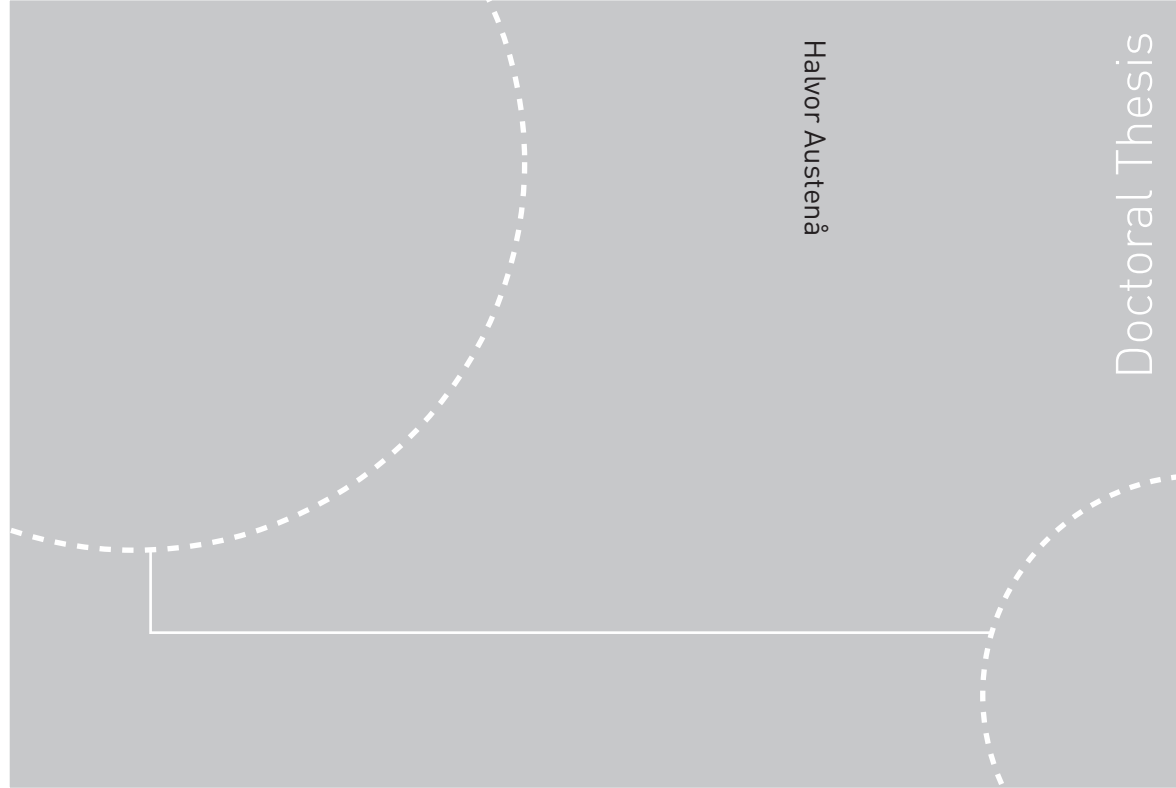


ISBN 978-82-471-3037-7 (printed ver.)
ISBN 978-82-471-3038-4 (electronic ver.)
ISSN 1503-8181



Doctoral theses at NTNU,

Halvor Austenå

The facilitating organization in cluster initiatives: can it promote innovation?

Halvor Austenå

The facilitating organization in cluster initiatives: can it promote innovation?

Thesis for the degree of philosophiae doctor

Trondheim, January 2011

Norwegian University of
Science and Technology
Faculty of Social Sciences and Technology Management
Department of Industrial Economics and Technology
Management



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ISSN 1503-8181

Doctoral Theses at NTNU, 2011:238

Printed by Tapir Uttrykk

Abstract

The facilitating organization does the cooperation, network building, policy development and implementation in regional innovation systems initiatives, including for example cluster development, triple helix cooperation, learning regions, and more. The regional innovation systems theories have an analytic value and give policy recommendations for regions that want to become economically successful. The facilitating organization is the meeting point between the regional innovation system theoretical concepts and the regional reality. Regional innovation system initiatives are a constructed social reality, which is built from three different parties with different positions in relation to the initiative: the regional; the national; and the theoretical views.

In the Norwegian context the facilitating organization is usually a project organization but the participants are autonomous actors like industrial companies, universities, research institutes, politicians, and bureaucrats. As such this dissertation argues that the facilitating organization should be studied as a governance network because different actor types outside the normal organizational setup in a region collaborate to influence public policy.

Two main theoretical models are developed to study the facilitating organization as a governance network. The first model characterizes the facilitating organization itself including its governance and its outputs. The outputs create legitimacy for the facilitating organization. The facilitating organization itself is characterized by its identity—that is who it is and what it thinks it should do—and by its capabilities like resources, people, mandates and organizational capabilities. Since the facilitating organization is seen as a governance network the traditional instructional governance of the organization is replaced by a concept called meta-governance. In governance network theories within this theoretical position called the integration position, this meta-governance's objective is to develop the facilitating organization's identity and capability. The

output is the facilitating organization's talk, decisions, and actions. This gives the facilitating organization legitimacy that is it gets its existence accepted by its surrounding environment. The second model is used to analyze how different cases develop within the facilitating organization. The development is seen in relation to two axes: first whether the case is coordinated within the organization or falls beyond the organization; and second, whether the facilitating organization is in an action- or a thinking modus while working with the case.

Since the facilitating organization must create its legitimacy towards an inconsistent environment of many stakeholders the output created must—in addition to producing action—also be a pragmatic development of a symbolic accord with its environment. This will lead to a pragmatic connection between talk, decision, and actions of the facilitating organization where it can say one thing, decide another, and do a third to maintain legitimacy towards several stakeholders and itself.

The two theoretical models are demonstrated on an industrial cluster initiative in Kongsberg Norway. This cluster is large by Norwegian standards and has been seen as very successful over the last several decades. The industrial cluster was an important part of a national policy instrument to create a modern technological industry in Norway until 1987. After that the cluster developed as several companies mostly with private ownerships. The main finding on the facilitating organization of the Kongsberg cluster initiative is that it is dominated by two industrial identities partly overlapping but partly with conflicts. The first identity has characteristics from the time the Kongsberg industry was a national political instrument. The second identity is developed after this period with the industry operating in as successful, global, competitive industrial actors.

These two identities are so dominant that activities that are in line with them will be seen as successful and stay within the coordination of the facilitating organization. Activities that are in contrast with either or one or both identities will either be removed or placed at single actors outside the coordination of the facilitating organization. One activity had difficulty to gain legitimacy in both identities at the same time, and is still negotiating to find a good result.

The two identities are so dominant that the national funders of the cluster initiative have little real influence over the developments in the facilitating organization of the Kongsberg cluster. The national funder treats the facilitating organization mostly as a traditional organization and focuses its meta-governance on the capabilities and not the dominating identities. Thus the facilitating organization and the Kongsberg cluster initiative have difficulties in developing outside the framework of its existing identities. A consequence of this is that the activities in the facilitating organization often end up in an action modus without conscious use of thinking and reflection to correct the direction of the activity. This may be a problem because if the facilitating organization is only able to get the industrial cluster to do more of the same, what then is the function of the facilitating organization other than a networking facilitator? More of the same may be a good strategy for the development of Kongsberg industry, but it would probably not need other collaborative actions to implement that strategy.

The proposed models to analyze the facilitating organization as a governance network are tested on a single case. This case, the Kongsberg cluster initiative, has a very strong identity built up over several years. The use of the model on other initiatives may be more immature, and with smaller companies with less documented successes than Kongsberg they may reveal other issues. The focus on the identity of the facilitating organization in the understanding and development of

regional innovation system initiatives may be a key point even for regions with less developed identities.

Acknowledgements

My journey from 2007 until today has been an interesting one for me. I would like to thank my colleagues from the Kongsberg cluster initiative and from Buskerud University College for admitting me and for giving me access to their work, thus making this dissertation possible. I hope that I in return, have been able to contribute both to the cluster and the university college.

The advice from Ann Martin and Hans Christian Garman Johnsen has been invaluable in bringing me into social sciences, action research, and writing. I would also like to extend the thanks to the whole EDWOR II staff and my fellow PhD candidate colleagues. I would especially thank Morten Levin and Ingunn H. Lysø who after a short interview in Trondheim just before Easter 2007, decided to allow me to enter EDWOR II and thus giving me the unique opportunity to do this work.

I want to thank Vestfold University College for funding my work. I also want to thank the Program for regional R&D and Innovation (VRI) for funding the EDWOR II program and making it possible for a group of staff and candidates to cooperate, discuss, and develop over time. The program has been invaluable for my work.

Finally I want to thank my wife Eva for her support and input in this process.

Horten, January 2011

Halvor Austenå

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1. Introduction

Regional innovation systems and clusters over the past ten years have become popular in Norway and are used by the government to—in Richard Florida’s words—“create economic spikes and promote economic development in Norwegian regions.” These national initiatives need to be facilitated to be able to function and to get something done. Facilitating organizations with resources and mandates to run regional innovation initiatives are established. A facilitating organization is an organization that develops the policies of a regional innovation systems initiative and also implements this policy. The inner workings and impacts of these facilitating organizations should be studied because these organizations implements the policy recommendations of the regional innovation system literature in real life but the facilitation process itself is not sufficiently discussed.

This dissertation suggests an analytic model for studying facilitating organizations based on the finding that they are something between governance networks and organizations. The facilitating organization’s development of policy and action is studied from a neo-institutional theory framework on governance networks and organizations. The analytic model is demonstrated on this study’s unit of analysis: the Kongsberg cluster initiative a member of the Norwegian Centers of Expertise program.

The foundation for the Norwegian regional innovation system initiatives is several theoretical concepts¹ but when I use regional innovation systems in general I will use it as an umbrella covering all of these concepts.

