the interdependency between the actors	Reasons given for the interdependency
Institutional learning	“The degree to which parties in policy games have developed enduring relations, joint perceptions, institutional rules [to] support their interactions in ongoing and future games.” (Klijn & Koppenjan, 2016: 253)	The extent to which relations have been institutionalized	Number of institutionalized measurements
		Changed frequency of interactions and their perceived effectiveness	Perception of intensity and change of frequency of contact

Table 3: Indicators

3.2 Methodology

Since long time, social science discusses the best way to analyze, understand, and explain social processes and behavior. In the discussion “[o]n the one hand stands a rigid positivistic conception of research with a quantitative, experimental methodology, on the other hand an open, explorative, descriptive, interpretive conception using qualitative methods.”(Mayring, 2014: 6).

While in the past, scholars were preferring one of the two paradigms, today the recognition of the other side happened, most scholars choose their methods based on what they aim to research (ibid.).¹² Looking at scientific research methods for social sciences, it is almost impossible to not come across the major contribution of the German speaking scholars, among them Philip Mayring (2014), Udo Kuckartz (2007), Margit Schreier (2012), or the work of Nina Baur and Jörg Blasius (2014) in which they collected many different opinions on methodology.

The strength of quantitative research is to find in its possibilities to make assumption about general questions on social behavior. However, it misses the ability to offer in-depth analysis of the content as every finding will be a number to compare. It therefore, can only explain that something has been found but not why. In contrast to this, the strength of qualitative research is the possibility to make in-depth analysis but missing generalization aspects. Therefore, every qualitative research is based upon the specific subject that has been researched (Baur & Blasius, 2014; Kuckartz, 2007; Mayring, 2014; Schreier, 2012). However, the major strength of qualitative research is the option to conduct in-depth interviews, research, and analyzes whereby a fundamental understanding of the subject by the scholar is created which allows to give explanation about why a certain behavior, perception, or understanding was created. Furthermore, it is possible to exclude third-person influence on the answers and lastly the researcher is able to ask for specifications or explanations, thus minimizing non-response items (Barriball & While, 1994). One of the most famous methods of qualitative research is the qualitative content analyzes, combining steps of pure qualitative and quantitative research to a mixed methods approach. Thereby, reaching a higher grade of comparability (Mayring, 2014).

3.2.1 Qualitative Content Analyzes

The newest trend of research design are mixed methods, combining the strengths of both schools into one method. One of the mix methods is the qualitative content analysis. “The central idea of Qualitative Content Analysis is to start from the methodological basis of Quantitative Content Analysis¹³ but to conceptualize the process of assigning categories to text passages as a qualitative-interpretive act, following content-analytical rules.” (Mayring, 2014: 10). Thus, the QCA does not only compare total numbers and frequency of the items but allows the researcher to put them into relation to the context as well as to other items too. Especially in the case of case studies and interviews, the qualitative analyzes allows the researcher to look out for certain phrases with the same meaning, while e.g. a QCA would only enable to analyze every phrase itself without the relation of possible different phrases (Mayring, 2010). Content analyzes in general are structured by two characteristics. The first is the obligation to follow scientific method-based rules and the second is the interpretation based on

¹² E.g. if a research aims to analyze the behavior of a peer group to gain in-depth knowledge about the groups processes. The scholar would rather choose qualitative researcher. But if the researcher aims at comparing the financial situation of peer groups with each other, he would rather choose a quantitative method.

¹³ Further abbreviated as QCA.

theory. While the second characteristic is fulfilled with the theoretical part of this work and thus, deductive categorization is given, the first characteristic will be explained below.

Besides rules for objectivity, validity, and reliability, qualitative content analyzes have another set of rules, they are called units of analyzes and consist of the coding unit, the context unit, and the recording unit (Mayring, 2014). The coding unit refers to the smallest amount an item has to fulfill to be coded, the context unit to largest component in the material that can be categorized, and the record unit “determines which text portions are confronted with one system of categories” (Mayring, 2014: 51). In general, for this thesis the coding unit consist of clauses, the context units will be paragraphs, and the record unit are the transcript interviews (for additional information see Mayring, 2014: 32 and 51). Efforts taken to meet the obligations of validity, objectivity, and reliability are explained in chapter 3.2.3..

3.2.2 Research steps

The qualitative content analysis consists of several steps:

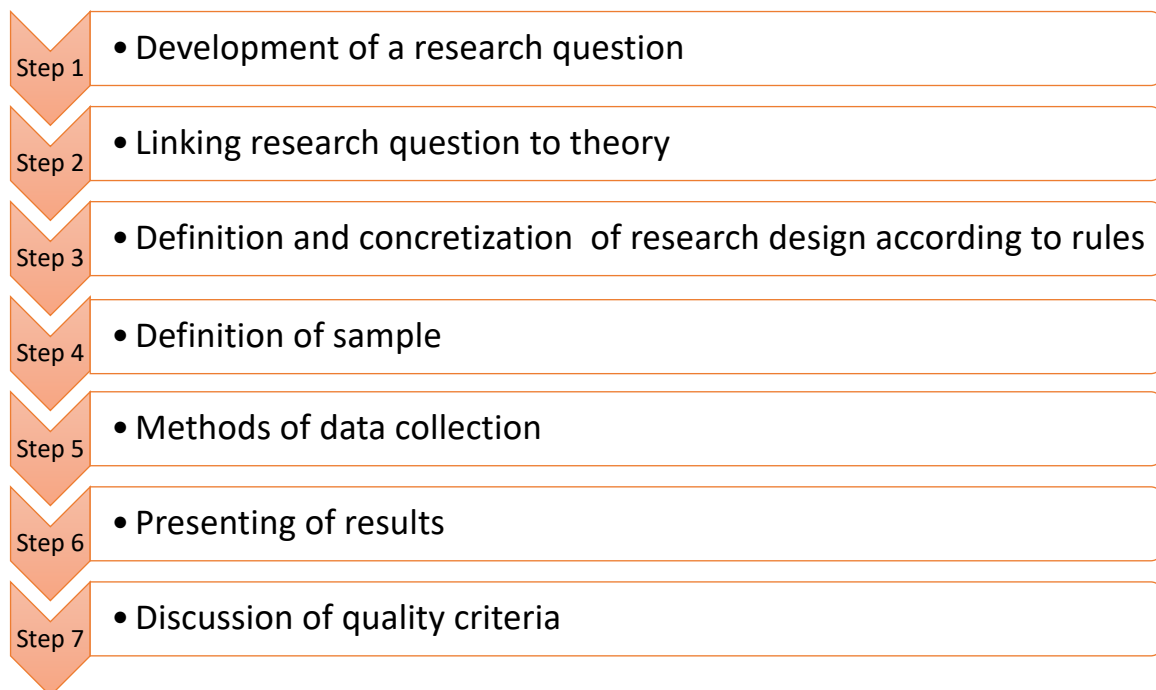


Figure 4: Qualitative research adapted from (Mayring, 2014)

Step 1 is based on the great interest of the research in the development of the broadband expansion processes in Germany. For a QCA the research question is of greater importance than in pure qualitative research. “Even for explorative questions, a specification is important because the results can be directly related to them.” (Mayring, 2014: 10). Thereby making the research relevant and comparable with other research. In contrast to quantitative research which requires the definition of hypothesis at this point in a deductive way, the QCA allows to soften this requirement and only demands an eventually definition of hypothesis or expectations (Mayring, 2014). The research question of this thesis was created by the interest of the research over the field

of the German broadband expansions and after several explorative calls with project managers to developed possible fields and goals the research could be aimed at and thus, having a deductive approach.¹⁴

Step 2 is based on the completed in the theoretical framework. The framework's starting point is the research subject. Based on the subject and research questions, the framework was developed from the existing theories over network governance, managerial strategies, and perceived outcomes of network governance. Thereby, linking deductive theories approaches in the framework with an inductive research interest and setting "all relevant research approaches and research results in relation to research question and subject" (Mayring, 2014: 11).

"Following the specified research question, the adaptive research design, as the basic logic of the study, can be defined" (Mayring, 2014: 11) in **step 3**. Several possible frameworks for this are possible, however, in this research a small adaption of Mayring's explorative design has been conducted. Explorative design means the creation of new categories from the theoretical material (Mayring, 2014). In this research, the categories are taken from theories, however, their operationalization is based upon the data. Therefore, following a mixed inductive and deductive approach in the research categories (Mayring, 2014).

Step 4 is done by conducting interviews in the analyzed districts. However, every research has to define a strategy the sampling is based upon (Mayring, 2014). In the case of this research, the samples are "grouped in respect of theoretical consideration" (Mayring, 2014: 12), hence the interviews have been realized with crucial actors in the four broadband expansion projects. The interviews will be semi-structured interviews meaning that "[t]hey are generally organised around a set of predetermined open-ended questions, with other questions emerging from the dialogue between interviewer and interviewees. Semi-structured in-depth interviews are the most widely used interviewing format for qualitative research" (DiCicco-Bloom & Crabtree, 2006: 315). And thus, "are well suited for the exploration of the perceptions and opinions of respondents regarding complex and sometimes sensitive issues and enable probing for more information and clarification of answers." (Barriball & While, 1994: 330). In combination with the semi-structured interviews, a small survey¹⁵ consisting of four questions about frequency of interactions and perceived trust will be implemented. The survey is used to gain more comparable in-depth knowledge about the total increase of frequency, administrative rules, and the level of trust within the network.

In **step 5** the conducted interviews will be firstly, transcribed in a verbatim transcript, meaning that the researcher writes down every word but excludes filler word (Mayring, 2014). Secondly, the transcript is coded based on the variables which are coming from the theories and are operationalized in an inductive manner. However, this step demands a testing round due to their inductive characteristic to find out if the operationalization is a fit with the actual material which have been done on two interviews (Mayring, 2014). After the testing, small changes have been adapted to improve the research and coding which is inherently part of qualitative research¹⁶.

Step 6, the presenting of the results is done by writing this thesis (Gray, 2000; Mayring, 2014). Every indicator and project is analyzed uncoupled from the other. However, the results are put in relation to compare the results. Thereby, the intensity of every indicators results found in the data is rated with + (low), ++, (moderate), or +++

¹⁴ For the research question see page 11. For the theoretical expectations of this work see page 16, 18, and 25.

¹⁵ See sub-chapter 3.2.4.

¹⁶ "[W]e have seen, that any changes of the instruments, and of course changes of the research question have the consequence of a new process of the step-by-step model. Qualitative researchers often characterize the research process as cyclic (in contrast to the linear quantitative research process, moving from research question to results). We consider the possibilities of changing instruments and even the research question within the project as sometimes important, but then we put the same rigor to the new instruments or research question." (Mayring, 2014: 13)

(high). For example, if one network successfully applies a high number of strategies which are categorized as Process Agreements the results are graded with +++. However, if the network would apply only a little number or the applied strategies are unsuccessful the network would be graded with + instead.¹⁷

Step 7, the discussion of the quality criteria of the research is done in the following sub-chapter as it is of critical importance for the whole research and therefore requires a more extensive explanation.

3.2.1 Questionnaire

Hence the thesis uses a mixed method approach to gain knowledge about how the subject it is possible to include questionnaires and quantitative measurements to add to the qualitative part of the methodology (Baur & Blasius, 2014; Mayring 2014). Thus, this thesis included a standard questionnaire with closed questions which have been answered with “Yes” or “No. The reason for the questionnaire was on one hand to save costly time for the open questions in the interview, on the other hand, to receive comparable answers for some of the question, e.g. the perception of trust, the usage of measurements to increase trust, or who the central actor is.

Unlike any other indicators, trust is a very difficult indicator to measure and especially compare, even though the research was done on a small scale and has explorative character. To measure trust, a closed scale was used to receive generalized impression on the level of trust within the network and between the partners (Klijn, Edelenbos & Steijn, 2010).

Therefore, in case of this research, trust was asked by two question in the standardized questionnaire. The interviewees were asked to give their opinion about the level of trust in the network and their level of trust to their partners on a scale from 1 (very little trust) to 5 (very much trust). Thus, the number named by the interviewees was their perceived level of trust and thereby, the levels could be compared between the project to gain knowledge about differences in trust. Furthermore, the interviewees were asked why they gave that grade to their network. The explanation was used to receive more knowledge about the how and why of the level. Thereby, the source of the level of trust was asked too.

3.2.2 Validity, and Reliability

The criteria of quality in social research are validity and reliability. They are requirements in order to create scientific and method-based work. It is very important to strictly follow these criteria because of the flexible creation of research design and conceptualization, they remain the only factor that separates the work from arbitrariness. Hence, they are more a way of controlling the quality of a research than (Mayring, 2014).

In the context of QCA reliability refers to the consistency of the research design in terms precision and conditions, and validity refers to whether the research is actual measuring what it was intended to measure (Mayring, 2010, Mayring, 2014).

To ensure reliability, a re-test, parallel-test, or the split-half method can be applied. A parallel-test refers to a measuring the same sample with different instruments. Because of the scope of the thesis, this cannot be granted. Split-half is a method where the material is separated into two samples and then analyzed and checked for the same results. Considering the little research question, this method is not conductive. The last method would be the re-test. A specific criterion for QCA is the inter-coder reliability in which two or more research

¹⁷ The operationalization of every indicator can be found in table 3.

examine the same material with the same instruments and compare their results (Mayring, 2014). Because of the legal guidelines of the Erasmus University, this remains impossible as the thesis has to be written by a single student. To receive inter-coder reliability, a last possibility would be the constant questioning of the codes and indicators and thereby adapting the operationalization during the flow of the process. This method has been used in this thesis (Mayring, 2014).

Validity in the context of an QCA refers to, among others, construct validity, stability, and semantic validity.¹⁸ Construct validity is validness of the conceptualization and research design. Hence, deductive theories, methods, and instruments are used, they are validated by the judgment of experts and such the requirements of construct validity are meet. Stability can be checked by the inter-coder reliability, if the findings are similar or no critical difference is found means that the criterion of stability is meet. Semantic validity relates to the appropriateness of the instruments and can be fulfilled by judgement of an expert(Mayring, 2010; Mayring, 2014). In the case of this thesis the judgement is done by the first and second reader and the passing of the thesis.

4 Analyzes and Results

The following section is devoted to show the four different cases, as well as the results won through the analyzes of the interviews and questionnaires. In the beginning, the four cases will be briefly described before the analyzes starts. For the analyzes a model was chosen that focus on the indicators rather than the cases. Therefore, the findings of each indicator in each case are in chronological order starting with the first indicator *Mode of governing* and ending with the last indicator *Institutional learning*. The chapter will be ending with an extensive summary and interpretation of the findings.

4.1 The four cases

In this sub-chapter, the four cases will be briefly described, including a broad overview of the projects structure, the objective and goal of the project, and the financial volume. Meaning of the chapter is to give an overview about what to expect from the four chapters and to categorize them, according to the depended variable of the form. In addition, the chapter answerers the first research question “*How are networks around broadband expansion projects organized?*”

4.1.1 Project A

The broadband-expansion project A is backed by 25 municipalities and has a financial volume of €36 million, which consist of €23,5 million funded by the federal and national state and €12,5 million funded by the county and the 25 municipalities by equal share. The project will connect around 7000 households and businesses in rural areas as well as any schools and public buildings. The groundbreaking is scheduled for the second half of 2018.

The project network consists of several actors. On the public side, two major administrative officers are responsible for planning and implementing the project in the counties digital infrastructure. They report to the county’s commissioner. On the private side the actors include two consulting firms, called the operational consultant and the technical consultant. The operational consultant is responsible for the smooth implementation of the projects and holds most of the ties. He receives technical information and advises from

¹⁸ According to Mayring (2014), these three are the major criteria. Other criteria are reproductivity, sampling validity, correlational validity, and accuracy.

the technical consultant. Both companies are represented in the network through a project-manager which has support from his back-office and report to the next level but are bound by instructions too.

The official's task is to manage the broadband expansion of the county only and they are supported by several other administrative departments such as the department for environmental protection, traffic, economy or development if needed. In addition, they hired two external legal advisors for support, especially in tendering processes as well as for decision-making with possible legal consequences.

The, in numbers, biggest actor is the future provider of the network. The company is mainly represented by a project-manager within the network, which is backed-up by his team and board. Nevertheless, he is bound by company's instructions.

Because of the administration's decision, to keep the project management within the administrative body, the project structure falls within the model A.¹⁹

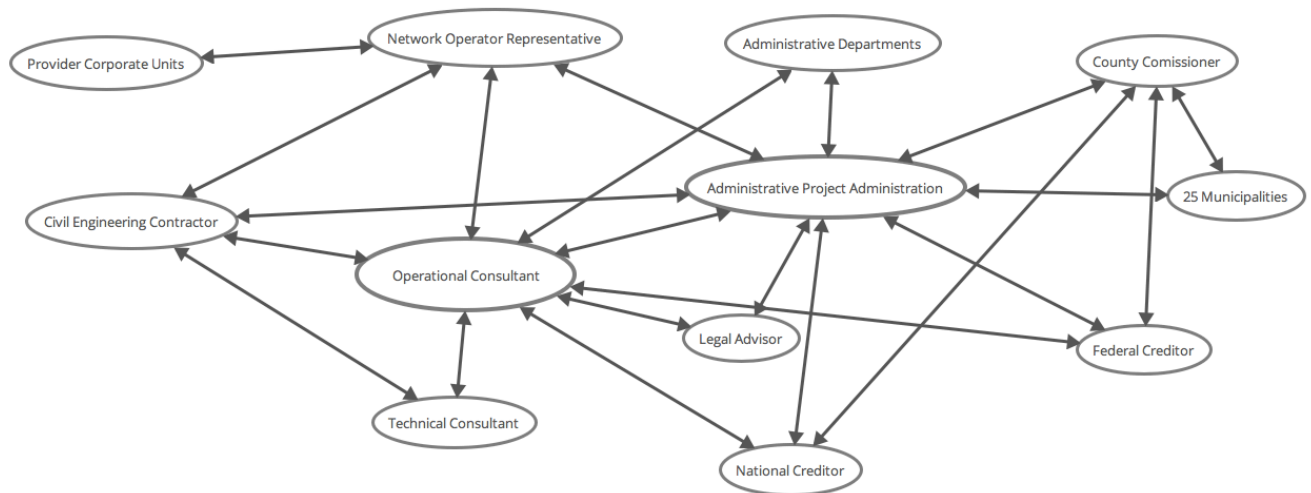


Figure 5: Project structure of project A

4.1.2 Project B

The broadband project B is the biggest one considering the financial volume of €57 million and 14,700 households to be connected. The county decided for a different way in contrast to the other projects. In fact, they refrained from having a big network with several different actors on the private side and decided to look for one company to do the planning, marketing and execution of the expansion project. Thus, the tendering process aimed at finding one partner for three different tasks (referred to as provider). Hence the found partner has no own civil engineering capacity, they hired several different civil engineering companies to do the expansion. Furthermore, the project decided to refrain from the federal funding, as the official requirements for the process would have taken to many resources. Thus, the project is only funded with a small amount of €5 million by the federal state. In addition to the provider's representative, its corporate units, and the civil engineering companies, the network consist of legal advisors, an administrative project administrator, the county commissioner, the federal creditor, the included municipalities, the administrative departments, and the

¹⁹ Model A: project management of the administration remains within the administrative body; Model B: project management is outsourced to a separate body outside of the administrative body.

federal creditor. Hence the expansion is managed within the administrative body, the network falls within model A

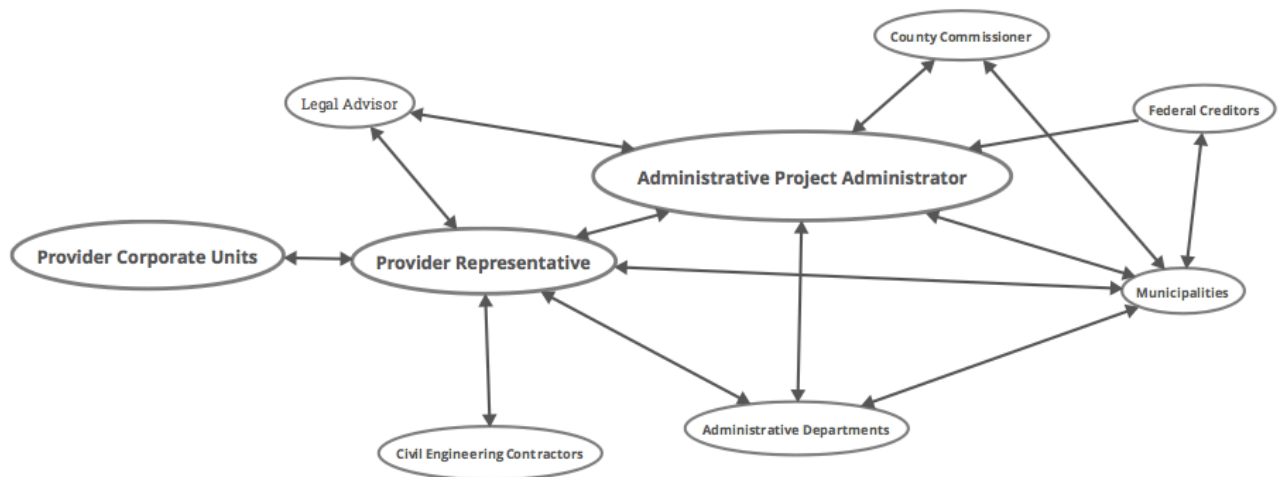


Figure 6: Project structure of project B

4.1.3 Project C

The project C is the smallest regarding financial volume of all four analyzed projects with an estimated volume of €20 million and approximately 3,400 households. The project was initiated by a group of municipalities within the county the county and in one case a neighboring county. For the purpose of the project, the municipalities agreed to establish an association to coordinate the project. The chair of the association is a mayor of one of the participating municipalities. The association is assigned with decisional rights for technical questions and is supervised by a board, consisting of representatives of the participating municipalities and the project partners.

The first groundbreaking was scheduled for April 2018 but because of external factors, such as dramatically increase of civil engineering prices among others, the project experienced a delay. Nevertheless, the participating actors are optimistic to carry out the project successfully.

The project has several partners and actors. On the administrative side, one has to name the 16 municipalities which each have a saying in the project. In addition to these municipalities, several different departments of the superordinate administrative body of the county have to named, such as the departments of roads or the department or the department of environmental protection. Furthermore, the project hired a planning consultant, an engineering consultant office and legal advisors, which have been found through a very strict tendering procedure on European level. The future provider, which has been found through a tendering procedure too. The project structure is categorized as structure B.

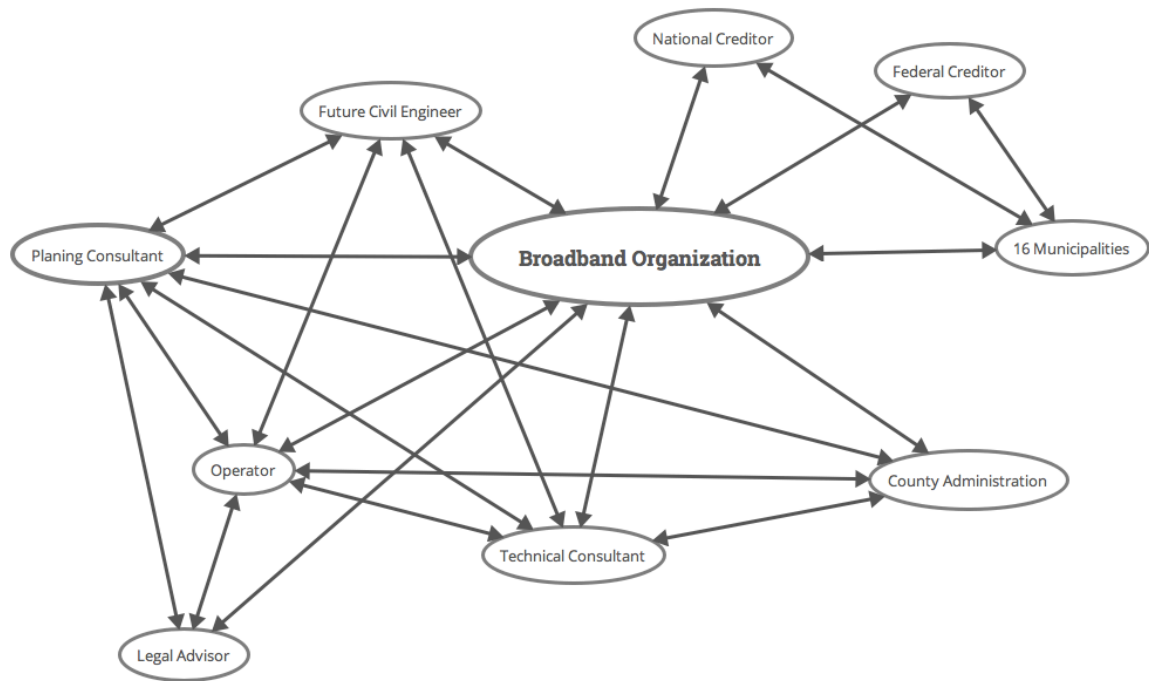


Figure 7: Project structure of project C

4.1.4 Project D

The objective of project D is to connect 13.000 household to the broadband network by 2019. The project has a financial volume of €39 million from which €15 million are funded by the national funding program, €5 million from the federal state's program and €19 million by the county's municipalities itself.

The county has funded its own limited liability corporation to manage its assets and shares. One of the subsidiaries of the corporation is another corporation with limited liability which was funded to manage the county's broadband network in 2010 and has successfully helped 15.000 households already to faster internet in the past. Besides that, the corporation is a 100% subsidiary of the county, the corporation is outsourced from the administrative body and has substantial decisional rights. Next to the corporation the network consists of a technical planning consultant including engineers, a civil engineering contractor, a legal advisory firm, a provider representative and its corporate units on the private side. On the public side, the network is influenced by the participating municipalities, the county commissioner and the county's administrative department.

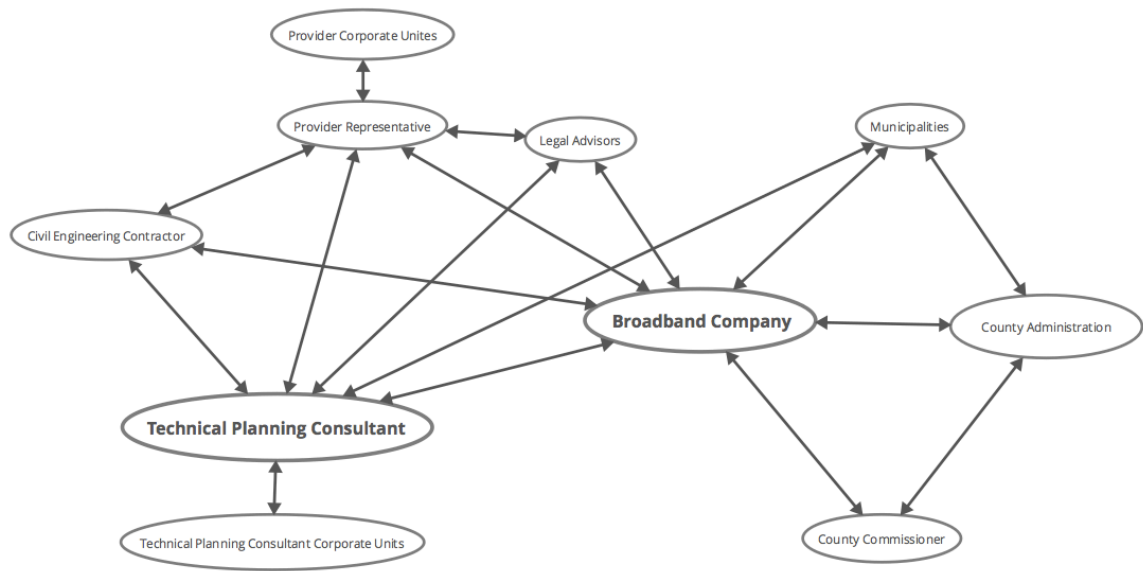


Figure 8: Project structure of project D

4.2 The analyzes of the four projects

The following sections will reflect upon the findings of the interviews which have been analyzed according to Mayring (2014). Each indicator will be analyzed separately, and the findings will be showcased. To create a comparability of the results, the findings of every indicator will be displayed on the +-scale, where one + is the weakest and three + is the strongest, to showcase the occurrence. A more detailed analyzes of every project and every indicator can be found in the appendix.

4.2.1 Mode of governing and degree of brokered

The indicator *Mode of governing* looks into how the networks are managed, which are or is the central actor/s. The indicators definition is extracted from the famous article of Provan and Kenis (2008) and says “[w]hether the network is participant governed or externally governed [...] or by a single network participant that takes the role of a lead organization.” (Provan & Kenis, 2008: 234) The indicator will be used to extract knowledge about the rules of organization within the network from which the categorization into Provan and Kenis (2008) forms of governance networks can be made (see table 1). The codes to analyze the interviews regarding to mode of governing are statements about who does the agenda-setting, calls for meeting, or hold the ties within the network. Hence the mode of governing depends on whether the network has one central actor whose main responsibility is the management of the network or if the network has several actors with the assigned task of managing the network.

The indicator *degree of brokered* looks into how many clear and formal rules the network has decided upon and how they are implemented (Provan & Kenis, 2008). Therefore, question where asked about the perceived number of rules which have been placed to manage the network. Most of the rules will be about the way of communication and cooperation between the partners. To receive data about these rules, questions where ask whether rules concerning the communication and collaboration are in place and if they are monitored. In addition, it should be mentioned here that the whole field of broadband expansion is highly regulated and und external influence. On one side because of the federal and national funding initiatives which come along with strict rules and frameworks, on the other side because of external factors such as availability of civil engineering companies, political will and influence as well as regulations for environmental protection, road construction,

or simple the access to bulks. The reason of combining both indicators in this chapter is, that both give an answer about how the networks is structured and only the combination of both allows to make meaningful statement.