¹ (Asheim, 2000; Asheim, 2001; Asheim, Cooke, & Martin, 2006; Asheim & Gertler, 2005; Bathelt, Malmberg, & Maskell, 2004; Braczyk, Cooke, & Heidenreich, 1998; Cooke, 1998, 2002; Florida, 1995; Leydesdorff & Etzkowitz, 2000; Maskell & Kebir, 2005; Morgan, 1997; Nowotny, Scott, & Gibbons, 2001; Nowotny, Scott, & Gibbons, 2003; Porter, 1990, 1998)

In the Norwegian initiatives several regional actors own their local innovation systems initiatives together as a partnership. These actors are usually industrial and commercial actors, regional politicians and administrators, and the regional university. The collaborative efforts of these actors embedded in different thinking and culture are demanding and in almost every case a facilitating organization is set up to implement the collaborative activities in the initiatives. Normally this facilitating organization is both owned by and manned by individuals from the actors mentioned above. The facilitating organization's task is to develop and implement the regional policy of the initiative. The facilitating organization talks and brings issues to the table; it makes decisions; and it takes concrete actions or not. I see the processes within the facilitating organization as a key issue to understand in order to understand the impacts of regional innovation system initiatives.

I have experience from participation in facilitating organizations since the mid 1990s when national bodies such as The Norwegian Research Council and Innovation Norway first initiated regional innovation systems experimentation in Norway. I have experience from different roles in facilitating organizations from being a project manager, a board member, a part of the partnership on behalf of the university when I was rector, and even the manager of the formal owner of a facilitating organization when the project was placed at my university. Reflecting on my experiences I have often been confused on the happenings in the facilitating organization. My confusion boils down to four issues: I have felt manipulated; I have seen what I saw as irrational decision processes; I have seen missing ability to act on decisions made; and, the learning and development processes in the facilitating organization have often been almost invisible to me. From this confusion my main theses emerge: First, the intangibility of the development and learning processes in the facilitating organization leaves it open for manipulation by actors

seeking their own advantages rather than that of the cluster; and secondly, prevents the main task of the facilitating organization, namely catalyzing real development for their region and the participating companies.

From these hypotheses my research question is developed: How does a facilitating organization function? How does the facilitating organization develop its policy – talk, decisions, and actions? Is the facilitating organization really able to learn, develop, and change in order to fulfill its articulated objectives? What is the facilitating organization able to do and where is it prone to fail? I have always attributed my confusion on these processes in facilitating organizations to my lack of knowledge of the regional processes and of regional innovation system theories. When as part of my dissertation I had time for reflection I turned to the theoretical concepts of regional innovation system for answers. However answers were hard to find, at least from my perspective and experience from these initiatives. In my professional life I have always been a regional actor and worked with or within regional context. In this reality the explanations for my four confusions were not, as I see it, sufficiently developed within the conceptual frameworks of regional innovation system theories. The conclusion was that I had to develop a more fitting concept to analyze the inner workings of a regional facilitating organization.

Three observations have sent me in direction of another theoretical concept for studying the facilitating organization: the broad societal impact needed to develop a region; the complexity of the actors involved in regional innovation systems initiative; and lastly, decisions on what to do in the initiatives that seem to be taken for granted without discussion. First, the effort to develop innovation and competitiveness for a region will require a broad regional societal impact. The municipality and county must choose and implement support to this group of companies, and they must choose to develop infrastructure and other competitive strengthening activities for

these companies. The regional university must choose to focus its resources and efforts on issues important for the selected companies and so on. Second, the partners in the regional innovation efforts are because they live in different governance systems, cultural frameworks, and missions. The regional partners will be part of the academic, the bureaucratic, the political, the business, the engineering, and other systems. The traditional Nordic or Norwegian models of cooperation in work-life is based on a strong cooperation between employer and employee at national and company level (Moene, 2007). However in the regional innovation system initiatives and their facilitating organizations new actors are added: politicians, bureaucrats, academics and even sometimes several competing companies are going to work together. This creates a much broader and more fuzzy cooperation than the traditional Norwegian work-life cooperation (Finsrud, 2009). As I will argue broad societal impacts and the complex composition of the facilitating organization lead to the conclusion that the facilitating organization is a regional political actor. The facilitating organization itself functions as a regional political governance network with relatively autonomous actors in a voluntary collaboration. However from the formal point of view the facilitating organization is an organization.

The third observation is that the decisions and choices seem to be predetermined within regional innovation system initiatives lead to a neo-institutional perspective when studying the facilitating organization. In neo-institutionalism the social reality is established through rules, norms, and other constituted frameworks and the most important product of an organization is the legitimacy of its operations. This mean that the facilitating organization in order to get legitimacy must comply with the rules, norms and the general framework of the society it exists in. Richard Scott's (2008, p. 48) broad definition of institutions is: Institutions are comprised of regulative, normative, and cultural-cognitive elements that, together with associated activities and resources,

provide stability and meaning to social life. The work in a regional innovation systems initiative and in a facilitating organization is a part of social life and has activities and resources available. So as a consequence, institutions may be seen as the elements that provide stability and meaning that are the base for the choices and decisions in the facilitating organization.

In his definition Scott introduces three pillars of institutions: the regulative, the normative, and the cultural cognitive, and in Table 1.1 positions them in relation to basis of compliance, logic, and basis of legitimacy (Scott, 2008, p. 51). In the neo-institutional framework, legitimacy is a key element and defined as the assumption that an action is appropriate within a socially constructed systems of norms, values, beliefs, and definitions (Suchman in Scott, 2008, p. 59).

	Regulative	Normative	Cultural-cognitive
Basis of compliance	Expedience	Social obligation	Taken-for-grantedness. Shared understanding
Logic	Instrumentally	Appropriateness	Orthodoxy
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible, recognizable, culturally supported

Table 1.1 The three pillars of institutions From (Scott, 2008, p. 51)

Real organizations and societies will have institutions placed in all three pillars, but as I have observed above and will argue based on my findings the facilitating organization of regional innovation system initiatives will mainly be placed within the normative and the cultural-cognitive pillars. Within this framework the function of the facilitating organization should be studied both as an organization and as a governance network.

In good business and industrial organizations, rational, instrumental decisions are vital. However, organizations can be divided in two main parts: the dream world of the rational organization, and

the real organizations we live in (Brunsson, 2006). This may be even truer in a facilitating organization which is put together from several different organizational cultures like industry, politics, academia, and so on. In addition the tasks of the facilitating organization are difficult and complex for example enhancing the attractiveness of a municipality or finding a common strategic platform for a group of dissimilar companies. One way of dealing with these complexities and even conflicting situations is hypocrisy (Brunsson, 2002).

Hypocrisy is a word with a negative value, and although Brunsson does not attribute moral standards to it, I will in this dissertation use the word pragmatism when discussing Brunsson's hypocrisy concept. According to Brunsson, this pragmatism can also be seen as an often unavoidable solution for an organization confronting an inconsistent and complex external environment (Brunsson, 2002, 2007). With use of the pragmatism concept the normal line of putting issues on the table and evaluating what is best to do in order to make the best possible decision, which gives a good chance for valuable action, has disintegrated. Actions done may lead to decisions legitimizing them. Talk and consensus decisions in an organization may never play out in action, and it may even be necessary to do one thing and say the opposite.

I mentioned above my confusion of the processes in the facilitating organizations I have seen. This confusion may come from trying to understand the talk, decision, and action as a linear process while the three should be studied separately and the connections between them are developed independently of the rational linear thinking. In this study this means that talk, decision, and action should be studied separately in light of the regional actors' relation to the institutions in Table 1.1 to understand why decisions are taken and which actions play or do not play.

Within the governance network literature there are several theoretical positions. Sørensen and Torfing (2005) describe four main positions according to the view on societal action and social governance. The main mission of the facilitating organization I am studying is to develop its actors through collaboration, which would imply that the governance is done by coordination rather than conflict. The facilitating organization which is the unit of analysis in this study, is placed in a small town with many of the industrial actors have worked together and know each other over several decades; and, they are working within an industrial and engineering culture, which indicates that that they share a common culture. March and Olsen (1993, 1995) are the main theorists within the position on governance networks where societal action is based on culture and social governance is based on coordination. Sørensen and Torfing call this the integration theory of governance networks. In integration theory governance network is seen as a framework for developing the actors' identity and capabilities (Sørensen & Torfing, 2005). The actors' identity is who they are and what they think they are supposed to do. Their capability is what they have, know and can do. In integration theory it is important to ensure peace and reduce the conflict level. This is done by shaping the actors' identity and capacity. This shaping process is called meta-governance (Sørensen, 2006; Sørensen & Torfing, 2005). This means that the first step in the analysis of the facilitating organization is to uncover its identity and capability and the second step is to uncover who and how the meta-governance that is the shaping of identity and capability is done. Equipped with these it is possible to enter a third stage to look at the concrete shaping of politics in the governance network. That is to look at the talk, decisions, and the actions in the network in light of what is known about identity, capability, and meta-governance. Where are the regional innovations system concepts in this?

Some regional innovation system theorists themselves are uncertain of their concepts when the concepts meet with reality (Crevoisier, 2004, p. 377; Maskell & Kebir, 2005, p. 42). This uncertainty was also present in this study's unit of analysis the Kongsberg cluster initiative. When the design of the Norwegian Center of Expertise program began both the national and the local Kongsberg actors saw Kongsberg as a natural participant in the program². In the preparations for the program the national actors commissioned several reports as a knowledge base by examining experiences in other countries and by uncovering the theoretical framework of clusters. This knowledge made it clear to the national actors that the Kongsberg companies were not a cluster, at least not a cluster as defined by Michael Porter (1998).³ Nonetheless Kongsberg had a strong need to become a Norwegian Center of Expertise and negotiated with the national authorities and got acceptance for a concept called knowledge cluster. That is the cluster mechanisms in Kongsberg were not Porter's but a common knowledge base. This means that there was a mismatch between the innovation theories and the reality in one of the largest industrial communities in Norway.

The second clash between regional innovation system theories and reality came after the Kongsberg cluster initiative was established and its board commissioned a report on the foundation for the Kongsberg industrial success. The report had a point of departure of existing reports on the Kongsberg industry and had a regional innovation system theoretical framework. When the report was presented to the board they did not accept or recognize themselves and their history as presented within this theoretical framework.⁴ The board of the facilitating organization of the Kongsberg cluster initiative was dominated by people who had lived in the cluster for

² Informer A, B, E, and F in interviews

³ Informer A and B in interviews

⁴ Informer C in interview, and minutes from Kongsberg cluster initiative board meeting December 4 2006

several decades and who had been central in the industrial developments of Kongsberg. The fact that this board could not accept the report indicates that the view from the local actors is different than the view from the framework of regional innovation systems. This strengthens my argumentation that when looking at the facilitating organization from the regional actors' perspective another theoretical framework than regional innovation system should be used.