4.2.1.1 Project A

Looking at the project structure of project A it becomes obvious that the major actors of the project are the operational consultant and the administrative project administration. This is because of the number of linkages they have with their partner and their designated tasks in the project. In addition to this, the result of the questionnaire show that three out of four interviewees see the operational consultant as the major actors within the network while the fourth interviewee named the administrative project administrator as central. The main responsibility of the operational consultant is to organize the actual implementation and expansion of the broadband. He supervises the civil engineering contractor, reminds on deadline of the expansion phase, and organizes technical meeting. He is described as “information hub” (Interview A.C., 04:51) by the main project coordinator of the county. In contrast to this, he is not the only actor responsible to call for meeting or with an organizational task. All interviewees stated that meetings can be called in because of a necessity for meeting and thus, by whoever sees the necessity. Therefore, a central actor which organizes the networks meeting cannot be extracted if everyone calls for meetings. Nevertheless, operational consultant has the main responsibility as he is directing the agenda, assigns places and takes part in any meeting with an organizational character. The statement of the interviewees that meetings can be summoned by any actor is linked to technical questions rather than organizational question. The fact that the operational consultant does not organize every meeting, e.g. a meeting between provider and civil engineering contractor, does not mean he is not the main person in responsibility. Especially the above quote, describing him as the information hub and the explanation given that this is due to his contract, as well as the five ties assigned to his position in the network diagram allows to call him the central actor for the operational part of the project.

Looking at the administrative project administrator and his department, they have a central function too. In contrast to the operational consultant their function is to represent the political will towards the network and on the other side, to represent the project towards the political sphere. Despite the organizational capacity in the political sphere, they do not organize technical or operational meetings but rather try to link the private and public side if they summon meetings. Furthermore, they are assigned with a political mandate to execute the expansion. To do so, they organized the tendering process.

In addition, two interviewees stressed that despite the principal-agent relation, all partners are equal within the network and the on the paper existing relation of sup- and superordinate does not impact the work within the network (e.g.: Interview A.D., 15:16)

With these findings, one can admittedly say that the network has a separated structure, the technical organization of the project is within the responsibilities of the operational consultant while the political representation remains as task within the administration. Therefore, a shared responsibility with clear allocation of tasks in terms of management and organization became apparent. In addition to this, the networks work relies to a huge amount on the commitment of the actors as the shared responsibility shows that more than one actor is crucial for the network’s success.

Regarding the degree of brokered, all interviewees stated that most of the rules applied are part of the contract between the partners. As such, they are monitored by the administration as principal. These rules include rules about communication, directing, and hierarchy as well as rules about the actual construction phase. The rules were negotiated and agreed upon during the tendering process. This is supported by one of the interviewees from the administrative side which stated that they have “contractual framework with the provider and operational consultant to regulate the project flow and they include obligations and rules.” (Interview A.C., 02:33) In addition, the role of the municipal partners is determined in the mandate, given to the county’s administration by the county’s municipalities which include rules about when the county has to inform the municipalities and when they can interfere in the project. The project also has an exit plan too.

The findings, stating a dualistic structure of responsibility rather than a central organizing actor. Therefore, the network is a shared governance structure, however the accountability remains on the public side. Furthermore, the network has a moderate density of rules including rules about organization and communication as well as communication. However, hierarchy is barely applied within the network. Therefore, we have a formalized form of shared participant-governed network.²⁰

Mode of governing: Participant-governed network
Degree of brokered: ++

4.2.1.2 Project B

Project B has, in contrast to all other project, the above describe structure with two major actors, the administration and one partner whose area of responsibility is including the planning, marketing, engineering and installation in the ground as well as the implementation in the market. In addition, he manages the civil engineering contractors and works as a buffer between their concerns and the administration. Therefore, the network has a slightly different structure. Nevertheless, the structure can be categorized as structure A from the two project structures because of the fact that the administrative side remains a part of the administrative body. All interviewees stated, that they see the administrative project administrator as central actor in the network and the network scheme backs this perception of the structure. The fact that the administration keeps the financial and political accountability for the projects supports the perception too. Furthermore, if meetings are needed, the provider would “inform the administrative side about the necessity [of a meeting] and the administration would summon it” (Interview B.B., 05:02). However, meetings are general scheduled every 14 days (Interview B.A., 13:51) But looking at the scheme, the provider representative has a bundle of task of which many are usually assigned to a number of actors in other networks.²¹ He therefore has high responsibility and the networks success depends on his commitment.

Concerning the rules of communication and decision, as well as about the collaboration within the network. The network like all other three networks consist of the result of a European wide tendering process. Looking at the county administration side, the county’s municipalities assigned the task to improve the existing network to the administrative body of the county. Thus, a clear mandate was given to the administrative actors including boundaries and a clear task. On the private side, contracts include e.g. approval process for every construction phase. Furthermore, the network agreed upon a RASCI-Matrix which includes a clear framework and rules for

²⁰ See page 11

²¹ E.g.: planning of the network roll-out, marketing, research, managing the actual roll-out.

tasks including responsibility, accountability, support, consulting, and information. Hence the working process within the network are managed in a concrete and generally accepted method of project management. Despite the on the executive side very strict framework, all actors stated that most of the communication and collaboration is based on necessity and trust rather than rules but nevertheless if a new collaborative framework is set, rules about the flow of work are found. In addition, the network has a very explicit and clear, during the tendering process agreed, way of finding a decision which is part of the contracts. Therefore, the degree of brokered is to categorize as high in terms of formal rules.

Concluding, the network can be categorized as a formalized shared participant-governed network because of the dualist structure with organizational tasks on both sides, more on the administrative side as they have the main managerial task but nevertheless, the provider manages the civil engineering contractors among other tasked and takes over a big share of the responsibility. The degree of brokered is to be seen as very high, especially the agreement over clear assigned tasks and how to follow up on these tasks as well as the clear way of finding a decision support the perception.

Mode of governing: Participant-governed network

Degree of brokered: +++

4.2.1.3 Project C

Looking at the project scheme of project C, the two major actors are the planning consultant and the broadband organizations. This is because of their designated tasks and the results of the questionnaire in which in one case the planning consultant was named as central actor and in two cases the broadband organization. While the broadband organization represents the political will in the network, the planning consultant is assigned with the major task of managing the expansion project from the technological side (Interview C.A., 01:53; Interview C.A. 23:22; Interview C.B., 00:41). He sets the agenda for network meetings and summons them. Therefore, he was described as “guide” for the network (Interview C.C., 05:22). He has the main responsibility over the operative side of the network which includes the consultants and companies. The broadband organization in contrast, focuses rather on the political side and the executive board of the association. Executive side of the network is the so-called steering group. The steering group focuses on questions regarding the execution of the broadband expansion (C.A., 03:25). These meetings are scheduled every 14 days. In addition, operative jour-fix calls can be summoned if necessary. In addition to this, German law requires a constitution for the associations which includes clear goals, a board, democratic processes, and regular meetings (Interview C.B., 10:38; 31:54). The board consists of the participating municipalities and the broadband organization. The association’s constitution is regulating, what decision can be made within the steering group and what decision have to be broad to the executive board (C.B., 31:54).

General rules to organize the communication or meetings are not in place (Interview C.A., 02:28; Interview C.C., 04:51) Despite this, the planning consultants writes a protocol of every meeting in which he includes tasks and who is responsible for the task (Interview C.C., 06:04). In addition to the already very high standards of a public tendering process. The fact that the broadband organization is an association under German law

comes along with other obligations such as strict accountability rules, an association board which in this case consist of the participating municipalities, and firm budgeting.

The network can be categorized as a lead-organizational network with some characteristics of shared governance. This is because of the shared tasks for the execution of the network and the resulting duties and obligations. Regarding the degree of brokered one has to separate between the executive board and the steering group. While the executive board is highly regulated due to external legislation, it has shown that within the steering group the degree of brokered is low.

Mode of governing: Lead-Organizational Network Degree of brokered: +

4.2.1.4 Project D

The central actor of the project D is the broadband company, a company with limited liability and a 100% subsidiary of the county. The company is to be seen as central since most organizational task are assigned to her.

“The [company is the actor] which applied for funding at the federal level, she the contracting authority, she is in contact with the provider, with our engineering consulting, with the civil engineering companies, with the material suppliers. Here all threads finally converge and therefore, I would state that this is the central actor in terms of organization” (Interview D.C., 19:16)

This is backed by the results of the questionnaire in which the company was unitary named as central actor (see questionnaire). In one case the structure was named as dualistic including the future provider as another central actor. This is mainly because of organization tasks on the provider side too, nevertheless, looking on the public accountability and organizational role, the broadband company remains as central actor. In addition to the results of the questionnaire this is supported by the project scheme²² and the competencies of the broadband company in terms of taking decision and directing the project given by the county as main principal authority of the project. It is mainly the decisional power that makes him to the central power rather than its organizational capacity as guidance of the network (Interview D.B., 13:20; Interview D.C., 04:32). Looking into the summoning of meetings and the respective agenda-setting, these tasks are divided between the provider and the broadband company. To every summoned meeting an actor is assigned who is in charge of the agenda, the venue and any other responsibilities. The division of the responsibility is related to the topic. While technical meetings are mainly organized by the provider meetings regarding organization, politics and expansion are in the hand of the public side (Interview D.A., 04:03; Interview D.B., 03:59). The fact that the broadband company is a company with limited liabilities gives the CEO a relative broad spectrum of decision, he can take on itself. The interviewees therefore differentiated between a working level and political level while decision take in the political level have been either made by the county commissioner or the group of affected municipalities (Interview D.C., 04:32).

Looking into the degree of brokered, the network is mainly influenced by external rules due to the public funding and through rules as a result of the tendering process (Interview D.A., 06:17; Interview D.B., 02:36). Rules regarding the procedure of meetings and schedule are in place. Different settings for meetings are

²² See sub-chapter 4.1.4

existing, e.g. provider and technical planning consultant, provider and broadband organization, broadband organization and technical planning consultant, or all three actors together. To these settings, other actors such as the county commissioner, legal advisors, or politicians are added if necessary or requested (Interview D.A., 04:03; Interview D.B., 03:59; Interview D.C., 02:18). Rules in communication are mainly ensuring approval processes (Interview D.B., 02:36). Furthermore, a project controlling is not in place and the rules are watched by the project coordinator of every actor (Interview D.B., 03:20).

The network can be categorized as lead organizational network since the broadband company not only facilitates the network but takes all key-decisions. Nevertheless, a little influence of shared-governance can be found in the fact the provider takes over organizational tasks too. The degree of brokered is to be categorized as low since the network has rules about meeting schedule and decisional power but not really any further rules formalized rules.

Mode of governing: Lead-Organizational Network

Degree of brokered: +

4.2.2 Trust

Trust in the context of this thesis is “a more-or-less stable perception of actors about the intentions of other actors, that is, that they refrain from opportunistic behavior.” (Edelenbos & Klijn, 2007: 30) Trust can be retrieved from earlier cooperation between the actors, the benefit of the doubt or due to successful current cooperation.

4.2.2.1 Project A

The general level of trust within the networks and the level of trust towards the partners have been rated with a score of 3,5 by the interviewees. It became apparent that the actors from the private side estimated the level of trust lower, than the actors from the public side. Both actors stated that they see the relation to the administration as better compared to the relation to other actors from the private side. A reason for this is the awareness of individual interests of the partners and the large sum of money involved (Interview A.A., 08:19; Interview A.B., 11:58). At this point, the missing strategies to achieve goal alignment show an effect. From the administrative side, the network operator, as a big company received the benefit of the doubt and the level of trust to other partners increased due to successful collaboration as Interviewee A.D. stressed.

“Trust needs to grow, when the project is done, and everything has worked well, then I have high trust. [T]hey [the future network operator] are a big company and already have a big ICT-network [...]. Therefor I expect that, if I’m not taught different, we will work together in a pleasant way. Thus, I have a high general level of trust. Our operational consultant has proven to be efficient, [...] has a good reputation. The technical consultant [...] makes a good impression.” (A.D., 14:26)

This quote illustrates how the administrative representatives see the development of trust within the network. While the operator, as a big and known company, automatically receives a leap of faith due to his reputation, the smaller partners, despite good reputation, have to prove themselves which they did successful. To increase

the level of trust, the administrative side used strategies such as the one described in sub-chapter 4.2.2.2.1 and 4.2.2.4.1.

In general, all partners made clear, that their perception of trust to the partners and the general level of trust in the network has increased over time to level where a good base of trust is at place. This is also showcased in two quotes given by administrative professionals, stating that it is unlikely that they would not follow an advice by the consultants (Interview A.C., 08:44; Interview A.D., 18:08).

Level of trust in the network: 3,5 Level of trust to the partners: 3,5

4.2.2.2 Project B

The level of trust within the network and the level of trust to the partners have been rated with the high score of 5. All actors stated that the high level of trust is a result of the collaboration they had during the flow of process and of earlier collaboration between the provider and neighboring counties through which first contact was created (Interview B.A.: 03:00; Interview B.B.: 08:59).

Nevertheless, the high level of trust, the administration decided to test the provider with an external double-check through a consulting institution (Interview B.A.: 07:26). This shows that the administration took steps to control whether they can or not and to which level trust their partner- However, the level of trust to the partner developed during the tendering process (07:26).

In addition to this, during the interviews, both interviewees mentioned the importance of trust for their collaboration. For example, interviewee B.A. stated that “we nothing fixed [rules and obligations] but a lot is based on trust. We have talked close and often during the tendering process and it [the trust] has grown over time.” (03:00) This underlines the significances trust plays within the network as is trust is seen as a substitute for written rules and tasks. In general, the level of trust between the partner and within the network is remarkably high. Since both actors graded the level of trust with 5 and mentioned the importance of trust within the network several times.

Level of trust in the network: 5 Level of trust to the partners: 5

4.2.2.3 Project C

The overall level of trust in the network was graded with 3,6 and the level of trust towards the partner was graded with 3,3 which is the lowest grade of trust in all networks even though only slightly. For such level of trust, several reasons were mentioned. One interviewee stated that this does not affect the members of the steering group but that the back office of one of the partners has shown to be difficult to work with while the relation to the broadband organization was described as very good in terms of trust (Interview C.C., 14:05). Another reason can be found in the late start of the tendering process. Therefore, many potential partners are already fully booked, and it appeared that the remaining partners have a specific way of perceiving the project, especially in terms of modelling the expansion project (Interview C.A., 09:30; Interview C.B., 18:17).

Nevertheless, the level of trust has increased during the flow of the project. And the connecting strategy to consciously meet face-to-face in the beginning have shown to be effective in increasing trust (C.A., 10:19; C.C., 23:22). This is backed by a statement given by one of the interviewees from the broadband organization

that despite “played games and political stories [...]. That I really trust them [the partners] and know that they will do everything in the interest of the broadband organization.” (Interview C.A., 10:19) Therefore, the partners receive benefit of the doubt. However, despite the low level of trust between the partners, this seems to be a rather one-sided impression which nevertheless is likely to influence the success of the networks. To summarize the level of trust at a whole network is to be seen as critical since a great diversity was found. While 3,6 in the overall network is an average grade, the level of trust to the partners is with 3,3 the lowest grade of all projects.

Level of trust in the network: 3,6 Level of trust to the partners: 3,3

4.2.2.4 Project D

The overall level of trust in the network is perceived with 4 and the level of trust to the partners is perceived with 4 and therefore, both an average grade. An interesting fact nevertheless was, that the one of the interviewees wanted to differentiate between two partners when he was asked about the level of trust to its partners because of a perceived difference from 2 grades between the partners.²³

Asked about the level of trust, all partners answered that they see the level of trust is normal to good. The only difficulty within the network is the perception of trust between project managers and superior persons from other partners because of the financial interest and political importance for the project and the resulting sensitivity. Reports of every conversation between such relations have been named as example for a missing level of trust. Important to mention is, that this affects not the project manager but, as already stated the higher levels (Interview D.A., 17:10). The same reason was mentioned by another interviewee, stating that “it cannot be an unconditional five because one can never exclude the possibility of individual interest which may be thought in the background, [...] have influence... which are actually not part of the project.” (Interview D.B., 08:27)

Measurements which are aimed at increasing the trust have not been taken besides conscious face-to-face meetings in the starting period of the network (Interview D.A., 4:03). One interviewee stated that special measurements to increase the trust are not necessary (Interview D.B., 07:48). However, the level of trust was described as a growing construct that has developed over time and is resilient towards sudden departures of representatives of partners since the relation and the linked level of trust does not only include the person but the whole company or department behind the person (Interview D. B., 09:08). Therefore, it was no problem when one crucial personal member of the network left the network and one already participating person took over his task (Interview D.A., 01:47).

In general, the level of trust in the network and the level of trust to the partners is to be seen as good. Despite missing activities to increase the trust, every interviewee sees the trust on an average to high level. In addition, the actors are aware about individual interests of actors and therefore, do have a “healthy” mistrust towards their partners in form of protocols over meetings.

²³ The given decided grades were 3 and 5. The grade which was chosen for the average was 4.

4.2.3 Managerial strategies

The following sub-chapter is written to show the results of the indicators related to the managerial strategies. In contrast to the above sub-chapter, each indicator will be displayed alone, and a summary will be given at the end of each sub-chapter. The results will be shown in tables.

4.2.3.1 Process Agreements

The indicator *Process agreements* looks into whether “a temporary set of rules for interaction that structure the interactions” (Klijn, Steijn & Edelenbos, 2010: 1070) has been applied within the network. This can be the number of perceived rules to guide the interactions, decision-making, or the utilization of information such as entrance and exit rules, rules to settle conflicts, or communication. In contrast to the degree of brokered the indicator looks into the actual measurements taken, whether the interviewees perceive them as positive or negative, and how many rules are applied. Therefore, process agreements do not need to be fixed and can be informal rules within a set of formal rules. It is therefore a more intimate evaluation of informal and formal rules.

Network	Strategies found	Given grade
Network A	<ul style="list-style-type: none"> - Open decision-making process with dialogue - Escalation chain - Cloud-solution for data exchange (no specific agreement) 	++
Network B	<ul style="list-style-type: none"> - Open decision-making process with dialogue - RASCI-Matrix for task organization - Information are shared (no specific agreement) 	++
Network C	<ul style="list-style-type: none"> - No clear decision-making process within the steering group, broadband-organization usually takes the decision - Clear assignation of organizational tasks - Cloud-solution for data exchange (no specific agreement) 	+
Network D	<ul style="list-style-type: none"> - Open decision-making process with dialogue, last decision is taken by broadband-company - Information are shared - Clear assignation of organizational tasks - Implementation of cloud-solution is planned 	+++

Table 4: Results Process Agreements

The findings show that the overall number of strategies which can be categorized as process agreements is high. However, especially network C misses a clear strategy for decision-making within the steering group which is the central body for the network expansion. However, most network applied strategies for decision-making which is mainly defined as an open strategy were decisions are made after a process of dialogue and after due deliberation. Nevertheless, the right for the final decisions remains within the administration or broadband organization/company. Furthermore, information are shared within the partners, however mostly the networks are missing clear agreements about how information are shared and used. However, this seems not to be a drawback for the network.

The missing way of making decision within network C is the reason the network was graded with only one + due to the major importance the decision-making emphasized in the theoretical framework (Klijn & Koppenkan, 2016). The reason why network D has been graded the highest is to find in fact, that the network applies a strategy with clear assignation of tasks between the partners, including organizational tasks and shared responsibility for meetings. In contrast to this, the other networks miss either the clear assignation of organizational tasks (network A) or the planned or actual implementation of a digital solution for data and information exchange (network B).

4.2.3.2 Exploring content

Exploring content refers to the perceived quality of the network to manage the diverse actors. It looks into the goal congruency within the network or how the networks deal with conflicts and issues between the actors. As such, the focus will be on measurements related to the ability of the network to manage its diverse actors. Statements of interest are about whether different opinions and perceptions are considered, if the network has a high goal congruency, or if issues have been solved in a sustainable way.

Network	Strategies found	Given grade
Network A	<ul style="list-style-type: none"> - Open communication about individual goals but misses coordination of the same - Modeling of possible solutions for disagreements to find compromise in a dialogue 	++
Network B	<ul style="list-style-type: none"> - Issues are solved in dialogue - Individual goals have not been discussed - Strategy to minimize diverse opinion by keeping the number of partners as low as possible - Verbal consent for decision-making to decrease workload 	++
Network C	<ul style="list-style-type: none"> - Right for final decision is used as a way to avoid conflicts between partners - Individual goals have been discussed, however that was merely random rather than a conscious measurement 	++
Network D	<ul style="list-style-type: none"> - Issues are discussed, and the final decision is taken by the broadband company - Individual goals are implemented into network goals - Official definition of a common network goal 	+++

Table 5: Results Exploring content

The results show that especially the coordination and conscious inclusion of individual goals with the overall goal is of greater importance and the reason for the different scores the network achieved. While the network A has an excellent strategy to solve issues between the partners, the network lacks a clear strategy to implement and to coordinate individual goals. However, this applies for network B too but in contrast to network A, network B successfully uses a strategy to avoid workload. Network C in contrast uses the right of the final decision to avoid conflicts, the managing actor is rather gathering information from its partners and takes the decision after a due deliberation but nevertheless, the network misses a clear strategy to align goals. The only network that scored +++ is network D for the reasons of successfully applying a strategy to avoid conflicts through dialogues over issues and the conscious measurement of formulating a common goal of the network by including individual goals into the common goal. Therefore, the network receives the highest score.

4.2.3.3 Arranging

The indicator arranging looks into the ability of the network to be organized and managed. Therefore, the findings include statements about how the organizational arrangements develop and how this development is perceived. This can be either forms of meetings, project groups, or measurements taking to organize the networks.

Network	Strategies found	Given grade
Network A	<ul style="list-style-type: none"> - Open strategy for meetings - Digital solutions for meetings to avoid travelling and for data exchange - Ad-hoc meetings are possible, dates are flexible 	+++
Network B	<ul style="list-style-type: none"> - Fixed schedule of meetings (every 14 days) - RASCI-Matrix - Ad-hoc meetings are possible 	++
Network C	<ul style="list-style-type: none"> - Fixed schedule of meetings (every 14 days) - Jour-fix as necessary (introduced by partners) 	++
Network D	<ul style="list-style-type: none"> - Fixed regular meetings with changing host and agenda responsibility - Partners are expected to take initiatives for meetings 	++

Table 6: Results Arranging

It becomes obvious that the major difference between network A and the other three networks is the regularity and consistency of meetings. Since network A is the only network to not use regular meetings but rather summons meetings if the necessity of meetings occurs, the network shows a great capacity of being organized what differentiates the network from the other networks with fixed schedules. Furthermore, the open strategy to only include these partners in the meetings which are actually affected by the topic and allowing every partner to summon a meeting is an asset of the network strategies to arrange the network.

4.2.3.4 Connecting

Connecting refers to the networks strategies to start with the project, to guide interactions and to mobilize resources. The indicator therefore looks into the interactions between the actors. The strategies need to be analyzed considering the tendering process from which the networks emerged. This means, that most of the connecting strategies which can be used in other networks are not applicable in the networks which have been analyzed in this master thesis. However, some strategies have been found.

Network	Strategies found	Given grade
Network A	<ul style="list-style-type: none"> - Deliberately planned introducing meetings - First meetings scheduled face-to-face 	++
Network B	-	-
Network C	<ul style="list-style-type: none"> - First meetings scheduled face-to-face - Network miss partner from the public administration 	+
Network D	<ul style="list-style-type: none"> - First meetings scheduled face-to-face - Interdisciplinary teams - Official definition of a common network goal 	+++

Table 7: Results for Connecting

The first thing to be noticed is that network B did not apply any strategies to connect the network while the other network successfully applied several strategies. Most of the strategies include conscious face-to-face meetings at the start of the collaboration in order to get to know each other better and to establish a smooth working relation. In contrast to network A and C, network D tried to align the goal after the tendering process

by including a common goal definition into the kick-off event. Thereby, creating a high goal congruency through a strategy of connecting.

A explanation why network B did not apply any strategy can be found in the fact that the network mainly consist of two major actor with other actors around them. Network C received only a low grade due to the perception of some interviewees that partners from the administrative side are something missing, thereby stating that connecting strategies have not successful been applied to a high grade.

4.2.4 Perceived outcomes

The following sub-chapter focuses on the perceived outcomes as results from the interviews. The perceived outcomes by Klijn and Koppenjan (2016) are extend with the level of trust which is of great importance research has shown (Edelenbos & Klijn, 2007; Klijn et al., 2015; Provan, Huang, & Milward, 2009).

Beginning with the trust, the chapter follows the three types of perceived outcomes, cognitive learning, strategic learning, and institutional learning.

4.2.4.1 Cognitive learning

The perceived outcome of cognitive learning is related to the “alignment of perceptions, [and] the enrichment of solutions pursued” (Klijn & Koppenjan, 2016: 247). The fact that all projects emerged out of tendering process, in which an overall goal and the way to achieve this goal have been clarified, affects the cognitive learning too. The outcome of cognitive learning was analyzed through question over the perceived congruency of the own goals with the network goal and the input of actors to agreed solutions for problems and network collaboration.

Network	Outcomes found	Given grade
Network A	<ul style="list-style-type: none"> - Moderate grade of alignment of perceptions and goals - Partners are seen as valuable addition - Increased quality of decisions through different perceptions - Equal share of benefits 	+++
Network B	<ul style="list-style-type: none"> - Moderate alignment of perceptions and goals - Little awareness about individual goals of the partners - Partners are seen as valuable addition - Increased quality of decisions through different perceptions - Equal share of benefits 	++
Network C	<ul style="list-style-type: none"> - Moderate grade of alignment of goals - Increased quality of decisions through different perceptions - Share of benefits are not always perceived as equal 	++
Network D	<ul style="list-style-type: none"> - High grade of alignment of perceptions and goals - Partners are seen as valuable addition - Increased quality of decisions through different perceptions - Equal share of benefits 	+++

Table 8: Results Cognitive learning

As seen in the table, the average score of cognitive learning is high. The reason why network B and network C scored below the other two networks is because of the little awareness about the partners individual goals, which have not been discussed after the tendering process in network B and the not equally perceived share of benefits in network C. Especially the open discussion about individual goals and their implementation in

network A and the common goal definition of network B have shown an impact in the perceived outcome cognitive learning by these two networks. Therefore, they are score the best grade. However, all network registered that the quality which have been taken by the network experienced an increase in quality as a direct result from the different interacting partners. Therefore, especially the alignment of goals and perception received a higher weight than the enrichment of solutions through the partners.

4.2.4.2 Strategic learning

Strategic learning as perceived outcome looks into whether the actors are aware about the interdependency within the network (Klijn & Koppenjan, 2016). Like cognitive learning this outcome has to be considered in the light of the external framework of European legislation for public projects and in this case administrative technical capabilities of the county. Hence none of the counties has its own engineers with the required expertise nor the financial funds or mechanical machinery to conduct such a project. The same applies for the companies²⁴ which are unable to conduct the such projects without the network. One interviewee described the necessity for such networks as *conditio sine qua non* (Interview A.C., 17:30) which says it all. Nevertheless, being dependent on someone and being aware about the independency is not the same and thus, worth being measured.

Therefore, the outcome of strategic learning has been analyzing by asking question about why a network structure was chosen, what are the benefits from such a structure for the project, and how the interdependency between the actors is perceived by the partners.

Network	Outcomes found	Given grade
Network A	<ul style="list-style-type: none"> - High awareness about interdependency, especially technological - Project structure is perceived as beneficial - Different expertise is biggest benefit from partners 	+++
Network B	<ul style="list-style-type: none"> - High awareness about interdependency (time-wise and volume-wise) - Different expertise is biggest benefit from partners - Project structure is seen as moderately beneficial 	++
Network C	<ul style="list-style-type: none"> - Moderate awareness about interdependency - Different expertise is biggest benefit from partners - Project structure is perceived as beneficial 	++
Network D	<ul style="list-style-type: none"> - High awareness about interdependency (time-wise and volume-wise) - Different expertise is biggest benefit from partners - Project structure is perceived as beneficial 	+++

Table 9: Results Strategic learning

The scores of strategic learnings are similar to the scores of cognitive learnings This is because of the successful creation of a higher awareness within the partners over their interdependencies. The two networks which score moderate did this because of only little awareness (network B) or because the network structure does not have shown the expected impact on the project (network C) which can be traced back to missing actors in the network. However, crucial for the outcome of strategic learning was the increased awareness about the interdependency between the partners and whether the structure is seen as beneficial. The reason to decide for such a structure is found in the different expertise of the partner in every case.

²⁴ Whit the exception of one project partner in project A

4.2.4.3 Institutional learning

Institutional learning is probably the outcome which can be analyzed in the most direct way as it looks into “[t]he degree to which parties in policy games have developed enduring relations, joint perceptions, institutional rules [to] support their interactions in ongoing and future games.” (Klijn & Koppenjan, 2016: 253) Hence, it aims at analyzing the quality of relations among the network partners. Therefore, question have been asked about increased frequency, improved and simplified relationships or, institutionalized settings or processes.

Network	Outcomes found	Given grade
Network A	<ul style="list-style-type: none"> - Moderate increase of exchange - Improved personal relationships - No standards developed 	++
Network B	<ul style="list-style-type: none"> - Moderate increased of exchange - Improved personal relationships - No standards developed 	++
Network C	<ul style="list-style-type: none"> - Moderate increase of exchange - Improved personal relationships - Standards have been developed 	+++
Network D	<ul style="list-style-type: none"> - No increase of exchange - Improved personal relationships - Standards have been developed 	++

The table speaks for itself, the only network which scored high in institutional learning is the network C because of its increased frequency and developed standard. However, every network improved the relationship between the actors even if (network A, network B, and network D) the discussed topics became more complex and therefore, the contact itself did not become easier. Furthermore, two out of four networks have developed standards from inside the network and only network D did not notice an increased frequency of contact. Thus, the institutional outcomes are dominated by the improved relationship.

4.3 Discussion of the results

In this chapter, the results of the analysis will be showcased, and the research questions will be answered.

Indicator	Project A	Project B	Project C	Project B
Network Structure				
Mode of Governing	Shared Governance	Shared Governance	Lead Organization	Lead Organization
Degree of Brokered	++	+++	+	+
Managerial Strategies				
Process Agreements	++	++	+	+++
Exploring Content	++	++	++	+++
Arranging	+++	++	+	++
Connecting	++	-	+	+++
Trust				
Trust in network	3,5	5	3,6	4
Trust in partner	3,5	5	3,3	4

Perceived Outcomes				
Cognitive learning	+++	++	++	+++
Strategic learning	+++	++	++	+++
Institutional learning	++	++	+++	++

Table 10: Showcasing of results

The results show no significant overall difference between the different modes of governing and how they are perceived in term of outcomes. Nevertheless, a variety of results is given what gives meaning to the research. The variety will be explained below.