1.1. The case and my unit of analysis

The focus of this study is the facilitating organization created to implement a regional innovation system initiative, the Kongsberg cluster initiative⁵. My theoretical model calls for a study of the facilitating organization's actors, the governance of the facilitating organization and the policies of the facilitating organization. The unit of analysis chosen is the facilitating organization of the Norwegian Center of Expertise⁶ program in the municipality in Kongsberg.

The facilitating organization is organized in four levels: the founding partnership; the board; the project manager group; and the different projects and initiatives. This is shown in Figure 1.1. I am positioned in the project manager group as a project manager for the knowledge development project, the project manager for the whole project and the managers of the individual projects are meeting in this group. On a case to case base other people are invited into this group. The unit of analysis is limited to this organization and the main part of the data collection has focused on the board and the project manager group.

I do my research by working inside my unit of analysis because I had a pre-understanding of processes in the facilitating organization as a black box; that is from the outside you can observe what goes into the black box and interpret what comes out of it. To be allowed inside the black

⁵ The official name is Norwegian Center of Expertise – Systems Engineering

⁶ For more information see http://ekstranett.innovasjon Norge.no/templates/Page_Meta_56195.aspx

box I had to contribute to the Kongsberg cluster initiative. The inside position allows me to observe and participate in the processes around the facilitating organization's development processes. In addition interviews with the individual actors may reveal their thinking and their interpretation of the processes. When combining this with the official stories and documents of the organization a more complete picture of the inside of the black box will grow. I am the project manager with the responsibility to develop the knowledge infrastructure (higher education and research) for the local industry and at the same time contribute to the development of the local university engineering department. In addition I participate in the overall project management team and in the board meetings of the project, thus listening to and making input to the development of the project. I have been inside these organizations from August 2007 until today (the end of 2010).

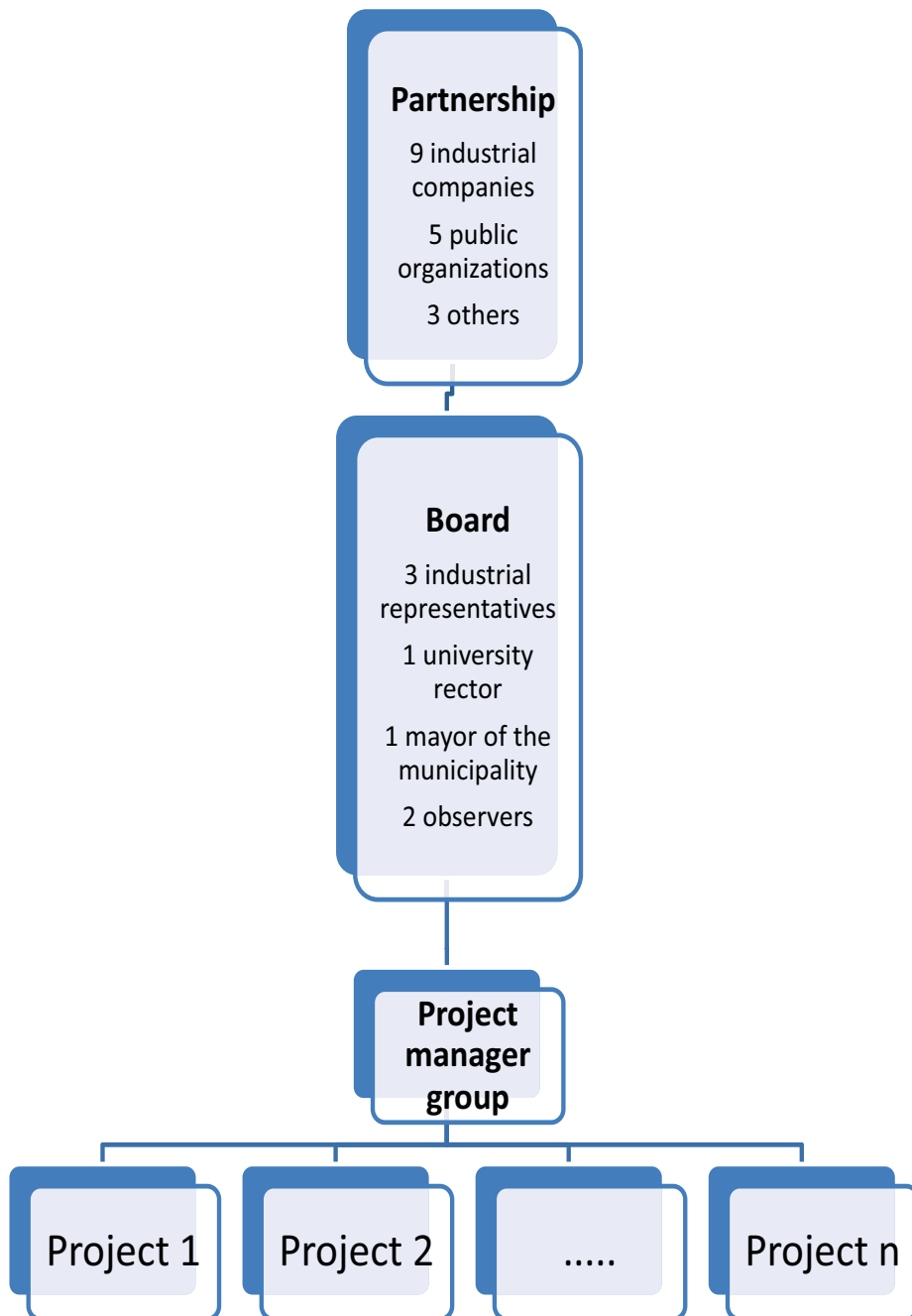


Figure 1.1: This study's unit of analysis the facilitating organization of the Kongsberg cluster initiative

1.2. Why care about facilitating organizations?

The differences in economic development between regions have triggered researchers and practitioners for years. The interest has been analytic, that is to understand the development in especially successful regions, as well as more normative, that is how a region should act to become successful. The latter interest is the point of departure for policy recommendations based on theories on regional innovation system on how to facilitate economic growth in a region. These policy recommendations either explicitly or implicitly demand some kind of facilitation to get the innovation system going and to operate such initiatives. The facilitation can be done by a lone facilitator or by a larger facilitating organization. This means that facilitation of innovation system initiative is both the meeting point and the enabling point between the theories and the lived life in the regions. This meeting has interests both from the academic and from the practical side.

From the academic side it is a key validation point for the developed innovation system theories because the facilitating organization will interpret the theoretical policy implication onto a regional context, which will be a laboratory for the theories. For the practitioners the output of the regional innovation system initiative and the facilitating organization is important.

Practitioners at national and regional level want practical and visible results in the regions for their program initiatives. Industrialists and other regional organizations will want return on their investment in time and resources on regional collaboration activities. These results will depend on the facilitating organization's ability to connect the developed innovation system concepts with the regional reality.

Regions have been given by their nations or by supranational actors like the European Union a larger responsibility to develop economically. Initiatives based on policy recommendation from

regional innovation system theories are popular. In Norway several such initiatives⁷ have been initiated over the past decades. Regional innovation systems concepts are also widely used and followed in the European Union and even by the United Nations.⁸ This may indicate that regional facilitating organizations and collaborations are major tools in the economical development of the regions. The expectations from society for results in the form of value creation are great. In addition to the economic growth there are also indications that the activities in the facilitating organization can and should impact the region on a broad societal level.

1.3. Personal motivation and position

I have built my career as an academic and as a university manager on regional innovation system concepts and initiatives. Until I entered the work with this dissertation I had very little time available to study the regional innovation system literature, but still I used its rhetoric to position the university in my region. I have over the years become increasingly skeptical to the real content of these theories in relation to what I have observed in concrete initiatives. The work with the dissertation made it possible for me to go into the regional innovation systems theories. An emerging realization that none of these theories could help me in explaining the developments I had seen in the regional initiatives I had participated in made me angry at first, then indifferent to the whole concept of regional innovation, until I reached the present state where I realize that if I am going to work at a university in my region I will have to relate somehow to the regional

⁷ Such as the Norwegian Centers of Expertise program, the Arena program, the Tools for Regional Innovation (VRI) program and the establishment of regional research foundations

⁸ Se for example <http://www.clusterobservatory.eu/>, <http://www.eucluster.net/>,

<http://ec.europa.eu/enterprise/policies/innovation/policy/clusters/>, and

http://www.unido.org/fileadmin/user_media/Publications/Pub_free/Strategies_for_regional_innovation_systems.pdf

innovation systems initiative. The consequence is that I have to know more about how they function and the possibilities within the key element of implementation of such initiatives of the facilitating organization.

Although I am a physicist and an engineer by training I have spent several years in university management where the main issues have been addressed by political processes rather than engineering. My choice of a neo-institutional framework for studying the facilitating organization give away some of my theory of science position where I think social reality is created since this framework focus on socially created rules, norms, and culture to explain the organization.

Another clue to my thinking is the choice of focus on the facilitating organization, which I argue is needed to create and operate a regional innovation systems initiative. These initiatives are intangible and would not exist unless people know about them and acknowledge their existence. I see social reality as a part of reality in such way that there is a physical reality, but some matters exist and are facts by human agreement (Searle, 1995). Searle treats some facts as “epistemically objective” and these facts are “observer-relative” depending on the observers to have a common conception of a social fact. Institutions and institutional facts can according to Searle only exist within a system of constituent rules. A constituent rule states that X counts as Y in context C. To use Searle’s example, an American dollar bill counts as money in the United States, but in the physical world it is just a piece of paper (Searle, 1995, p. 28). That institutions exist only within constituent rules have an ontological consequence in the neo-institutional perspective related to the cultural-cognitive pillar of institutions. In contrast to scholars relating to regulative rules, that is rules that regulate existing activities, who will ask how the regulative system can affect actors, the cultural-cognitive questions will relate to what type of actors are present, how are their interests shaped, and what types of actions are they allowed to take? (Scott, 2008, p. 64) Relating

to the theme of this dissertation, the Kongsberg cluster can only exist if a group of people believes in it and the important questions are: who is involved, how are the involved thinking, and what are they allowed to do?