Since research question 1 has already been answered with the chapter 4.1, the following chapter will answer the attached sub-research questions 1a-1d before research question two and three will follow. In the end, the three theoretical expectation which have been extracted from the literature will discussed.

Research question 1a is “*What are the actors and how does their interdependency look like?*”. To answer this question, one has to look into the results from the chapter 4.1.1-4.1.4. as well as 4.2.1.1 to 4.2.1.4. All networks have several actors. All include a minimum of a civil engineering contractor, a provider, and representatives of the public side, either from the administration or from a company or organization. Knowledge about the interdependency was won through the perceived outcome of strategic learning. All actors recognized a certain degree of interdependency. However, the interdependency is of a practical matter. While the partners from the private economy are dependent on the funds and the project itself, the public side relies heavily on the expertise and technological know-how of the partner.

The second sub-question whether the frequency of contact did increase over time is a bit more difficult to answer. Only network C has recognized an increased frequency of contact while A,B, and D registered an increased quality of contact only. Therefore, the question whether the contact has increased must be answer with “no but” since frequency of the contact depends on the phase the project is in to this specific moment. However, something that has been recognized during the research was, that even if the frequency did not increase the quality of contact increased. Thereby, more complex topics have been tackled with improved relationships rather than increased frequency of contact.

The third sub-question is how the structure of the networks can be characterized. In case of this research, the networks can be categorized as shared governance networks and lead-organizational networks. This is because of the assigned tasks, sharing of responsibility, and managerial efforts the relevant actors have or undertake.

Question 1D is about the perception of trust by the network participants. In general, the level of trust is high within all networks. The lowest score was 3,3 for the level of trust to the partners and the highest score 5. Looking at the overall level of trust in the network the lowest grade was 3,5 and the highest grade 5. Hence no network scored really low. However, in every network, the interviewees have shown that they are aware of the importance of trust and that the level of trust differ between partners. Furthermore, the source of trust within the networks is either the current collaboration or the benefit of the doubt due to the name or perception of the partners.

The second question is “*What managerial strategies are employed to sustain the network?*”. This is, where the specific settings of the networks come into action. It has shown that the used theory of Klijn and Koppenjan (2016) and their described managerial strategies within governance networks does not fully fit into a setting where a public authority or agency takes over tasks which usually belong to private companies and wins the partners through a tendering process. This is most visible considering the little results found for connecting

strategies and the fact that most of the decision are taken by the administrative side which only is consulted by the partners. This was the case in all four networks. However, the open dialogue of network A is nevertheless to be classified the same way since the administration takes the final decision. In addition, the total findings of managerial strategies remain rather low, due to the fact that most processes, settings, behavior, and measurements are contractual agreed upon during the tendering process. Nevertheless, managerial strategies were identified. All networks used strategies which have been classified as process agreements, these agreements involve the exchange of information, organization of meetings, protocols, and the usage of digital services for communication and data exchange.

Looking into the strategies applied to explore the content, most strategies are aimed at establishing relationships through meetings, coordination of goals, and establishing forms of dialogues to consult issues and problems as well as different perception between the partners. In one case, the network included an agreement about a common goal into the tendering process which has led to a high goal congruency within the network.

A number of arranging strategies have been identified too. Two major strategies are opposing each other, on one side meetings are summoned on a regular basis with fixed schedules and dates (network B, C, and D) which are mostly planned every 14 days. On the other side, meetings are summoned only if necessary (network A). In addition, spontaneous meetings are possible in every network. These meetings can be held via digital technologies in two of the networks (network A and D).

The number of connecting strategies found in the networks is low for the above described reasons. However, some strategies are applied. Most of the strategies include conscious face-to-face meetings in the beginning of the network or interdisciplinary and partner overriding teams.

Conclusively, most strategies which are applied focus on the organizational side of the network. The aim at creating a mutual understanding of the partners from the partners, try to create a common understanding of the goal to push everyone into one direction, or simply the exchange between the actors.

The third research question reads as follows *“What is the effect of structure, trust and managerial strategies, of the network on perceived outcomes?”*. The research question combines the other two research question in aiming at the outcomes. What we see from the outcomes is that all networks score good or very good in their participants perception. Therefore, a coherence between the structure of the network and the perceived outcomes can be denied. Looking into the impact of trust on the network, to answer this is a rather difficult endeavor. The difference of the networks is only 1,5 points, ranging from 3,5 as the lowest and 5 as the highest score, on the scale for the overall level of trust within the network and 1,7, ranging from lowest score 3,3 to the highest score 5, for the level trust between the partner. Hence, all networks scored good or very good in terms of trust within the network and to the partners. Therefore, the conclusion has to be made that it is not possible to state from this research that networks with little trust would score bad in perceived outcomes. It is rather only possible to state that networks with high trust score high in outcomes. Hence, the question requires further investigation in additional research.

If managerial strategies have an influence on the perceived outcomes can be answered with yes, they do have an influence on the perceived outcomes. The two networks with the lowest overall score in managerial strategies, network B and C score the lowest in terms of perceived outcomes too. However, the difference especially in terms of perceived outcomes is very tiny. Nevertheless, the perception that the reason being for the two networks with a higher grading in perceived outcomes is not possible to simply dismiss.

In conclusion, the effect of structure has to be denied, the effect of trust cannot be proven or be negated. In contrast to this, managerial strategies and perceived outcomes have shown a positive connection.

The three expectations of this theses read as the following one:

- Expectation 1: The form of a network will have influence on the managerial strategies and perceived outcomes.
- Expectation 2: Managerial strategies will have a greater influence on perceived outcomes, than network structure in the respective networks.
- Expectation 3: Trust will positively impact the perceived outcomes.

Expectation 1 has to be clearly answered with no, the form does not have any influence on the managerial strategies and on the perceived outcome. Therefore, the expectation is rejected.

Expectation two in contrast, is proven to be right. While form does not have any influence, managerial strategies are of influence on how the actors perceive the outcomes of their current network. The reason for this is given above.

The third expectations in contrast, cannot neither be denied, nor can the expectation be validated for the reason of having only positive results in terms of the level of trust in the network and within the partners. Therefore, the only statement possible is that networks with a high level of trust score good in perceived outcomes by the participants.

5 Conclusion

By asking the following major research question “*What is the influence of form and managerial strategies on perceived outcomes in networks settings within operator-model broadband expansion projects in rural Northern Germany?*” this thesis looks into the expansion of fast internet in rural Germany and thereby into one of the greatest present challenge of German administration. The expansion of the German broadband network has reached a critical turning-point. Especially the rural areas which are undersupplied with fast internet are challenged by the currently often very slow services and the sluggish expansion. A reason being is the market failure in these cases as the provider would not profit from establishing an expensive broadband network. Since the right on fast internet is going to be established in German law, the county’s and municipalities step into the breach to deliver the service with public funding. As experienced during the interviews and shown in the analyzes, this is a completely new subject to the administration which triggered an explosive political dynamic.

This thesis gave in insight into how governance networks in a pressing topic in Germany work, operate, and being managed. The goal of the thesis was it, to explore whether the topic is of further interest for future research and how the research should be constructed. To gain the insights, the research used qualitative interviews with participants of such broadband networks in order to understand the dynamics and relations inside the network.

To answer the major research question the results are important. The results show that the influence of form is not given while the influence of managerial strategies is given. This can be said because the number of applied managerial strategies show a positive connection with better perceived outcomes, a relation between the form of a network and how the network is perceived could not be proven in this research. Therefore, it is possible to state that managerial strategies have a positive influence on perceived outcome in governance networks in broadband expansion projects in rural Northern Germany.

Furthermore, the research has shown that the used theory of managerial strategies in governance networks by Klijn and Koppenjan (2016) does not perfectly suit the described settings of this network. It is mainly due to

the fact that the partners are bound by contracts which are the results of a Europe wide tendering process. These contracts are dominated by external rules and have to include many procedures and measurements which are often developed during the development phase of a network. Therefore, the occurrence of such strategies is very limited in the networks, the research focus upon. However, it was possible to retrieve strategies and perceived outcomes from the interviews and to conduct the research. The results of the research will be described below.

First of all, and most important, all analyzed networks had good (network B and C) and very good (network A and D) results, however a difference was measurable. The difference between the very good and the good group can be traced back to a higher number of applied managerial strategies (see table 4). These results were the findings from the conducted qualitative analyzes in order to extract knowledge from the data. Nevertheless, it was not possible to identify a “winning” strategy which would explain the difference. It was rather the overall application of more strategies within the network. However, networks which focused more on process agreements and on connecting strategies (despite the fact that only little evidence for connection strategies have been found) had a better performance than networks with little results in these two fields.

Secondly, in contrast to Provan and Kenis (2008) the form of a network has shown no influence upon the effectiveness of the network. The results show two different forms of networks, lead-organizational and shared governance networks. While one of each structure scored high in the perceived outcomes, one of each scored moderate in the perceived outcomes. The only significant relation between the form and the analyzed results is the degree of brokered. In shared governance networks, the degree of brokered was perceived and described as higher by the interviewees compared to the networks which have a lead-organizational structure. A possible reason for this could be, that in lead-organizational networks, most tasks remain within one actor while in shared governance networks the tasks and organizational capacity is shared among two or more partners. Therefore, the amount of written down rules and agreements are higher in order to organize the divided responsibility. However, the accountability remained within the administrative side or body in all four networks.

Thirdly, the influence of trust in the networks could not be analyzed. For the reason, that the network with the highest level of trust which was level 5 scored moderate in perceived outcome (project B), while the network with the lowest level of trust which was 3,5 scored high in perceived outcomes. One could assume that trust therefore, has no influence on the perceived outcomes. However, the difference of 1,5 levels at the highest is too small to reject the claim that a high level of trust has is a requirement for a high level of perceived outcomes. In addition, asked about the level of trust, most interviewees stated that the level of trust is characterized by a healthy and professional distance between the partners due to the knowledge about individual goals and objectives and the high financial amount involved rather than a genuine mistrust about the individual intentions and a possible harm to the network and its partners. Thus, most interviewees stated that they would describe the overall level of trust as in general good. An explanation could be that all partners are bound through a contract including contractual penalties. Therefore, every actor has already a high interest in not “betraying” its partner.

Lastly, to answer one of the main questions of this thesis, whether the influence of form and structure is to be classified as higher on network performance or the influence of applied managerial strategies, can be answered. The data gave evidence that the influence of applied managerial strategies within the network has an actual

influence on how the network participants perceived the performance of the network. In contrast, the form did not show any relation to how the participants perceive the networks performance.

6 Reflection and recommendations

This chapter will firstly reflect upon the research and finish with recommendations drawn from the analyzes for both, the respective networks as well as for future research.

The first thing to investigate when reflection upon a research is to look into the quality of data and case selection. Especially in qualitative research the comparability and external validity have to be discussed. In the case of this thesis it has to be said that, the overall comparableness with other cases is limited. This limitation comes firstly from the number of cases analyzed and secondly from the case selection.

The number of cases is mainly defined by external factors such as feasibility in this master thesis, the time given to write, the experience of the researcher, and the research goal. However, a smaller number of cases opens up other opportunities such as the possibility to conduct in-depth analysis or the chance to really “get into” the material and thus creating a broader understanding of the context and content. In the case of this research, the cases which have been selected have a major influence on how valid the research is and what recommendations can be drawn for other cases. The four analyzed cases have been chosen upon their willingness to cooperate. It therefore, is possible that only those cases agreed to support my research request which have an overall good atmosphere and make sufficient progress. In the results it has shown that no network comes off badly. Thus, it is questionable to what extent the results would be the same if the scope with have been extended and include projects with a negative atmosphere. But given the small number of actual projects which suited the research design and idea the number of four participating projects has to be seen as achievement due to the external influences.

Another important part of a reflection is to critical assess how the analyzes and comparison has been conducted. In the case of tis research, the projects have been graded with scores for every category and compared. This rather positivistic approach come with limitation since it forces the researcher to level the findings in order to compare them. By leveling findings and statements and putting them into relation with each other, the research possibly misses out individual meaning over processes and outcomes given by the interviewees. However, the method of comparing and giving scores opens up different opportunities especially in terms of validity and comparability.

Since the researcher experienced difficulties in finding projects which are open to support the research. After the number of projects were found, the researcher faced another issue.

Due to the described politized atmosphere the pressure on the network participants is immense. This has led to difficulties finding appointments with interviewees. In the end, the research found four projects and twelve interviewees for his thesis. With this number, a significant number was reached to validate the research.

During the research, it became apparent that the greatest challenge for the networks are often external national, federal, and European legislative acts, demanding a certain way of forming and constructing the network. The difficulties to satisfy of demands, requirements, and conditions for the federal and national state was a recurring topic during the interviews. Therefore, the greatest influence on the broadband expansion are external rules which hamper the work and progress. Additional research should investigate how the networks and administrations deal with such problems.

The thesis has therefore contributed to the research on governance networks and investigates a very new phenomena in the German public administration. The thesis is a network research, focusing on four projects.

With this research, groundwork was done for further investigation into the topic with a special focus on how administrative bodies organize and take over tasks which have been originally assigned to the private economy. Under the circumstances the analyzed networks have been formed and how they are influenced by external conditions and rules, all networks obtain good results. However, recommendation for the networks and for the future research can be extract from this research.

The recommendations for network A are the following one. While the network scored moderate or good in process agreements, arranging and connecting, the network scored low in applying strategies to explore the content. Especially the measurements to achieve goal congruency are to be seen as critical. The network should try to achieve a higher goal congruency, for example by defining a common goal within the network and thereby openly discuss individual goals. This is likely to have a positive impact on the level of trust too since the unclear individual goals were described as biggest obstacles for a higher level of trust. However, the research is fully aware of the circumstances that the network works with one of the biggest internet service and energy provider within Germany and therefore, the recommendation can be a tricky challenge.

For network B it looks different since the network scored moderate in every managerial strategy, except connecting, and every perceived outcome. The reason for this is to be found in the dualist structure with two major actors and peripheral actors on the boundaries of the network. All actors described the collaboration as pleasant and productive. The researcher's recommendation would be, even if the network is already working productive to discuss individual goals and to implement a digital solution for the sharing of information.

Network C is ahead of several challenges, firstly, they are in urgent need of an civil engineering contractor to an affordable price secondly, the project is detached from the county's administration and lastly, the project has difficulties to match national and federal funding requirements. While the first and the third challenge are difficult to overcome, the second challenge can be solved. The specific challenge is, to bring the county's administrative departments into the network. Especially those departments which have an influence on the project. Thereby, minimizing communication and information exchange problems. Furthermore, the network firstly, should implement a more flexible meeting culture in terms of how has to participate, and secondly officially agree upon rules especially within the body of experts. On the pro side of the network is the fact that the network has agreed upon a cloud-solution to share and distribute information and data.

Network D has the highest score from all networks in managerial strategies and perceived outcomes. However, the network is missing a cloud-solution. Therefore, the researcher would highly recommend implementing such a solution for the exchange of information and data. In addition, the density of meetings is the highest from all networks and has been described as inflexible.²⁵

Recommendations towards the scientific world have been made too. First of all, the framework about managerial strategies by Klijn and Koppenjan (2016) should be adapted for such networks who emerge from tendering processes. The reason being is that most of the rules regarding communication, hierarchy, information exchange, accountability, research for data, usage of funds, implementation of the working structure among others, are usually predetermined leaving little leverage for the networks to establish own

²⁵ The network shows great flexibility for spontaneous meetings, however the high number of meetings in different settings could be reduced as it is seen as sometimes very time-consuming.

linkages and rules. Especially connecting strategies are difficult to connect to such networks as it has shown during this research. An additional strategy should include a strategy to measure how the network cope with all the regulations and external influences upon the network.