1.4. Argued outline for the dissertation

After this introductory chapter I will turn to describing the research setting as I argue that studying the historic industrial contexts and historical episodes and people in Kongsberg are important to understand how individual and organizational actors in Kongsberg behave. I will use space to describe especially the post World War II developments in Kongsberg Våpenfabrikk and its crisis in the late 1980s. Furthermore my unit of analysis is the Kongsberg cluster initiative and the national program this initiative is part of. A presentation of the local research setting in the Kongsberg cluster initiative with a description of and my position in the project finishes up chapter two.

Chapter three introduces the theoretical framework of the dissertation with the main theoretical areas: neo-institutional organizations and governance networks. Based on these I present a theoretical model as platform for my data analysis. Theories of regional innovations systems are discussed and seen as a context by which the facilitating organization is built. The broad and the operational research questions on how facilitating organizations function, is presented.

Chapter four is the methods chapter with a presentation of my data collection and analysis strategies. It also includes a discussion on my insider position in my unit of analysis, my role as a researcher, and a discussion on whether my research is action research or not. Since I have an inside position in my unit of analysis it is necessary to discuss the management of my roles as a researcher in relation to that of a project manager and employee at the regional university. The

methods of data collection were varied with documents, meeting notes, and journal for the proceedings in the project and from central and local documents. In addition semi-structured research interviews with selected members of the unit of analysis were performed. The motivation and development of the interview guide I used follows, and to conclude the chapter an overview of the different datasets is presented.

From the methodology and data the next step will be the analyzing of the data. Chapters five, six, and seven runs through the analytic model by using the facilitating organization in the Kongsberg cluster initiative as a case. First the facilitating organization's identity and capability is examined. Then in chapter six I examine who and how the meta-governance of the facilitating organization is performed. From the conclusions in the previous chapters, examples of the actual political developments and actions in the facilitating organization of the cluster initiative are analyzed in chapter seven. In the concluding chapter the feedback on my findings from the stakeholders in Kongsberg are taken into account when the conclusions are drawn.

This leads in to the conclusion were the main research question is given an answer; how the facilitating organization functions. It will also show how the analytic model shed light on the facilitating organization from the regional actor level.

2. The research setting

2.1. Introduction

The research context of this dissertation's unit of analysis is the facilitating organization of the Kongsberg cluster initiatives on several levels. First I will make a short presentation of the region and geographical area of Kongsberg where the facilitating organization of the Kongsberg cluster initiative is situated. The main objective of this cluster initiative is to develop the existing industries in the Kongsberg region; thus, I will focus on the regional industrial set up. Several of my informants say that industrial Kongsberg today is shaped by its industrial history and the Kongsberg Våpenfabrikk crisis in 1987 when the company was split into smaller companies and quickly sold. Many actors in the Kongsberg cluster initiative have participated in Kongsberg Våpenfabrikk and had a role or were close spectators in the crisis. The crisis led to the splitting up and selling of the large Kongsberg Våpenfabrikk due to accumulated financial difficulties after the company had taken on large and difficult technological development projects. In addition the company was accused of selling hi-tech strategic equipment to the Soviet armed forces leading to a negative image making it impossible to market defense equipment under the Kongsberg name for some years. I will cover the development of the industrial cluster in Kongsberg from 1990 until today with a focus on the years from 2005 until the end of 2010, when Kongsberg cluster initiative emerged.

The Norwegian Centers of Expertise national program is part of the research context so a description of the inspiration for the program, the program itself and the national actors will be important background before focusing on the facilitating organization in Kongsberg. I have a role in this facilitating organization myself, so I will finish the chapter with a description of my role.

2.2.Kongsberg

Kongsberg is by Norwegian standards a medium sized municipality with the city of Kongsberg as its center. The population is about 23,000 people (Kongsberg Kommune, 2009) and the population is expected to increase to about 30,000 by 2030. (Statistics Norway, 2009) The town was established by the Danish-Norwegian King Christian IV in 1624 when silver was discovered in the mountains. Kongsberg is situated forty-five minutes from Buskerud County's administrative center Drammen and ninety minutes from the capital Oslo.

The political situation in Kongsberg Municipality is not special by Norwegian standards. The Mayor—who has been mayor over the time this research has been done—is a former shop steward at the major industrial company Kongsberg Våpenfabrikk. He comes from The Norwegian Labor Party which is by far the largest party in the municipality. With a mayor who has been a shop steward in the mayor industrial company in Kongsberg, it would seem like the industry has a firm influence on the politicians in Kongsberg, but my experience from Kongsberg indicates that the mayor is almost alone among the politicians in his industrial interests. The mayor is a member of the board of the Kongsberg cluster initiative.

On their web site⁹ the municipality describes Kongsberg as a town with industry as the main source of income and prosperity. Kongsberg is the small town with the world class industry and Kongsberg Gruppen is the most prominent representative of world renowned technological industry. In addition the web site mentions Dresser rand, Kongsberg Automotive, FMC Technologies and Volvo Aero Norway. Defense activity, education, tourism, trade and service are also described as important to the town.

⁹ See <http://www.kongsberg.kommune.no/>

2.3.Kongsberg industrial history

2.3.1. The national importance of Kongsberg

Kongsberg's industrial development until the crisis in 1987 had been closely connected to national interests. It started with the financial importance of silver mining in 1624, and continued with the military importance with the establishment of Kongsberg Våpenfabrikk in 1814. After the First World War Kongsberg Våpenfabrikk also developed activity in the civil markets and after the Second World War became a national political instrument for industry development in Norway (Popperud, 1981). This strong historical and national mandate given to, or taken by Kongsberg, is important to bear in mind when trying to understand the culture and institutions in today's industrial Kongsberg. However, informants in my project focus on the crisis when Kongsberg Våpenfabrikk was split up in several independent companies, as formative for their thinking.

Kongsberg Våpenfabrikk was part of the Norwegian government through The Ministry of Defense until 1948. It was then reorganized to an independent limited company. The government was still the only owner and Kongsberg Våpenfabrikk should still have the responsibility to follow political signals in defense and industrial issues, but this should be done within a normal business framework (Popperud, 1981; Schiørn, 1968). In those years fundamentals for technical advanced products were made through license production and other agreements in connection with large procurements from the Norwegian government, often related to the Norwegian defense.

The industrial field developed from the large governmental agreements and procurements and became very technologically advanced and must have represented large developments in the

technological knowledge in Norway and Kongsberg. When a list of the largest engineering achievements of the twentieth century was published in Norway, two Kongsberg based developments were present on the short-list (Spilling, 2007, p. 15). However, the focus on the technological achievements may have been so strong that the economic part of business was forgotten. In three presentations of Kongsberg Våpenfabrikk there are thorough reports on the number of employees, engineers and production sites, but economical figures for the company are not presented (Kongsberg Våpenfabrikk, 1959, 1964, 1965). This indicates a focus on technology more than economy. Economic results are not reported in a forty-eight page newspaper celebrating the company's 150 year anniversary. This focus on the technological achievements may have its base in the national strategic role Kongsberg Våpenfabrikk was intended to have in Norwegian industrial politics. It became a locomotive for the modernization of Norwegian industry in the 1950-1960s (Slagstad, 1998, p. 266). The Labor Party was in power in postwar Norway and implemented a research and industrial policy based on an important link between research and industry on one side, and a close connection to the Labor government represented by the defense minister Jens Christian Hauge (Wicken, 1992, p. 12). Based on this thinking the government and others created a national industrial research infrastructure with close connections to Kongsberg Våpenfabrikk (Kongsberg Våpenfabrikk, 1964).

As Minister of Defense Hauge executed the ownership of Kongsberg Våpenfabrikk, it is said that he handpicked Bjarne Hurlen as manager for Kongsberg Våpenfabrikk (Njølstad, 2008). Hurlen stayed on as manager from 1956–1975. When talking to industrialists today on the Kongsberg Våpenfabrikk spirit, the name Hurlen pops up as the main inspiration.

Several large development projects and a change in the political climate caused the economical backbone of Kongsberg Våpenfabrikk to break and a compromise with Kongsberg

Våpenfabrikk's creditors had to be reached in 1987. In addition to the economic problems, Kongsberg Våpenfabrikk was struck with accusations of selling strategically important technology to the Soviet Union, which resulted in strong reactions in the USA. The Kongsberg Våpenfabrikk name became negatively marked and the name went out of use. Kongsberg Våpenfabrikk's divisions were split up and sold, and the government—for strategic reasons—kept the ownership of the defense part. When talking to some of the actors from Kongsberg Våpenfabrikk I get a feeling that the crisis was seen as the economists breaking up the playground for engineers, and thereby also mocking the technology breakthroughs that had been made.

The government did a post mortem on the Kongsberg Våpenfabrikk crisis in the form of an Official Norwegian Report (Arntzen, 1989). Their conclusions seem to be disputed in Kongsberg, but their conclusion was that the economic crisis neither came suddenly nor could not be contributed to circumstances beyond the company's control. Kongsberg Våpenfabrikk had produced zero profits during the 1970s and substantial deficits each year from 1980. In the composition with the creditors the Norwegian government, private inland and foreign banks lost more than 2 billion Norwegian kroner.

2.3.2. Post crisis development

After the crisis, the new enterprises created in the mid 1990s have been mostly very successful. In the proposal for Center of Expertise in 2005, the Kongsberg partnership reported a total turnover for 2002 of 10 billion Norwegian kroner and 5,500 employees. In 2008 the turnover had increased threefold. The four largest companies, also called industrial locomotive companies, have the absolute largest part of the annual turnover and the increase. The largest companies in Kongsberg today were divisions of or in other ways part of the late Kongsberg Våpenfabrikk.

Most of these except the defense part have private and international ownership. In addition to the large companies the proposal for Norwegian Center of Expertise also mentions about fifty small or medium sized companies connected to the cluster (Kongsberg Nærings- og handelskammer, 2006). Many of the industrial companies came together around 2000 and established Kongsberg Innovation AS who provides innovation services ambitious industry builder from Kongsberg and elsewhere and has as its main objective to create new large companies. In addition, an international school was established because it was an important infrastructure in order to attract a qualified workforce. The last example of cooperation is the establishment of an apprenticeship training institution for vocational workers.

The public actors relevant to the Kongsberg cluster initiative are the municipality- and the county- administration, some regional offices of national development agencies, and the local university. In addition there is Kongsberg Chamber of Commerce which originally was the industry's co operational organization but has now included other types of businesses as members.