Secondly, the way how trust was researched during this thesis did not bring any results due to the reason that every network established a good or high level of trust. This can be either because of pure coincidence that all networks indeed have such good relationships, or it is due to wrong approach how trust was researched in the thesis. However future research should re-evaluate the way trust was assessed here.

An additional recommendation is given to the meaning of increased frequency. It has shown that the increase of frequency makes a difference in the perceived outcome of institutional learning (see sub-chapter 4.2.4.3) based on the logical conclusion that if the collaboration between the partners improve, their frequency of contact has to improve too. This is because the professionals are rather willing to contact a partner if they get along with them on a good personal or professional base. However, this seems to be a false conclusion, at least in this research, since most of the interviewees responded that the frequency remained the same because of higher problem-solving capacity of the relationship due to their increased quality. Therefore, the meaning of increased frequency in this research should be rethought for future research.

7 References

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Appendix

Analyzes

Process agreements

Project A

As described above, the network is dominated by external rules and has a moderate density of rules including rules about communication and collaboration. One of the most important agreements affects the decision-making process. Simplified, one can describe the decision-making process as the following one. The partners discuss a matter and a decision is reached in a dialogue. This decision if she affects the overall plan, funds, or other topics of major interests are is submitted to the funding municipalities which have the final saying.

While the way of decision towards the municipalities are of less interest, the decision-making process between the network partners is the one to focus on. All four interviewees stated that everyone is included in decision relating to the structure and organization. The two interviewees from the private economy stated that the network has a distinct way of making decision, the two interviewees from the public side did not. Nevertheless, asked about how the network reaches a decision, all stated that that the usual way would be in dialogue. Interviewee A.B. describes the process in the following way:

“[T]he decision are usually reached in a dialogue. That means, we make recommendations, these recommendations are going to be discussed together, reviewed and we try to find [...] a consensus.”
(Interview A.B., 05:33)

Thus, despite the perception of the interviewees from the administration, the technical and organizational questions are reached by dialogue. This has been a part of the contracts too according to interviewee A.A. and A.B.. In case of disagreement or a conflict the power of last decision remains in the hand of the administration or within the municipalities. Therefore, explicit rules regarding a situation of escalation are in place.

Looking into the rules for the usage of information, any necessary and available information can be used by all the network partners but specific rules to support this are not in place. However, no interviewee experienced that any information are kept back and only if a research or decision does not affect a partner, he will not have any access (Interview A.A., 03:05).

Any further process agreements have not been fund during the research.

Therefore, the network has a moderate number of strategies which can be categorized as process agreements.

Process agreements: ++

Project B

The network B consists of less actors than the other projects. However, the network has strict rules based on contracts too. This is necessary due to the external reasons described in sub-chapter 4.2.2.1.1 which apply for this network too. Therefore, most rules are determined by external factors. In addition, the network agreed upon rules over communication and processes. Both interviewees stated that they were involved in decisions

over processes. Furthermore, both stated that the network has an explicit way of taking decision as the right for the final decision is anchored within the administration (Interview B.B., 06:17). Decision are found in a dialogue between the actors within the possible framework and the process is described as open with every actor is willing to compromise (Interview B.A., 04:54; Interview B.B., 21:5). During such meetings, protocols are written by both sides and exchanged later, as a way of dispelling the likelihood of misunderstandings (Interview B.A., 14:53).

Besides agreements about the communication, the network itself established a number of rules to organize the process. Interviewee B.B. stated that the network “has a list of tasks [...], to make clear who works on each side in which bodies with what topics. [...] practically we are working with a RASCI-matrix which [assigns] principal, person in charge, support staff.” (21:05) This shows, that the execution of the project is deeply organized with the help of project-management methods. Information which has been collected are generally open to any actor (Interview B.A., 04:14; Interview B.B., 05:27; 04:54). An escalation chain is not in place (B.B., 06:11).

The density of rules, especially in terms of project execution and the implementation of the construction phase is high, but the perceived number of rules remain low. The reason for this can be found in the fact that the contracts include rules and the network agreed upon other rules, but nevertheless the decision-making process and the administration as funding partner are open to convincing advises (Interview B.B., 07:48). Therefore, the number of temporary agreed rules is perceived as moderate and not very pressing.

Process agreements: ++

Project C

Like the other networks, the project C is dominated by external rules and policies. Most of the rules which are applied are based on national legislation such as the tendering process or rules affecting the form of the association and its settings. Nevertheless, specific rules are applied within the network. While the broadband organizations take most of the decision, they receive recommendations for actions by their partners. Decision of greater importance or financial volume are taken by the broadband organizations and its members only while specific technology related questions are discussed within the group of specialists (Interview C.C., 07:05). All actors had the feeling that the decision-making process is a rather open and that everyone had the chance to participate in decisions affecting work and structure of the network (see questionnaire). A clear and agreed way of decision-making is part of the associations but not for decision made between the group of specialists which are actively working on the physical implementation of the network (Interview C.B., 10:38). Looking into the procession and sharing of information, all actors stated that they are free to use for everyone who needs to have access. In addition, the information's are shared through a cloud-system with access for everyone (Interview C.A., 06:37; Interview C.B., 11:14; Interview C.C., 07:56). However, most of these rules are not agreed upon but rather an unspecific feeling. Therefore, the number of process agreements is to be categorized as low.

Process agreements: +

Project D

Despite the different settings for meetings, more rules are applied within the networks D such as rules over decision-making, the usage of information, or the inclusion of additional partners. First of all, it is important

to mention that most of the decision-making process is contractually governed. Only if a situation has not been foreseen a discussion over the procedure would be suggested and if the discussion between the partners shows no convincing end the matter will be re-negotiated and added into the contracts (Interview D.B., 06:05). Like the projects A, B, and C, additional rules about reporting, usage of funds, and the scope of the project are determined by external factors (Interview D.A., 06:17; Interview D.B., 18:35). In addition to the decision made within the network, a clear separation is made which decision can be taken by the broadband company and which decision have to be forwarded to the political level. These rules are part of the federal corporate law in Germany (Interview D.C., 04:32).

A clear agreement has been made between all partners about the sequence of meetings and the settings they are organized in. “For every meeting we have a responsible organizer. If we agree upon a new round [of the meeting] we automatic agree upon who will summon the round. This includes hosting, agenda, etc.” (Interview D.B., 03:59) The decision whether an additional meeting is required or not are taken in dialogue. One interviewee stated that different opinions and perceptions yet have only been visible in smaller decision regarding a single connection with the grid etc. and therefore conflicting discussion did not appear on a large scale (Interview D.A., 10:28). This is backed by the findings of the questionnaire since every taken decision and solution is supported by every actor (see questionnaire).

Information, gathered by the network participants are equally shared (Interview D.A., 09:36) and the network is eager to implement a solution for a joint digital exchange of data (Interview D.B., 15:09).

To sum this up, especially for the decision-making the number of rules is high with clear commands while other process agreements such as a digital exchange of information are in progress.

Process agreements: +++

Exploring content

Project A

The network of project A consists of two central actors with several actors around them. Therefore, a diversity of perceptions and goals is to be expected. Asked about whether the network has talked about individual goals three out of four actors stated that they have talked indeed about goals and that the opinion of all actors is considered as valuable. Furthermore, during the interviews it became apparent that every interviewed actor is aware of different individual goals and perceptions from the other actors.

Goal congruency has been reached on one hand during the tendering process, on the other hand by the already described way of open communication²⁶ as the interviewees commonly stated that most issues are solved in a dialogue. Particular one quote by interviewee A.A. is representative for this. “The goals have meet and have [...] pounded each other and we have agreed upon a common goal. Or as it says [...] a common new goal or a compromise from both.” (Interview A.A., 14:08) Supporting this, interviewee A.B. stated that in case of disagreement on a technical question, the partners have modeled the possible solutions within two small areas

²⁶ See sub-chapter 4.2.2.1

to compare the results and to find a compromise (07:59). Nevertheless, only two out of four interviewees stated that goals have been coordinated. This inconsistency can be explained through the fact, that no official measurement was conducted to coordinate the goals. The goal congruency was rather achieved through an open dialogue and alongside the whole project processes, but it remains often unclear if the goals have really been met (Interview A.B., 09:22).

Facing the perceived ability of solving issues three out of four interviewees stated, that every problem was solved in a sustainable manner. The fourth interviewee related the question to a technical problem, which was induced by external circumstances and cannot be solved in a sustainable manner.²⁷ A described issues that appeared during the network includes a transfer of data, which was rather a misunderstanding than an encounter of perceptions or goals. The problem was solved in a dialogue too which included higher levels, which shows a good ability to solve problems (Interview A.A, 23:55; Interview A.B., 33:02).

Regarding the collection of information, all necessary information which need to be shared are placed in a cloud-system with access rights to every actor (Interview A.B., 06:17; Interview A.D., 05:52).

In addition, the network established an escalation chain which is activated in case of an intractable problem. Nevertheless, and despite the ability to solve issues, to take the different positions into account, and to share information. Only little strategies can be identified. One of the strategies is the measurement to solve technical issues through modifying solutions on a small scale, another one would be the escalation chain. But managerial strategies to align individual goals and solve issues on an agreed way are not in place. Therefore, the strategies to explore the content are classified as low.

Exploring content: ++

Project B

Due to the limited number of actors within the network, a lesser diversity of opinions was expected and has proven. Since both major actors stated that the opinion and standpoints of all actors are taking into consideration when deciding and all solutions are supported and perceived as sustainable by all actors the action taken to achieve such a conformity have been successful. To achieve this, the network mainly tried to solve issues or diverse opinion in a dialogue. In one case different perceptions over the best way to solve a technical question appeared. The issue was solved after the actors “have talked about [the possible solutions] and we have been convinced that this is the best solution.” (Interview B.A., 18:29) This is backed by the questionnaire in which all interviewees stated that all problems have been solved in a sustainable way.

While in the questionnaire both interviewees stated that every actor can openly talk about its individual goal and that measurement have been taken to align these goals, the interviewee B.A. (08:57) stated that he is not aware of the individual goals of the partners and interviewee B.B. stated that every actor does have an own economical goal (13:44). But both actors stated that their perception is, that the individual goals, without being discussed are favoring the overall network goal (Interview B.A., 08:57; Interview B.B., 06:40). Interviewee B.A. even goes as far as stating “that everyone for himself has his own ideas submitted under the common goal. Everyone really up their sleeves and pulls into the same direction (Interview B.A., 10:15).”

With the conscious approach to give out a task to one actor, which is in other networks assigned to several actors, the network attempted to decrease the diversity of actors.

²⁷ Due to confidentially agreements, the problem cannot be further explained.

“I have one contact person, not three, we don’t have a problem with communication between three actors. When you have one who plans, one who builds and one who runs the network, and if something does not work out, you have everyone telling you who is to blame, in particular he is not. [...] Thus, we avoid these communication channels and the problems that come along with that because we only have one who is responsible for that. [...] And if he wants to operate it, he has an interest that he has a good planning [...] and he needs to manage the construction work. I want to say that it does not help him to have trashy construction work.” (Interview B.A., 11:26)

In order to avoid other cumbersome guidelines, the network established a way of working on verbal consent, thus many decisions are taken after a short notice (Interview B.A., 09:33).

Strategies that can be categorized under the indicator of exploring content are in place. The most obvious strategic move is the attempt to decrease the number of actors involved in the project and to distribute the responsibility across two shoulders. Therefore, smaller numbers of diverse opinions and perceptions occurred. Since the network consists out of two major actors and the working relations is described as prosperous, the strategy was successful. To deal with the remaining diversity in the project, all actors have shown openness for convincing arguments. Hence issues are dealt with in dialogue. A specific strategy to align the individual goals was not in place. Therefore, the number of strategies which can be categorized as exploring content strategies is moderate.

Exploring content: ++

Project C

All actors in the network feel that everyone is included in decision regarding the organization and procedures (see questionnaire) and therefore, the decision-making process is to be seen as open. However, the last decisions are made by the broadband organization. Interviewee C.C. stated that he has the impression, that most of the time the advises and recommendations given by the partners are taken into consideration during the process (07:05). Nevertheless, the interviewee stated that in case of disagreements the organizations is likely to “just” take a decision (Interview C.C., 10:22). On the first sight, this can be interpreted as if the organization would be reluctant to discussion but including the results from the questionnaire into the findings the interpretation proves wrong as everyone stated that all decisions are supported by every actor (see questionnaire). It is rather to be seen as a way of avoiding conflicts and between the partners with the help of the decisional power of the broadband organization. But only one interviewee stated that all problems have been solved in a sustainable way. The reason being for this are problems with some of the district’s administrative departments which are fringe parties in the network but have a great impact (Interview C.A., 22:37; Interview C.C., 30:58). In addition to this, the network is in desperate search of a civil engineering contractor and the search “has gone as far as frustration occurred, and we thought ‘what are we going to do now?’ But until now, every problem has been solved, and I see this last problem as solvable too.” (Interview C.C., 12:08)

In general, the network opted for including the individual goals into the network, as stated by two of the interviewees, while on interviewee stressed that individual goals are not existing next to the network goal (see questionnaire). Furthermore, opportunities to talk about individual goals on the side of the private partners

have not been consciously created while the goals of the participating municipalities are discussed regularly (Interview C.B., 29:50).

To improve the exchange and gathering of information the network has implemented a cloud-solution (Interview C.A., 06:37; Interview C.B., 11:14; Interview C.C., 07:56).

To summarize, the interviewees have proven the network a great capability of solving and handling issues, despite the issues occurring with the district's department. Individual goals, if existing, have managed in a good way and necessary information are shared through a cloud-system. In addition, the right of the broadband organization, to take final decision is categorized as a strategy to avoid the upcoming of issues between the partners. Nevertheless, the networks strategies to explore the content are to be categorized as moderate.

Exploring content: ++

Project D

Hence the network consists of a large number of different actors' diverse goals and perceptions are to be expected according to the theory. Since the decisional power is clarified in the project the decision-taker, which is the head of the broadband organization, is open for advises and consultation. Interviewee D.A. stated that "we have a fixed meeting which takes usually four to five hours. The right of the final word has the broadband organization, but they like to be consulted. Therefore, we have always come to the right decision." (11:22). This shows, that despite clear hierarchies which result from the decision-making process, the final decision-taker is including the knowledge of the partner into the decision and thereby managing their diverse input. In the case of a conflict every actor will be asked about its position on the matter and a solution will be discussed. Only if no clear solution is found, the broadband organizations enters new contractual negotiations with the partners (interview D.A., 11:22; Interview D.B., 06:29).

Gathered information even if only step-by-step are, if necessary, shared. A tool to simplify the sharing has yet not been developed by the network. Nevertheless, every actor stated that information a broadly shared. The driving force behind the sharing is the necessity for the project progress rather than agreements (Interview D.A., 09:36).

The first and most important part to achieve a high goal congruency has been reached, like the other networks, through the tendering process and the in this included negotiation (Interview D.B., 10:22). One of the partners wanted to connect the expansion of the broadband network with a partially expansion of the energy grid (Interview D.A., 19:04). This was approved by the other partners which shows a high flexibility of the resulting partners in adjusting their goals with other goals. In addition, the actors are aware of individual goals and perception (Interview D.A., 17:26; Interview D.B., 10:22). This is backed by the results of the questionnaire, where all three interviewees stated that individual goals have been discussed within the network and that the individual goals have been coordinated and matched throughout the project (see questionnaire). The network even included an official definition of the goals in the tendering process (see questionnaire).

The results show that strategies to explore the content are in place. Most of them happened during the tendering process but several remain. For example, information sharing, different perceptions are considered when taken decision, and individual goals are acknowledged and integrated into the major goal. Therefore, the strategies used to explore the content are categorized as high especially due to the agreement of a common goal.

Exploring content: +++

Arranging

Project A

Ask about a distinctive rules and measurements to arrange within the network interviewee A.A. stated that

“in the beginning, [the network] thought about regular exchange meetings. Now the exchange [...] has changed to a topic-oriented exchange. Yet, it’s up to decision when it would make sense to have another meeting instead of regular exchange.” (Interviewee A.A., 15:53)

This quote gives great insights into how the network organized itself. Hence meetings are not organized on a regular basis but rather when they are necessary. The meetings usually involve every partner who is affected by the question (A.D.: 22:39). This is supported by a statement from Interview A.C. saying that if questions appear, it is possible to organize ad-hoc conference calls (07:39). Furthermore, all interviewees stated that the network has undertaken measurements to improve the network such as cloud-systems (A.B., 06:17) to simplify the data exchange, Skype or WebEx (A.B., 23:02) and that the network is open to invite external partners if a complex or very specific challenge appears which cannot be solved by the partners itself.

The findings show, that the network tries to avoid additional workload through unnecessary meetings as meetings are only summoned with the necessary people and if they are necessary. Furthermore, the meetings can be summoned by several partners which shows that the network has a high capability of being arranged. Therefore, the strategy of avoiding meetings is a strategy to increase working time and efficiency. Hence meetings can be held via digital technologies and that external partners are included if necessary shows that the network is pursuing an open strategy. Both strategies, the reduction of workload through minimizing the number of meetings and the open strategy have proven to be successful. Especially since the work of the network as a whole is very much influenced by external factors such as regulations about the actual construction work, the tendering process, the planning, or even the financial funds.

Thus, the number of strategies which are applied in the network to arrange the very same is to be seen as high.

Arranging: +++

Project B

The network has scheduled meetings every 14 days, but also daily meetings have occurred, besides this, both interviewees stated that the network is able to meet spontaneously in case of urgent needs, a tool used to help with such spontaneous meetings is the internet service Doodle. (e.g. Interview B.A., 03:36; 13:51).

To execute the work the network established the already introduced RASCI-Matrix²⁸, in addition to this, a project group have been created within the administrative body to execute the project (Interview B.A., 12:49). The benefit of a smaller network comes to fruition here, as it enables the network to very spontaneous meetings and therefore a good capability to organize itself. While specific strategies have not been named or explained for such spontaneous meetings, the network uses strategies from project management to organize the roll-out. Nevertheless, the network uses only a moderate number of arranging strategies, due to the small number of actors.

Arranging: ++

Project C

The steering group of the network has scheduled meetings every 14 days and the executive board of the broadband associations has a minimum of two meetings per year. In addition to these meetings, a jour-fix has been established which is summoned on operational basis (Interview C.A., 03:25). The idea for the jour-fix was brought into the network through a partner from the private side. This shows that the overall network is open for inquiries from every side and partner (C.B., 26:11). In general, every actor in the network is attested with good collaborative capacity, seen as useful addition to the network. However, frustration have occurred towards the district departments and over the difficulties to find a civil engineering contractor (Interview C.C., 11:19). In addition, critics have been expressed about a missing flexibility of the networks structure as every actor is participating in every steering group meeting, even though they are not affected discussed topic (Interview C.C., 32:38).

The network shows capabilities of establishing new forms of meetings like the jour-fix but proved to be inflexible when it comes to who has to participate. Therefore, the network's efforts to arrange itself have to be categorized as low.

Arranging: +

Project D

In general, the network relies heavily on fixed and regular meetings with clear responsibilities over agenda-setting and hosting. These meetings are organized in different settings (Interview D.A., 04:03; Interview D.B., 03:59; Interview D.C., 02:18). In contrast to the other networks, every meeting is linked with a partner which acts as a host to the network (Interview D.B., 04:22). The network itself is open towards inviting external partners if necessary (see questionnaire) and currently plans to implement a digital solution for their data exchange (Interview D.C., 15:09). In addition, the tendering partner, the county and the broadband organization, expected their partners to take initiatives and to organize meetings themselves. "The meetings, that was already intended in the tendering process, that we demand a bit [sic]. What has developed is whether we meet in personal or if a telephone conference is sufficient for the matter." (Interview D.C., 16:08). However, the administrative side stated that the project is the first project of this volume and form and that therefore every tie and procedure had to be established. The procedure to establish the network was described as smooth and unproblematic (Interview D.B., 11:53; Interview D.C., 17:55).

²⁸ See chapter 4.2.1.2

The network itself is mainly ruled by contractual clauses about meetings and how they are handled. Nevertheless, the network shows the ability to somewhat organize itself e.g., the possibility to have a telephone conference instead of a personal meeting or the implementation or clear assigning of responsibilities. However, the networks strategies to arrange itself and to create a flexible structure is categorized as moderate since other strategies, like a cloud-solution, are missing.

Arranging: ++

Arranging

Project A

As described in the analyzes of the arranging strategies, the network has an open strategy towards external but needed actors. If such actors are needed, they will be introduced to the network. Furthermore, the kick-off event was deliberately planned as a face-to-face meeting where all actors have been introduced to each other (Interview A.B., 13:26). While later meetings have been organized only if they have been necessary and it was possible to talk through digital technologies, in earlier stages of the network meetings were scheduled face-to-face too (Interview A.A., 23:55). With these meetings, it was the intended goal to meet and to get to know each other better. The interviewees mentioned that this was a valuable addition to the earlier tendering process (Interview A.B., 13:26).

Therefore, despite the tendering process, strategies to connect the parties are in place and has been successfully implemented. The efforts the network took to connect the different actors and partners can be categorized as moderate.

Connecting: ++

Project B

Like project A, the project B is the results of an open but highly regulated tendering process with the difference that only one partner was sought-after to combine several tasks in one partner. In addition, the network from the beginning on, was explicitly open for advices and help from external partners with the goal to have as much expertise in the network as possible (Interview B.A., 03:00).

Nevertheless, a specific strategy to connect the actors could not be identified.

Connecting: -

Project C

Like the other networks, network C is the result of a tendering process. Nevertheless, some interesting details can be drawn from the data.

Firstly, the network is in troubles to find an affordable civil engineering contractor. This is because of their already accepted budget for the project. Since the plan was approved, the prices for civil engineering companies have massively increased (Interview C.B., 07:26). Secondly, the network does not include crucial public departments such as road or environmental authorities (Interview C.C., 22:35). In addition, during the tendering process, consciously face-to-face meetings have been conducted to increase a better common understanding (C.B., 18:41).

Despite this, strategies to connect the actors have not been identified. However, since it was mentioned by interviewees that the administrative departments are missing partners in the network the connecting strategies are categorized as low.

Connecting: +

Project D

The network of the project D is like the other three projects, the result of a wide, open, and fair tendering process. The partners which came together are therefore bound by contractual agreements. In the beginning the network consciously organized face-to-face meetings in different settings to improve the mutual understanding (Interview D.A., 4:03) and has worked in interdisciplinary teams to improve the communication and flow of ideas. Furthermore, a common definition of the goal was included in the tendering process (see questionnaire). Due to the tendering process, other strategies have not been located. However, the definition of a shared goal and the usage of interdisciplinary teams are already as well as the face-to-face meetings are already a high number. Hence, the strategies to connect the partners are categorized as high.

Connecting: +++

Perceived outcomes

Project A

The strategies relating to cognitive learning outcomes of the networks can be graded as good in project A, with the exception of reaching goal congruency. Nevertheless, there has been an adaption of the own goals to the network's goals and thus an alignment of perceptions. The adaption is described as something that has happened during the project progress (e.g. Interview A.A., 11:03; Interview A.B., 11:37; Interview A.B., 16:46; Interview A.C., 16:05; Interview A.D., 17:33). One can expect, that because to the little diversity possible in the goals and perceptions due to the external factors, the starting point of each partner have not been far from each other after the tendering process. In addition to this, in all interviews asked about an equal share of benefits from the project, all interviewees stated that they do not see any actor taking a higher share (Interview A.A., 13:12; Interview A.B., 19:55; Interview A.C., 16:05; Interview A.D., 17:33).

Looking at the enrichment of solutions through the network actors it has shown that every actor is seen as a valuable addition to the network and that the overall quality of decision made in the network has increased by the involved actors (e.g.: Interview A.B., 17:33). Especially the expertise of the different experts is an essential input, therefore the expertise they bring into network is highly appreciated. It even goes that far, that "one has to rely on the engineers" (Interview A.C., 08:44) due to their expertise (Interview A.D., 18:08).

In addition to this, three out of four interviewees stated that the found solutions gain support from every actor inside the network. The exception which was brought up by one of the interviewees has a technical component which is based upon an earlier plan for the expansion which has forced the network to work within a framework due to external regulation. The actor therefore stated that not every solution is sustainable because of this plan and that they would have chosen another solution. Nevertheless, this is only affecting technical question on a small scale (Interview A.B., 15:26).

Therefore, the perceived outcome of cognitive learning has to be evaluated as high.

Cognitive learning: +++

Project B

Like in project A, the overall goal and the general way to achieve that goal has been clarified with the tendering process. Therefore, an already decent level of goal congruency has been achieved. In addition to this, all interviewees stated that it was possible to express individual goals and that they have been aligned with the network goals. However, both interviewees expressed that individual goals are in place but that they are not aware of their details (Interview B.A., 08:57; Interview B.B., 13:44). This shows, that despite stating that the goals are congruent and have been discussed, individual core goals are not part of these discussed goals.²⁹

The administration stressed that during the whole process of the project, the influence and the knowledge of the partners were crucial for the project path (Interview B.A., 06:10). Looking at the individual input of all actors and how the input contributes to the network goals it becomes clear that every actor contributes in an above average manner (Interview B.A., 05:42; Interview B.B., 14:26). Furthermore, every actor is seen as a valuable addition to the network (see questionnaire) meaning that no unnecessary actor is part of the network. According to the interviewees the quality of decision which have been taken did increase due to the network setting and the influence of the actors (Interview B.A., 09:33; Interview B.B., 14:26).

To conclude, while a moderate degree of goal congruency could have been reached, the input of every actors is to be graded as high and valuable to the achieving of the network goal. However, the perceived outcome of cognitive learning is categorized as moderate since no additional outcomes have been identified.

Cognitive learning: ++

Project C

Like in the other two projects, a decent level of goal congruency has been reached in early stages through the tendering process. But nevertheless, individual goals were possible to be expressed within the network and some of the actors are though following them (Interview C.A., 13:01; Interview C.B., 19:53). Therefore, a discussion of the individual goals and an influence of these goals upon the network goals, including the structure has happened.

²⁹ It should be mentioned here, that individual goals on the private side are firstly often handled confidentially, and secondly can be very divers (financial interest, reputation, foot in the door for further projects).

In addition, individual goals have been implemented to a high degree into the network's goals (Interview C.C., 33:28).

All actors have stressed that the quality of decision have increased due to the input of every actor (Interview C.A., 14:43; Interview C.B., 21:10; Interview C.C., 15:42). The benefit, especially through the consultants is that they take over a lot of work in which their experience has proven to be of great benefit for the networks progress (Interview C.A., 15:38). Furthermore, the actors have been encouraged to proactive communicate without the broadband organization to solve issues or answer questions by themselves (Interview C.A., 14:43). Looking at the benefits of the network, most of the interviewees stated that of course every actor has a benefit but on the other side, actors mentioned that some partners possibly have "better contracts" than others but nevertheless, everyone has a benefit from the project (Interview C.C., 17:21). In addition, on the interviewees stated that due to external factors, the individual goal cannot be reached anymore (Interview C.C., 19:04). Effects of cognitive learning are especially recognizable in the perceived input of every actor to the network's progress. However, looking at the intertwinement of goals, a lack of communication of goals have led to little disagreements. Thus, the cognitive learning outcomes are categorized as moderate.

Cognitive learning: ++

Project D

Like the other projects, project D is the result of a tendering process which has brought the partners together. The partners are not picked through favor and level of adaptiveness but due to European legislation. However, the network was still able to build its own structure and measurements (Interview D.B., 10:22).

The network of project D has included a definition of a common into the starting process of the collaboration, hence the network has achieved a high goal congruency through this measurement. Especially the fact that the network agreed to include another project of one of the partners into the broadband expansion, which means additional work for every partner, proves that the overall goal congruency is high (Interview D.A., 19:04), this has also been proven in the following quote. Interviewee D.B. stressed that "everyone has individual interests on which he has to aim its goals. Economic partners [like the provider] need to have a financial gain at the end of the day from the project, the same applies to the [technical planning consultant]. The county in contrast has an infrastructure political mission which is not based on profit. Therefore, everyone has to evaluate its own goals. But finally, everyone takes a benefit from the project." (14:12). The quote shows that the actor is totally aware of the different demands and goals by the partners but is also sure that everyone benefits from the participation in the project.

According to all interviewees, the quality of decisions taken by the network or as a result from the network has increased over time. Thus, every actor is perceived as beneficial to the network's progress and implementation (Interview D.A., 19:09; Interview D.B., 11:03; Interview D.D., 8:23).

To sum up, the perceived incomes for cognitive learning is high due to the described measurements and their results, especially the involvement of a definition of a shared and common goal for the network is a unique measurement.

Cognitive learning: +++

Strategic learning

Project A

Starting with the administration, interviewee A.D. stated that the county decided for a network structure due to earlier experience in other projects and that is a common structure for the county (Interview A.D., 18:57). In general, both administrative interviewees stated that without the network the expansion project could not be carried out (Interview A.C., 16:48; Interview A.D., 18:57) which shows awareness about the interdependency between the actors for a successful implementation of the new broadband network. The administration stated that biggest advantage of such a structure is, that they have expertise inside the network they would not be able to bring in themselves (Interview A.D., 19:15) The same is true for the private side. Since both actors stated that the network structure is very common in such projects (Interview A.A., 12:39; Interview A.B., 19:15). They too, see a huge interdependency between the county and the private actors. However, the biggest reason for the interdependency are the financial funds in direction to the county, the backbone network³⁰ in direction to the network operator, and the engineering expertise of the technical and operational consultant (A.B.: 21:10). Therefore, all actors are aware of the very high interdependency inside the network and what the benefits from the structure are for everyone. Especially the knowledge about specific technological interdependency is remarkable. Thus, the perceived outcome of strategic learning scores a high grade.