The largest companies¹⁰ are dominant forces in Kongsberg and it is said that nothing is done without them. The relationship between the large industrial companies and the municipality and the local university was described by several informants from all parties as being problematic or nonexistent in the years before the Kongsberg cluster initiative.

2.4. Norwegian Centers of Expertise

From about 1990 the national bodies related to enterprise development in Norway took several initiatives to address regional innovation system theories. The three main actors were national

¹⁰ Kongsberg Gruppen, FMC Technologies, Kongsberg Automotive, Volvo Aero and Dresser Rand

development agencies: The Norwegian Research Council, Innovation Norway and the Industrial Development Corporation of Norway. The programs¹¹ initiated were to a large extent learning arenas where the total outcome of the programs was more experimental and learning.

A factor complicating the addressing of regional innovation was that the responsibility for it was addressed by at least three ministries¹². The government in 2002 made a plan for “General innovation policy” in order to coordinate the efforts on innovation and to create more sharp instruments for policymakers and public support bodies (Nærings- og handelsdepartementet, 2003).

Among other follow-ups were two White Papers which called for establishment of Centers of Expertise (Kommunal- og regionaldepartementet, 2005; Utdannings- og forskningsdepartementet, 2005). The two Ministries use a bit different wording in their descriptions. One of them says (in my translation) (Kommunal- og regionaldepartementet, 2005, pp. 69-71):

“The government has started the work to establish “Centers of Expertise” in Norway....A comparable arrangement in Finland has been very successful... Centers of Expertise will strengthen regional industry- and knowledge environments with enterprises with growth ambitions and international competitiveness. The program will be particularly important to stimulate the growth potential of industry environments related to medium sized and small town-regions with both industry and university colleges and other knowledge environments. The objectives of the program are to support and develop closer and stronger committed collaboration in clusters of industries with international potential, and to enable exacting innovation projects. Industrial top competence and scientific quality will be demanded. Centers of Expertise shall be governed by industry but have binding agreements with a regional knowledge environment.”

¹¹ Such as Value Creation 2010 and its predecessors, REGINN, ARENA

¹² Ministry of Trade and Industry, Ministry of Education and Research and Ministry of Local Government and Regional Development

The program was started in three phases and between 2006 and 2009 a total of twelve Norwegian Centers of Expertise were appointed. The Kongsberg cluster initiative entered the program in 2006.

The program description is the three national development agency's implementation of the government's policy and a result of a dialogue with researchers and the other actors important for the program. The three agencies have divided their roles and responsibilities towards the Norwegian Centers Expertise-program so that one agency owns the program, another follows up the local initiatives, and a third advises the initiatives (Norge, 2005, p. 13) thus making the governance system for the cluster initiatives unclear. The motive for this division of roles is not clear but the three actors may be seen as struggling for spaces and mandates within innovation initiatives as this is high on the agenda for all three of them. It can also be seen as necessary coordination of agencies with different but partly overlapping missions.

The program description for the Norwegian Centers of Expertise states that the program is designed to develop innovation in the knowledge economy (Norge, 2005, pp. 1-3). The main objective of the program is (Norge, 2005, p. 4): Norwegian Centers of Expertise shall contribute to increased value creation by triggering and strengthening collaborator innovation- and internationalization- processes in clusters of enterprises with clear ambitions and a large potential for growth. The program description argues that several issues should be addressed; Collaboration between industrial companies and their surroundings is needed. To enhance competitiveness learning processes based on localized and tacit knowledge are important. The commercial actors in the cluster initiatives are the primary drivers for its aimed and defined development activities. Secondary actors are research and development organizations, educational institutions, collaborative institutions, public development, and public policy

institutions. The cluster definition used in the program was inspired by Porter's cluster theories; geographical concentrations of companies with commercial and technological focus supported by a broad partnership of relevant actors. In the program description of Norwegian Centers of Expertise¹³ the frames and boundaries of a cluster are described as:

- An industrial domain or technological focus of the core activity based on one technology domain or knowledge area, a focused industrial domain, or a cooperation in an effective value chain.
- Geographical concentration of actors
- Actors involved must be a number of education, research, and development actors, companies, financing institutions, and public development actors with relevant cooperation relations.

The types of activities supposed to be done by a cluster initiative include developing common visions and strategies. Based on these the cluster initiatives should establish networks of actors to implement collective actions like finding new business areas, enabling the companies for international markets, develop the competencies especially education and research, in the clusters, and branding the clusters (Norge, 2005, p. 7). The need for facilitation of these cluster initiatives is mentioned explicitly in the cluster development activities and this is explicitly mentioned as one of the activities that can be financed by the program. Facilitation in this

¹³ See http://www.innovasjon Norge.no/TP_fs/NCE/NCE%20Programbeskrivelse.pdf downloaded 1. December 2010 at 13:00

document is called process management and is defined as¹⁴: “The engagements of persons to manage the process, implement the decided activities, initiate, describe and facilitate new activities and common development projects in addition to the documentation and reporting of activities and results.”

The program document of the Norwegian Centers of Expertise demands that the cluster initiative should be organized as a project with a full time project manager. The national program has established national learning and arenas for exchanges of experiences between the projects and between the other actors and the projects. The local cluster initiative project managers have meetings on a regular basis with the national management to discuss issues at hand and to receive management directions.

2.5. The Kongsberg cluster initiative

The Kongsberg partnership tried to become a pilot Center of Expertise in 2004 but lost to Horten, Raufoss and Ålesund. The theme for the cluster at that point was “Industrial Innovation” (Bjørnson, 2004). In the second round “Systems Engineering”¹⁵ was chosen as the theme and it seems that in order to get within the frame of the national NCE program it necessary to argue that Kongsberg was a knowledge cluster more than a pointed industry cluster required by the definition in the program document.

¹⁴ See <https://www.innovasjon Norge.no/Aktuelt fs/Nyheter/2008/November/NCE%20utlysning%202009.pdf> downloaded 1. December 2010 at 13:00

¹⁵ Systems Engineering (SE) is a engineering discipline focusing on development of complex systems for applications. Traditionally SE is a tool within the space, defense, automotive, and ICT industrial domain. It also has application within oil- and gas-production, energy supply and logistics. SE bridges the different traditional engineering disciplines and focuses on the whole system, the interactions between the different parts of the system and its surroundings during design, production, operation, maintenance, and the dismantling of the system.

In 2006 Norwegian Center of Expertise in Systems Engineering was established in Kongsberg (Kongsberg Nærings- og handelskammer, 2006) by a partnership of industrial companies, Kongsberg Municipality, Buskerud County, Buskerud University College, Kongsberg Chamber of Commerce, and industry and other actors. The objectives of this Kongsberg cluster initiative was to:

- Strengthen the large (locomotive) industrial companies.
- Establish world class education and research within Systems Engineering in Kongsberg.
- Establish and consolidate one to two new large industrial companies in Kongsberg.
- Establish a large group of smaller market-driven, technology based enterprises in Kongsberg.

A facilitating organization was set up to address these objectives. The objectives were broken down to task which existing organizations such as the university and the innovation company was given the responsibility to address:

- Creating a knowledge platform for industrial development in Kongsberg - Kongsberg Chamber of Commerce.
- Knowledge development on bachelor-, master- and research-level – Buskerud University College.
- Creation of new enterprises – Kongsberg Innovation AS
- Activities to increase the attractiveness of Kongsberg city as a place to live and work – Kongsberg Municipality.

In addition, several other smaller activities were established.

The facilitating organization was formally seen by the actors in two ways. The first that it was organized to mimic a “company” with a board, administration and departments (NCE Systems Engineering, 2009, p. 14). Second all participants treat the activities in the facilitating organization as they would treat a normal project within their organization. I will use the project terminology when describing the activities and the formal organization of the facilitating organization. The facilitating organization of the Kongsberg cluster initiative has four levels: the partners (see Table 2.1), the board, the project managers, and the sub-projects. The owners of the Kongsberg cluster initiative were and still are a total of 17 partners (Table 2.1). These partners meet once a year to evaluate the project’s work and to plan for the next year.

<i>Partner</i>	<i>Type of organization</i>	<i>Responsibility</i>
Kongsberggruppen ASA	Locomotive company in industrial domains defense, aerospace and maritime industries	Industrial partner
Kongsberg Automotive ASA	Locomotive company in industrial domain automotive	Industrial partner
FMC Technologies AS	Locomotive company in industrial domain production of sub-sea oil and gas production	Industrial partner
Volvo Aero Norge AS	Locomotive company in industrial domain jet engines	Industrial partner
Dresser Rand AS	Company in industrial domain gas turbine and energy supply	Industrial partner
Esko.Graphics Kongsberg AS	Company in industrial domain	Industrial partner
Kongsberg Devotek AS	Company in industrial development services	Industrial partner
Argos Solutions AS	Company in industrial domains	Industrial partner
Kongsberg Chamber of Commerce	Membership organization	Contract partner of the whole cluster initiative. Responsible for the “Foundation for industrial growth” project
Kongsberg Innovation AS	Innovation company	Partner. Responsible for the “New industrial companies” project
Buskerud University College	University, government owned	Partner Responsible for the “Knowledge development” project
Kongsberg Municipality	Municipality	Partner, Funding actor Responsible for the “Kongsberg attractiveness” project
Kongsberg Region	Inter-municipality cooperation	Partner
Buskerud County	County	Partner Funding actor
Innovation Norway-regional office for Buserud and Vestfold	Regional office of national policy instrument	Partner Funding actor Observer in the project manager group
National Institute of Technology	Development and test service provider. Owned by an independent foundation	Partner

Table 2.1: Partners in the Kongsberg cluster initiative summer of 2009

The board of the cluster initiative has five members; three from the industrial partners who also chair the board, the rector of Buskerud University College and the mayor of Kongsberg are permanent members. The administration is in addition to the project manager the part project managers for the earlier mentioned main activities. Each part project have their own project owner and the part project managers are employed by them.

2.6. My role in the facilitating organization

In Kongsberg cluster initiative I am placed within the facilitating organization as the project manager for the knowledge development project. I do not and have never lived in Kongsberg and have only known the city by reputation. My direct connections with Kongsberg are through my part time work at local university and in the cluster initiative. I am employed by Buskerud University College department of Engineering where my main responsibility is to follow up the university's obligation in the Kongsberg cluster initiative through the knowledge development project. I report in two lines: to the project manager in the cluster initiative, and to the Dean of Engineering at the university. At the university people working on the knowledge development project are organized in a team which has had between three and seven members. In one period the chairman of the board of the Kongsberg cluster initiative and two former managers of large industrial companies in Kongsberg have been part of this team. The motivation for the university was to gain a closer access to the industrial Kongsberg. At the same time this complicates the relations for the facilitating organization because these persons were at the same time board members, active contributors in the organization through their position at the university, and partners of the facilitating organization in their positions as company managers.

I have been in this position since 2007. In the Kongsberg cluster initiative's facilitating organization I work in the project managers group (the administration) and I am also present at

the board meetings. My task is partly to report on the progress of my part-project to the steering group and the project manager, partly to participate in developing and discussing all the existing and new policies and activities for the whole facilitating organization of the cluster initiative project. Lately a main developing task has been to work for the establishment of research and a research institute in Kongsberg. At Buskerud University College I lead a small project team implementing the master's program in System Engineering there. This includes overseeing the work in our two contact groups with industry (Human Resources and Research and Development), development of a proposal of accreditation of the master program, and being a secretary in the development of a research agenda for the industrial related activities in Kongsberg. In general my task is to translate the cluster initiative's demands on the university to academic and bureaucratic language. One third of my task is the intermediary functions and communication between the facilitating organization and the management and staff at Buskerud University College.

My activities call for interaction with many people but for most of them I have chosen to interact in a formal and bureaucratic way. The work, for example, with the reference groups is organized through one in my team as their point of contact and so on. I have also relied much on written communication, formal meetings, and emails to communicate. There has been a closer and also day to day contact with members of the team in the university, the management of the university, the project manager team of the facilitating organization, and to some extent with the board members. The feedback of especially the project team at the university has been that they have perceived me as too distant with too little time in the team. I myself feel that I have been in the facilitating organization, but with more of a physical and less mental distance.

3. Theory

One trend based on the knowledge economy concept is that the economy to a large extent is seen as regionalized. A group of theoretical concepts called regional innovation systems has grown from an analytic tool to giving policy recommendations for regions who wants to have economic success. These policy recommendations need to be implemented and facilitated in the regions. This is done outside the existing regional organizational set up, because coordination between many actor groups is important. This leads to the creation of an organization to implement regional innovation systems. This organization is the theme of this dissertation and the focus of its research questions. I call this entity the facilitating organization. The main research question is: How does a facilitating organization work?

This chapter will argue that regional innovation systems are constructed social realities based on a set of constitutive rules agreed upon by the theoretical regional innovation system concepts, national economic policy makers, and regional actors. A constitutive rule has the form X counts as Y in context C (1995). In relation to my research question it can be rephrased as: a group of companies (X) counts as a cluster (Y) in a region (C). The facilitating organization of a socially constructed regional innovation system will, as stated above, work between the three constructors of constitutive rules: the theoretical concepts of regional innovation systems, national actors initiating regional innovation system initiatives, and regional actors implementing regional innovation system initiatives. These three constructors of the facilitating organization exist in different contexts and may have different sets of constitutive rules as a base for the construction of the organization. This leads to an inconsistent environment for the facilitating organization to deliver its output.

The argumentation above is based on a neo-institutional approach to answer the research question: How does the facilitating organization of a regional innovation system initiative work? The neo-institutional approach is based on institutions defined as a set of constitutive rules and “institutions are comprised of regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life”(Scott, 2008, p. 48).

In neo-institutionalism an organization needs to survive and the key element of survival is to obtain legitimacy. “Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions”(Mark C. Suchman in Scott, 2008, p. 59) . As mentioned above the facilitating organization of a regional innovation system initiative has to maintain its legitimacy towards the inconsistent environment of its three constructors: the regional innovation systems theories themselves, the national initiators of initiatives, and the regional actors in the initiative. Nils Brunsson (2002) argues that there are two main strategies for an organization to maintain legitimacy in an inconsistent environment. The first strategy is action: that is the organization must produce goods or services in return for money that can assure its continued survival. The second is the political strategy where the organization depends on its ability to reflect and create a symbolical accord with its environment (Brunsson, 2002, p. 14). Two ideal types of organization are constructed from this: the action organization and the political organization. However the real facilitating organization will be something in between these two ideal types.

Regional innovation system initiatives require several autonomous actors like companies, universities, and public organizations to engage voluntarily in collaborative activities. This means

that the degree of coordination between these actors in a facilitating organization will vary. The degree of coordination may vary from none where the actors act independently of each other to the full coordination of an ideal organization. Between these two extremes there are different degrees of coordination where the actors are connected in a network. One form of networks is the governance network. A governance network is defined as a relatively stable, horizontal link of interdependent but autonomous actors which interact through negotiations within an institutionalized framework as a self-regulating community and which together contribute to public governance (Sørensen & Torfing, 2005, p. 15). The mission of the actors and the facilitating organization of a regional innovation system initiative is to improve the region's and the participating companies' competitiveness and as such they form a governance network.

Governance networks are discussed by neo-institutional theorists¹⁶ and this theoretical approach to governance networks is called the integration position. The integration position is defined by an action view where action is based on culture and not calculation and by its view on governance of the network where governance is based on coordination and not conflict. The governance network differs from an organization also in that it cannot be governed in a traditional command line. A concept called meta-governance is introduced and for governance networks in the integral position the mechanisms for meta-governance are to develop the actors' identities and capabilities (Sørensen & Torfing, 2005). The identity is who the network is and what it does, the network's capability refers to what it is able to do.

There could be several other theoretical points of departure for the analysis of facilitating organizations created by regional innovation system initiatives. System theory is one likely candidate where the facilitating organization could be seen as a system itself, a part of the

¹⁶ Walter Powell, Paul DiMaggio, Richard Scott, James March, and Johan Olsen

regional innovation system, or a part of a larger societal system. However, a systems approach to the facilitating organization would require a definition of the parts and their interaction mechanisms. The complexities of the facilitating organization—of its surroundings, other stakeholders, and its context—make it difficult to define and limit the system. In addition to this difficulty—which could probably be overcome by a strategy of simplifying the actors in the system and their interconnections—a simplifying strategy would remove the richness of the cultural and institutional background of the actors that might explain their behavior.

This chapter will start with a discussion on how the facilitating organization in its complex and inconsistent environment can be operating especially based on Nils Brunsson's "The organization of Hypocrisy" (2002). Second, a discussion of the facilitating organization as it is described in different regional innovation systems theories. The third part will look at the facilitating organization not as a traditional organization but as a governance network. The chapter concludes with a theoretical model on one way to study the facilitating organization in a regional innovation system initiative and with the operational research questions related to this model.

3.1. Talk, Decision, and Action in the Facilitating Organization

I will argue that the facilitating organization can both be a governance network and an organization. Both the network and the organization are set up to produce some kind of output. Sørensen and Torfing (2005) state that governance networks have five characteristics: it is a horizontal network of autonomous but interdependent actors put together to do a task; the actors interact through negotiations; the negotiations take place within a common institutionalized community; the negotiations are self-regulating; and, the governance network is involved in the production of public governance in a broad sense. According to Sørensen and Torfing (2005, pp. 17-18) governance networks do not have the character of organizations. Actors can form

governance networks, and governance networks may seek to be organizations and thus stop being a network, and developments can also go from organization to network (Sørensen & Torfing, 2005).

What then is the difference between an organization and a governance network? Sørensen and Torfing (2005, p. 17) state that the difference is the network's actors' independent rule- and resource base, the network's autonomous self-regulation, and the negotiations on objectives and rules within the network. Organizations are characterized by the vertical and hierarchical governance with clear command lines, but they can disintegrate to networks (Sørensen & Torfing, 2005, p. 18). Based on this I will claim that the facilitating organization is able to move between being a governance network and an organization depending on time, case, and people. The main difference between a network and an organization is the level of coordination, autonomy and command line possibilities. The actors in the network have greater autonomy and are less coordinated than in an organization. In some cases the initiatives in the facilitating organization may even get and place tasks outside the coordination at single actors.

The facilitating organization exists and aims to survive in an inconsistent environment and has a complex context and internal set-up. Nils Brunsson is a neo-institutional theorist who discusses organizational behavior under such circumstances. In the neo-institutional approach the output of an organization is needed to maintain legitimacy towards its surroundings. Its behavior is based on institutions, that is a set of rules and cultures that decide what is correct to do and how it is correct to act.

Brunsson's argument starts with the organizations' need for external support in order to get resources and legitimacy. An organization must follow the current norms to gain support, but the

norms the organization meet are often inconsistent (Brunsson, 2002, pp. 5-7). There are other ways of creating this support than effective production. Two possible strategies to avoid this inconsistency are specialization, that is to find suitable norms to relate to, and the other is learning to live with the inconsistencies (Brunsson, 2002, p. 8). There is a conflict between inconsistency and action that leads to two different principles for an organization to get legitimacy. The organizations which follow the strategy to live with inconsistencies have to create a symbolic accord with its environment. Brunsson creates an ideal organizational type for this which he calls the political organization (2002, p. 19). Organizations which follow the other strategy of gaining legitimacy through effective production he calls action organizations (Brunsson, 2002, p. 17). No real organizations match completely the two ideal types but are placed somewhere between them.

The output of the action organization is action and the output of the political organization is talk and decisions. This gives different characteristics for the two types. The action organization needs agreement to function and therefore seeks to avoid conflict. It recruits people who support the organization and this gives the organization conformity that again limits the need for decisions. The action organization often does what it says. On the other hand the ideal political organization must reflect the inconsistent norms it lives with and reflect many ideas and needs. As such its structure always has an external focus. The political organization has to maintain conflict and recruit people from many different groups and ideologies to keep up this image. Since external legitimacy is important for the political organization the politics created is by justification rather than the traditional politics by exchange (Brunsson, 2002).

A real organization like the facilitating organization will have to produce both action and policies, but it is not according to Brunsson (2002, p. 33) possible to be good at both policy and

action: “It is not possible to solve the problem, only to handle it.” Brunsson states that the way to handle this is to separate action and politics either in time, topic, environment, or in different organizational units (2002, p. 34). This separation leads to what Brunsson calls hypocrisy when the organization does not always do what it says. Brunsson states that the differences in talk, decision, and action are outside the realm of moral, and as such, their way of handling inconsistencies and should not be seen as negative. However the word hypocrisy has such a negative value that I will use the word pragmatic instead of hypocrisy in my discussion and analysis of talk, decision, and action. I will also rephrase another of Brunsson’s words: the political organization. Since Brunsson characterizes this organization’s output as talk and decisions I will instead call it the thinking or the reflecting organization type.