Strategic learning: +++

Project B

Looking into perceived outcomes of the project B interviewee B.B stated that “[t]he scale of the project is a scale, time-wise and volume-wise, that requires a solution-oriented collaboration.” (10:04) And interviewee B.A. expressed that without the knowledge of the experts, such a project would not be possible (12:29). This shows that all actors are aware of the interdependency and intentional use the capabilities of the partner in the network. Simply put, the expansion project requires the input of several different actors with their respective expertise and assets. In terms of perceived benefits from the project, it was stated that every actor receives benefits from the project (Interview B.A., 14:35) but only interviewee B.B. stated that he believes the benefits are approximately and related to the tasks and input the same (13:44).³¹

The awareness about the interdependency is to be graded as very high while the awareness of the others benefits from the project is moderate. Therefore, the strategic learning is to be graded as moderate.

Strategic learning: ++

³⁰ Backbone network refers to the existing network in already connected areas of the county

³¹ Interviewee B.A. stated that he cannot answer the question (Interview B.A., 14:35).

Project C

The major benefit of the network is seen in the individual expertise of every actor (Interview C.C., 16:37). In general, every interviewee was aware of interdependency between the actors (Interview C.A., 17:02; Interview C.B., 23:42; Interview C.C., 18:28). Therefore, a general awareness about the mutual dependency is in place and that the project requires the input and knowledge of every actor. Especially the setting with two consultants and the resulting dependency as a consequence of job sharing (Interview C.C., 18:28). Nevertheless, on interviewee from the broadband organization stated that hypothetical, they could execute the project themselves but to higher costs (Interview C.A., 17:02).

The general awareness about the interdependency is high, despite the hypothetical possibility to execute the projects without partners. The awareness about mutual involvement and benefits from the project is to be seen as moderate. However, more outcomes have not been identified, therefore the overall grade given is moderate

Strategic learning: ++

Project D

The capability to realize such a project with such a volume is seen as the greatest benefit from the network by the public officials. Especially the slim and governance structure is seen as a benefit since “we can parallel prepare and push through applications for additional funding and we can prepare additional construction phases. All this does not work in a pure public service structure which is not quick enough but only in a project structure with external [partners].” (Interview D.B., 11:53) Like in the other networks, the expertise of every partner in the network is seen as an immense virtue to the network and the implementation of the broadband cable would not be possible without partners (Interview D.A., 23:54; Interview D.C., 12:42). However, it would be possible to replace a partner but only with high costs and additional efforts by all network partners (Interview D.B., 14:36; 15:01). On the other side, the provider would not expand the existing networks into the rural areas without public funding what makes the territorial financial context important for partners from the private side (Interview D.A., 23:54).

Within the network, every partner is aware about the existing interdependency in the network. However, the boundaries of the interdependency are known too since the network would be able to replace a partner. The partners perceive the network structure as very good to achieve the goal and named benefits such as the possibility to work parallel on different issues. Therefore, the outcomes which are categorized as strategic learning are very high.

Strategic learning: +++

Institutional learning

Project A

While the two interviewees from the administrative side stated that the frequency did extremely increased in contrast to this, the private side registered a minimal increased frequency only. Asked about this, they explained the increase with growing complexity of the subject which required a more frequent exchange with the partners. Nevertheless, interviewee A.C. stated that

“the need for exchange depending on the project progress is different. There are periods in which every partner is occupied by his own planning processes and we have periods in which we have specific need to coordinate. I cannot say that we have a continual increase in frequency, but the frequency is different.” (20:00)

This explains the partly increased contact between the actors but not the extreme increase on the public side. A reason for this is found in the fact that the private side has only the private actors and a little number of public actors as exchange partners, while the public side as to report to a much higher number of actors. Therefore, a little increase in the overall communication leads to a high increase on the side of the public administration. Looking into the quality of contact and relationships the interviewees explained that, despite the improved quality of the personal relationships the relationships have not become simplified throughout the project. This is because of increased complexity of the subjects rather than the inability of the actors (Interview A.A., 17:17; Interview; A.B., 23:13, Interview A.D., 23:36).

The question whether institutionalized processes or measurement have developed from the relationships has to be answered with no. While some standards have been dropped (e.g. jour-fix) the network participant stated that no standardized steps have been developed (Interview A.C., 01:45). However, the actors are optimistic that standardized procedures will follow (Interview A.A., 16:20). Nevertheless, the network has twice a year a scheduled meeting in which the state of the art is discussed with every actor. However, the outcome perceived learning is graded with moderate due to the missing standardization.

Institutional learning: ++

Project B

Interview B.B. stated that the network is in a “complete different phase [in contrast to the tendering phase] in which we have to do ascertainment which are required for the project implementation. Therefore, we have a totally different frequency and totally different quality of exchange in contrast to the tendering process.” (Interview B.B., 15:28) Thereby, relating the increase of quality and frequency to the content only. However, the interviewee stated too, that the exchange has been improved over the course of the collaboration.

In contrast to interviewee B.B, who reported a small increase in frequency, interviewee B.A stated that the frequency remained the same (see questionnaire).

Standardized measurements, besides regular meetings, the designation of tasks, exchange of protocols, and the use of the RASCI-Matrix have not been reported. Therefore, institutional learning have to be graded as moderate.

Institutional learning: ++

Project C

While two of the actors stated that the frequency of interaction decreased one of the interviewees stated that the frequency remained the same (see questionnaire). Asked about the frequency, all participants stated that in

the day-to-day business, the frequency of contact remained the same (Interview C.C., 24:00). Interviewee C.A. stated that “calls into my direction, when I was new, did not happen often because you have to establish yourself. And now the mails and calls become more frequent” (Interview C.A., 19:24). Therefore, the overall frequency of exchange has increased, and the current decline is to be seen as a result of the pending tendering process for a civil engineering contractor.

The network showed a high capability in establishing standards, over the course of the project the steering group meetings and the jour-fix have been established as standards (Interview C.B., 26:11; Interview C.C., 24:53). But they are not perceived as standards by everyone (Interview C.A., 20:28). Furthermore, a protocol of every meeting is written which includes tasks and the partner assigned with the task (Interview C.B., 27:24). The quality of the contact has improved as a result of standardization and increased contact (Interview C.C., 25:18), and nowadays, the partners do not wait for the next official meetings but rather contact each other on a short way to talk about issues (Interview C.A., 19:59).

To conclude, the network has registered an increase in frequency and quality of exchange. This is seen as a result of the standardized meetings and measurements. The standardized meetings are noteworthy since they were developed from the inside of the network. Therefore, the outcome of institutional learning is granted with a high score.

Institutional learning: +++

Project D

The result of the questionnaire shows that the frequency of contact does not have increased (see questionnaire). Like in network A, the communication did not become easier due to increased complexity of issues and topics (Interview D.A., 27:38). However, the quality and intensity of contact increased. Interviewee D.B. stated that “[it] does not always feel easy, but that is because of the specific and complex nature of issues we meet. The problems we faced a year ago, [...] have been comparatively easy from today’s point of view.” (15:48) Interviewee D.A supports the quote by stating that the discussed topics have become more complex and thus, the communication has not become easier. Considering that the frequency of contact remains the same, despite increasing complexity, a logic conclusion is therefore that the quality has of contact has increased like interviewee D.C. (15:09) has stressed.

Asked about standards, the network did not answer unified. However, every interviewee gave examples of standards which have been developed during the process. It is therefore reasonable to assume that a standardization of processes happened. Especially since interviewee D.B., when asked about standards, stated that “[t]his was a development. We have met one time over a topic and a second time over a similar topic. We have recognized that the topic has developed a certain generality and have institutionalized a fixed group or committee” (Interview D.B., 17:17). This shows, that during the work and besides the tendering process several standards have been developed by the network. Nevertheless, most of the network’s standards have been agreed during the tendering process and are rules over meetings and communication (Interview D.A., 04:47), while more standards, e.g. for digital exchange of information are to be developed (Interview D.C., 15:09).

To sum up, the network has not recognized an increased frequency of contact but a high quality of the communication. Furthermore, the network has developed standards over contact and how to handle certain recurring issues which allows to grade the outcome as moderate.

Institutional learning: ++

Variable	Questions
Degree of brokered	<ol style="list-style-type: none"> 1. Welche Regeln und Vorschriften beinhalten die Geschäftsordnung zur Kommunikation und Abläufen? 2. Werden die Regeln eingehalten und wird dies kontrolliert? (Durch wen?)
Mode of governing	<ol style="list-style-type: none"> 1. Wann werden wie Netzwerktreffen einberufen? (Von wem?) 2. Welchen Einfluss haben externe Bedingungen und Erwartungen auf die Arbeit des Netzwerkes und ihre Ziele und Prozesse?
Managerial Strategies	
Process agreements	<ol style="list-style-type: none"> 1. Gibt es Entscheidungen, an denen alle Akteure beteiligt sind und wie werden diese getroffen? 2. Wie werden Informationen gesammelt und stehen diese allen zu Verfügung?
Exploring content	<ol style="list-style-type: none"> 1. Wie wird mit unterschiedlichen Meinungen und Positionen innerhalb des Netzwerkes umgegangen? 2. Sind Ihrer Meinung nach, alle wichtigen Akteure bereits Mitglied des Netzwerkes und wie bringen sich diese ein?
Arranging	<ol style="list-style-type: none"> 1. Wie bewerten Sie die Zusammensetzung des Netzwerkes in Hinblick auf seine Fähigkeit Ziele zu erreichen und Probleme zu lösen?
Connecting	<ol style="list-style-type: none"> 1. Glauben Sie, dass das Netzwerk in seiner momentanen Besetzung den Breitbandausbau erfolgreich durchführen kann oder werden noch weitere Akteure benötigt?
Perceived Outcomes	
Trust	<ol style="list-style-type: none"> 1. Wie bewerten Sie Ihre Beziehungen zu Ihren Partnern im Netzwerk im Hinblick auf die Vertrauensbasis?
	<ol style="list-style-type: none"> 1. Wurden Maßnahmen getroffen um das Vertrauen innerhalb des Netzwerkes zu stärken?
Cognitive learning	<ol style="list-style-type: none"> 1. War es Ihnen möglich Ihre Ziele weitestgehend mit den Zielen des Netzwerkes zu verbinden? 2. Konnten Ihrer Meinung nach, alle Akteure ihre individuellen Ziele mit denen des Netzwerkes abstimmen?
	<ol style="list-style-type: none"> 1. Steigt durch den Austausch zwischen den Akteuren die Qualität der Entscheidungen?
Strategic learning	<ol style="list-style-type: none"> 1. Was erwarten Sie von Ihrer Teilhabe an dem Netzwerk und wo sehen Sie besondere Vorteile? 2. Glauben Sie, dass alle Akteure Vorteile aus dem Netzwerk ziehen oder einige Akteure mehr als andere?
	<ol style="list-style-type: none"> 1. Bis zu welchem Maß sind sie auf die Informationen und die Fähigkeiten Ihrer Netzwerkpartner angewiesen?
	<ol style="list-style-type: none"> 1. Welche eigenen Ressourcen wenden Sie auf, um eventuelle Probleme innerhalb des Netzwerkes zu lösen?
Institutional learning	<ol style="list-style-type: none"> 1. Wie haben sich die Beziehungen zu ihren Netzwerkpartnern in Hinblick auf Regelmäßigkeit und Ablauf verändert? 2. Welche Interaktionen/Maßnahmen innerhalb des Netzwerkes wurden warum standardisiert? 3. Hat sich im Verlauf Ihrer Arbeit die Beziehung zu Ihren Partnern vereinfacht und wie zeigt sich dies?
	<ol style="list-style-type: none"> 1. Wie beeinflusst der Aufbau des Netzwerkes die Arbeit des Netzwerkes? 2. Wie bewerten Sie den Aufbau des Netzwerkes für das Erreichen der Netzwerk Ziele?

Name:	Projekt:			
Hat das Netzwerk eine Geschäftsordnung/Satzung?				
Ja		Nein		
und einen zeitlichen Geschäftsplan?				
Ja		Nein		
Welcher ist der zentrale Akteur des Netzwerkes?				
Wer trifft bei Uneinigkeit die endgültige Entscheidung?				
Wer trägt die Verantwortung?				
Können Sie schätzen wie oft Sie aktuell pro Woche für das Ziel des Netzwerkes Kontakt mit anderen Netzwerkpartnern haben?				
1-10 mal	11-20 mal	21-30 mal	Öfters als 30 mal	
Können Sie schätzen wie oft sie Kontakt zu Beginn des Projektes hatten?				
1-10 mal	11-20 mal	21-30 mal	Öfters als 30 mal	
Haben externe oder interne Einflüsse einen größeren Einfluss auf die tägliche Arbeit des Netzwerkes?				
Externe Einflüsse		Interne Einflüsse		
Wurden Sie an strukturgebenden und organisatorischen Entscheidungen beteiligt?				
Ja		Nein		
Gibt es einen vorgeschriebenen Weg der Entscheidungsfindung?				
Ja		Nein		
Wie sehr bestimmt die Form (Aufbau und persönliche Verbindungen) des Netzwerkes Ihre Arbeit? (1= wenig; 5 sehr)				
1	2	3	4	5
Wie schätzen sie die allgemeine Vertrauensbasis des Netzwerkes ein? (1=schlecht; 5=gut)				
1	2	3	4	5
Wie sehr vertrauen Sie Ihren Partnern im Netzwerk? (1=sehr wenig Vertrauen, 5= sehr viel Vertrauen)				
1	2	3	4	5
Werden die Meinungen aller Akteure zu Themen, die sie betreffen eingeholt bevor eine Entscheidung getroffen wird?				
Ja		Nein		

Wurden, Ihrer Meinung nach, die unterschiedlichen Sichtweisen, Fähigkeiten und Ressourcen der Akteure für die Arbeit des Netzwerkes in adäquater Weise verwendet?		
- Sichtweisen	Ja	Nein
- Fähigkeiten	Ja	Nein
- Ressourcen	Ja	Nein
Glauben Sie, dass die gefundenen Lösungen für den Breitbandausbau die volle Unterstützung aller beteiligten Akteure erhält?		
	Ja	Nein
Glauben Sie, dass alle wichtigen Akteure bereits Teil des Netzwerkes sind?		
	Ja	Nein
Glauben Sie, dass alle Akteure einen substantiellen Beitrag für das Netzwerk leisten?		
	Ja	Nein
Glauben Sie, dass alle bisherigen Konflikte und Probleme innerhalb des Netzwerkes nachhaltig und bestmöglich gelöst wurden?		
	Ja	Nein
Kam es im Laufe des Projekts zu einem Stopp oder Stillstand?		
	Ja	Nein
Hat die Zusammensetzung des Netzwerkes dazu geführt das innovative oder neue Lösungen für Probleme gefunden wurden, die ohne die Beteiligung eines oder mehrere Akteure so nicht zustande gekommen wären?		
	Ja	Nein
Glauben Sie, dass die Vorteile des Netzwerkes, die Kosten übersteigen?		
	Ja	Nein
Wurden Maßnahmen durchgeführt um die Abstimmung zwischen den Akteuren zu verbessern?		
	Ja	Nein
Wenn ja, welche?		
Bestand oder besteht die Möglichkeit, individuelle Ziele zu äußern?		
	Ja	Nein
Wurden Maßnahmen getroffen um individuelle Ziele abzustimmen?		
	Ja	Nein
Werden zur Lösung spezifischer oder komplexer Probleme externe Akteure hinzugezogen?		
	Ja	Nein

List of interviews

Project A:
A.A., A.B., A.C., A.D.

Project B:
B.A., B.B.,

Project D:
D.A., D.B., D.C.

Project C:
C.A., C.B., C.C.