The existence of pragmatism in an organization has consequences for the causal relationship between talk, decision and actions. Brunsson argues that there is not a causal chain from talk to good decisions to action, but that the causality is reversed. Actions taken result in decisions and talk which legitimize these actions (Brunsson, 2002, p. xiv). There are even situations where there is no causal connection between decisions and action where ideology and a shared set of rules, an organizational ideology, regulate the relationship between talk, decision and actions. The ideology can, “to a considerable extent, dictate the choice of action” (Brunsson, 2007, p. 7). If this happens the decisions have another purpose and can be used to mobilize action. In this case rationality should be avoided and systematic irrationality should be employed according to Brunsson.

There is however one condition for pragmatism to function in an organization; namely, the people involved must not know about it, because people would then act according to their knowledge and not according to the theory of pragmatism (Brunsson, 2002, p. xv). This can lead

to an imbalance in the facilitating organization between the actor groups. Engineers and industrialists have the quest for fact based, rational choices, striving for it each day, while local politicians, for example, are more used to living in the complexities forcing them to use pragmatism as a tool with or without a clear picture of it. This imbalance may give opportunities for manipulating the outcomes of the work of the facilitating organization, but it may also lead to a standstill in the organization because the relationship between decision-making and action disintegrates.

Brunsson treats decision-making in an institution “as a well-known pattern of action with a ready-made account and with rules that are taken for granted” (Brunsson, 2007, p. 1). Decisions are made because the rules say that they have to be made. Based on this argument he underlines the potential problems between rational choice and action: “The main argument is that decision-makers who choose to or must stick closely to the rule of rationality may be likely to make good decisions; but they are also likely to face difficulties in realizing their decisions” (Brunsson, 2007, p. 7).

Decisions may have other valuable purposes, for example legitimacy where decisions in one direction compensate for actions in the opposite direction (Brunsson, 2007, p. 10). Decisions with no positive practical effects may also have a purpose when dealing with unsolvable problems (Brunsson, 2007, p. 9).

The facilitating organization deals with policy development on a broad scale in the local community, and faces conflicts and dilemmas that have to be handled. I will use Brunsson’s pragmatism concept in the analysis of talk, issues, decisions and actions which is an important

part of my research question, because it opens up the analysis of the relationships between these factors, from an apparent causal chain to a world where causality does not apply.

Brunsson's concept may also shed light on the ability of the facilitating organization to learn and change. This is important because the facilitating organization can be unable to develop or be manipulated by interest groups. Brunsson does not disregard rationality as a developing and learning mechanism, but states that it is only one of four forms of intelligence. He deconstructs intelligence in four main factors: Rationality; experience based learning; imitation; and rule following. Rules may have three main forms: norms, directives, and standards (Brunsson, 2006, p. 14). These represent an extension and clarification of March and Olsen's (1995) reference to politicians being able to use learning by experimentation for their change and development processes.

The facilitating organization will in light of Brunsson's arguments be studied in relation where in different cases is placed on an axis between the thinking organization and the action organization. In addition, the organization's talk, decisions, and actions will be examined separately, and not in a chain where talk leads to decision which again leads to action.

3.2. Regional Innovation System Theories

Richard Florida has put words to what seems to be the basic observation leading to the regional innovation systems concept: economic activities are "spiky," that is, geographically they are unevenly distributed. Some regions are successful, while others are less fortunate. So if someone is directed by national or regional government to "Create a spike here!" or if a self-organizing network draws the conclusion "We need to create a spike!" several theoretical concepts try to give an answer to how this should be done. One important contribution from these concepts is

their analytic potentials; another is the development of a language that can communicate economic development initiatives locally. It can be no coincidence that “Cluster” is a buzzword among local politicians and has a positive value, even though the precision of the concept is questioned. Several of the different regional innovation concepts recommend many of the same measures to create the “spikes” for example establish good research and business relation, create new companies, communicate and collaborate together and so on. In this section regional innovation system concepts will be discussed to explain their different key characteristics with a special focus on discussions about facilitating organizations and their role in these concepts.

This requires some words about my definition of a facilitating organization. Facilitate means to make something easier and to act as a catalyst, so a facilitating organization in a regional innovation system should make things in such a system go easier. In the different strands of innovation system literature there are discussions on organizations with different names. In triple helix literature, the hybrid organization consists of people from the three different strands of the triple helix: the academic; the industrial; and the governmental. In literature on regional innovation systems, development coalitions and learning regions use the term intermediate organization. The adjective intermediate means between two stages, an intermediary is someone who passes messages; this is a more passive role than active facilitation. A facilitating organization is active in promoting participation and activities within a regional innovation system initiative, and active in developing the innovation system’s policy and strategy. A facilitating organization will most often be hybrid in the triple helix sense as different autonomous groups participate, but that is only one defining characteristic. An intermediate organization may be a part of a facilitating organization like for example a technology transfer office at a university whose role is to transfer scientific results generated at the university to

commercial businesses, but it can not, in my definition, be a complete facilitating organization. I will use facilitating organization as a name for all organizations promoting innovation systems in all the theoretical concepts I will use in this dissertation.

Regional innovation system is an umbrella concept. The term covers several concepts on systemic approaches to innovation within a geographical area. To give a broad view of this theoretical area the most prominent theoretical points of departure for regional innovation systems is selected:

- Clusters (Asheim, et al., 2006; Bathelt, et al., 2004; Cooke, 2002; Maskell & Kebir, 2005; Porter, 1998)
- Learning regions (Asheim, 2001; Morgan, 1997; Florida, 1995)
- Regional Innovation Systems (Asheim & Gertler, 2005; Braczyk, et al., 1998)
- Industrial Districts (Asheim, 2000; Maskell & Kebir, 2005)
- The triple helix of university-industry-government (Leydesdorff & Etzkowitz, 2000)

There are other variants and some of them are covered within the head concept they are closest to, or where other scientists have placed them.

3.3.The Different Innovation System Concepts

3.3.1. Clusters

Although the cluster concept is connected to Michael Porter there are other members of the cluster concept family. In the paper “What qualifies as a cluster theory?” Maskell and Kebir treat three different cluster theories: The Industrial District with agglomeration and focus on local knowledge spillovers; The Porter cluster with focus on competitiveness and The Innovative Milieu approach with focus on the region and its development (Maskell & Kebir, 2005).

Although the focus of the Norwegian Centers of Expertise program and my project is mostly inspired by Porter, the spill-over between the different concepts makes it necessary to deal with the other two clusters.

The classical cluster concept The Industrial District, has its origin in A. Marshall’s work “Principles of Economics” (Marshall, 1930). It is defined by Maskell and Kebir as “the tendency of certain firms to collocate at certain places over a prolonged period of time” (Maskell & Kebir, 2005, p. 34). In Bjørn Terje Asheim et al.’s article “The regional innovation system of the cluster concept” Marshall’s definition is expanded:

“His characterization of these specialized Industrial Districts was cast in terms of a simple triad of external economies: the ready availability of skilled labor, the growth of supporting ancillary trades, and the development of local inter-firm division of labor in different stages and branches of production, all underpinned and held together by what he referred to as the ‘local industrial atmosphere’, by which he meant shared knowledge about ‘how to do things’, common business practices, tacit knowledge, and a supportive social and institutional environment” (2006 p. 5-6).

The public policy recommendations to support the development of Industrial Districts depend on the maturity of the District. In the early growing phase the politics should support the District with suitable infrastructure, education, stimulate venture capital to the companies, and create initiatives to enhance creativity and collaboration. In the next mature phase everything more or

less takes care of itself. If the Industrial District should decline, the public policy should be to support the dismantling and necessary change. The concept is entirely based on the market mechanisms and the individual companies as the important actors and as such do not need an independent facilitating organization. The normal organizational setup of the region should be sufficient. Asheim has worked on The Industrial District concept but in his paper “Industrial Districts: The contributions of Marshall and Beyond” his conclusion is that Industrial Districts are learning regions understood as developing coalitions (Asheim, 2000), and thus will be discussed below under The Learning Region concept.

If we look at the policy recommendations from a micro point of view, which is from a local community wanting to stimulate its industrial base, how should this community act under the Industrial District regime? In Marshall’s concept the “local industrial atmosphere” is important as the glue of the District. In order to follow the policy recommendations the community must recognize that they are an industrial district or that they can create one. This means that the nature of the “local industrial atmosphere” is important: who participates, who is excluded, and what decisions are made on the development of the community under the influence of the “atmosphere.” However, since the actors in the “atmosphere” are the individual companies that interact with each other, what mechanisms do they create when they seek to influence the community to support them in the emerging and declining phases? An additional question is: how would the local atmosphere interact with an active initiative to stimulate the district, for example, in the form of a project to facilitate industrial development?

The Innovative Milieu concept differs from the Industrial District because it is not based on the market economy and the firms are not the only important actors (Maskell & Kebir, 2005, p.40). The Innovative Milieu is based on the belief that territory: “is the matrix of economical

development and that economic mechanisms transforms space.” “Territory is understood as a space made up of a set of relationships between players (individual or collectives) and between players and their material environment” (Crevoisier, 2004, p.367). The concept is based on three paradigms: the technological (innovation, learning and know-how); the organizational (networks, competition, rules of cooperation and relational capital); and the territorial paradigm (proximity, distance, and competition between regions). Thus the concept in reality focuses on the region as the unit of innovation and it seems that everything and everybody in the region has a role in this. This leads to public policy recommendations that focus on two aspects:

- Enhancing local synergies between firms and other actors through “the creation of local ‘agent d’ animation’ or cross-firm organizer” (Crevoisier, 2004, p.40).
- Rather than promoting “local buzz” widening the horizon and extending the reach of the local actors by confronting them with other equally competitive or superior ways of organizing and developing well-known local products and services (Crevoisier, 2004, p. 41).

If we look at this concept from a micro view, again the creation or discovery of the territory is important. Which players and what material resources are to participate or have to be present for an innovative milieu to function? How should the local ‘agent d’ animation’ work to develop the good local synergies? Both in this concept and in the Industrial District it seems that the phenomenon just occurs and is discovered and recognized at some stage, and at that point synergies and development of the District or Milieu may begin. In the concepts little explanation seem to be offered on the political work and decision making needed to define the District or

territory or even which players, which enterprises, and so on are to be included. A pointed interpretation of Crevoisier's two points above may be to create a facilitating organization and use it to imitate others. This shows little respect for the local actors and their capabilities as it may seem the ultimate goal in *Innovate Milieus* is to clone successful regions across the world.

When we move on to Michael Porter's cluster we see that the core phenomenon is competitiveness measured in the productivity of local companies or in their market-shares (Ketels, 2006). One of Porter's definitions of a cluster is: "Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also cooperate" (Porter, 1998, p. 197-198). The motivation for the concept seems to be: "The presence of clusters suggests that much of the competitive advantage lies outside a given company or even outside its industry, residing instead in the location of its business units" (Porter, 1998, p.198).

Porter offers the diamond as a tool to analyze a cluster. The diamond's main structure is four important nodes that must exist in a cluster: the context for firm strategy and rivalry; demand conditions; related and supporting industries; and factor (input) conditions (Porter, 1998, p. 211).

There is a lot of critical literature on Porter's concept. In a paper "Deconstructing clusters: chaotic concept or policy panacea?" Martin and Sunley list ten different definitions of a cluster (2003). Asheim et al. state: "Porter's cluster metaphor is highly generic in character, being deliberately vague and sufficiently indeterminate as to admit a very large spectrum of industrial groupings and specializations" (2006, p.15). They continue: "Rather than being a model or theory to be rigorously tested and evaluated, the cluster idea has instead become accepted largely on

faith as a valid and meaningful ‘way of thinking’ about national, regional and local economies, as a template or procedure...” (Asheim, et al., 2006, p.16). In fact Porter himself refers to a creative process in defining a concrete cluster (Porter, 1998, p.202), the more critical refer to it as “the cluster creation game” (Martin & Sunley, 2003, p.18) Their argument is that the creation of a cluster requires an a priori faith more than rigid analysis.

When it comes to policy requirements on cluster level the main advice is hands-off for the politicians and to let market mechanisms do the work. However, two recommendations are given: actions to establish and maintain competition, and actions to catalyze and challenge the industry to raise their performances (Maskell & Kebir, 2005). In this way the basic cluster theory seems honest because it says hands off, survival of the fittest in a free competition, the winner will emerge and we can analyze them and see that clusters are winning. However in the foreword of “The Cluster Initiative Green Book” Michal Porter himself states: “While we still have much to learn about translating the concept of clusters into practice, this volume takes us a big step forward” (Sölvell, Lindqvist, & Ketels, 2003).

The ambitions are to write a handbook on cluster development for practitioner, this is also indicated by the word “Green Book” in the title.

There is not much discussion on facilitating organizations in the cluster literature, but in “The Cluster Initiative Green Book” a model for evaluating cluster initiatives is suggested, and here “resources and facilitators” are two elements among many others to be evaluated (Sölvell, et al., 2003). The same source states that eighty-nine percent of the cluster initiatives have a facilitator, and describe this facilitator as a single person, often on part-time with limited resources (Sölvell,

et al., 2003, p. 41). This indicates a void in the discussion on clusters, at least in a context where the facilitating organization has resources and consists of more than one person.

3.2.2. Learning Regions

The Learning region concept emerged in the early 1990s and was also a response to the shift of focus from national to regional economics at that time. In the book “The Learning Region – Foundations, State of the Art, Future” Rutten and Boekema seek to conceptualize the learning region (2007). Their tentative definition of the learning region is: “In a learning region, regional actors engage in collaboration and coordination for mutual benefit, resulting in a process of regional learning. Regional characteristics affect the degree to which the process of regional learning leads to regional renewal” (Rutten & Boekema, 2007, p. 136).

They define three variable groups that are important to describe the concept (Rutten & Boekema, 2007):

- Outcome variables: The ability of a learning region to facilitate regional companies to bring about product and process innovations.
- Process variables: regional learning and innovation policy
- Regional context variables: spatial proximity, regional inter-firm networks and institutional set-up of the region.

Rutten and Boekema quote four authors as the base of the Learning region concept: Michael Storper; Richard Florida; Bjørn Terje Asheim; and Kevin Morgan. Storper’s argument is based on transaction-cost logic in production organization stating that spatial clustering is caused by the

company's need to "minimize costs and time of transactions that result from vertical disintegration and the accompanying division of labor among firms" (Rutten & Boekema, 2007, p. 128). Florida bases his theory on the transition of capitalist economy into knowledge-based economy. He uses the term learning region as a characteristic of a region. The learning region: "function as collectors and repositories of knowledge and ideas, and provides an underlying environment and infrastructure which facilitates the flow of knowledge, ideas, and learning" (Florida, 1995, p.528). Asheim states that the learning region is "representing the territorial and institutional embeddedness of learning organizations and interactive learning..." (Asheim, 2001, p.75). He sees learning regions as a policy framework for long-term development and innovation and introduces the concept 'development coalitions.' A development coalition is: "The interlinking of cooperative partnerships ranging from work organizations inside firms via inter firm networks to different actors of the community..." (Asheim, 2001, p. 75-76).

The last of the four authors, Morgan, explain the difference between successful regions and less favored regions by their stock of social capital. Social capital is defined as: "features of social organizations, such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit" (Rutten & Boekema, 2007, p.134). Less favored regions should use intermediary organizations as "animators" to exploit and develop their social capital and thus become more successful (ibid.).

The interactive learning process in a region that should lead to innovation is a social process as stated by the above authors. The region will only be competitive when there is a presence of localized, place specific knowledge and these knowledge resources go beyond the physical, capital, and human resources. "The stickiness of regional knowledge is a result not only of learning (organizational and individual) and its support system. Stickiness is also a result of trust

and mutual understanding, which reinforce local inter-firm cooperation that is embedded in the business culture of an area, making it even more difficult for outsiders to imitate” (Rutten & Boekema, 2007, p. 151).

When you create a facilitating organization to implement the learning region policy framework, how will this organization impact the social capital, the networks and the development in the region? In other words how will the animator animate? The understanding of how the animator itself is set up and functions will be important.

3.2.3. Regional Innovation Systems

In a chapter of “The Oxford Handbook of Innovation” Asheim and Gertler state: “The basic rationale of regional innovation systems is that the systemic promotion of localized learning processes can improve the innovativeness and competitive advantage of regional economies” (Asheim & Gertler, 2005, p. 311). Even if learning processes are central in the regional innovation system concept, Asheim states that it is different from the learning region and that even though innovation systems must constitute a core element of learning regions the two concepts should not be used as synonyms (Asheim, 2001, p.75). Charles Edquist states that innovation system “is still associated with conceptual diffuseness” (Edquist in Edquist, 2005, p. 186). He defines an innovation system as: “all important economic, social, political, organizational, institutional, and other factors that influence the development, diffusion, and the use of innovations” (Edquist in Edquist, 2005, p. 182).

The main components of the system are the organizations and institutions (Edquist, 1997). It is the systemic approach in this concept that separates it from the others, because it relates it to “general systems theory.” According to this a system has a function, comprised of components

and the relationship between the components. In addition it must be possible to discriminate between the system and the rest of the world (Edquist in Edquist, 2005, p. 187). Edquist also lists ten types of activities that can be important to innovation systems, but states that there is no consensus on which activities and functions are needed. The types of activities Edquist lists are learning and research, and development of organizations and institutions that can promote innovations, incubation activities and financing of innovation, etc (Edquist in Edquist, 2005, pp. 189-191).

There are several types of innovation systems but for the purpose of this paper the regional innovation system is the focus. Region is not well defined and can be anything from a small city to a continent. Cooke introduces two main dimensions of the regional innovation system: the governance and the business innovation dimension (Cooke, Heidenreich, & Braczyk, 2004). To examine the facilitating organization in a regional innovation system the governance properties or characteristics of the innovation system are important. They are shown in Table 3.1 below.

Type of innovation system	Initiation	Founding	Research	Technical specialization	Co-ordination
Grassroots	Local	Diffuse	Applied and near market	Low	Low
Network	Multilevel	Partnership	Pure and applied	Flexible	High
Dirigeste	Central government	Central government	Basic or fundamental	High	High

Table 3.1: The governance perspective of regional innovation systems (Cooke, et al., 2004)

In the grassroots governance the initiation for systemic coordination comes from the local industrial actors themselves and local, regional, or national authorities do not play a major role. Network innovation systems require a multi-level approach with many actor types both industrial and public. One consequence of the multi-actor and multi-level approach is that the coordination will be demanding (Cooke, et al., 2004, pp. 11-12). In the Norwegian context of innovation system initiatives with its partnership based initiation and mixed founding, this will be the most widely used governance modus. In the dirigeste modus the main initiative and founding is external to the region, and no local partnerships are needed. The trend the past years towards a larger regional responsibility has moved many dirigeste innovation systems towards the network modus.(Cooke, et al., 2004) Among these three governance modes the facilitating organization would be most important in the network style innovation system, with its multiple actors that have to be coordinated.

Although the facilitation of the activities in the regional innovation system is seldom discussed coordination between several actors is needed to implement the activities recommended by people like Edquist. The actors needed are universities, schools, regional politicians, potential financiers, incubator companies, and more. In addition, when the governance of the innovation system in at least the Norwegian context is network oriented, it is clear that a dedicated facilitating organization is needed to implement the functions and activities.

3.2.4. Triple Helix Cooperation

In cluster theory the companies have the lead, in the learning region and regional innovation systems theories the regional actors are together in the lead. In the triple helix theory universities are the leading actors. Henry Etzkowitz and Loet Leydesdorff refers to the universities' role in reorganization and transformations induced by new technologies and states that "University

research may function as a locus in the ‘laboratory’ of such knowledge intensive network transitions” (Leydesdorff & Etzkowitz, 2000, p.109). In the Triple Helix model the concept is based on the knowledge society just like the base for the Learning Region and the regional innovation system concepts. And again communication and negotiations between institutional partners “increasingly reorganizes the underlying arrangements” (Leydesdorff & Etzkowitz, 2000, p.109). In the Triple Helix approach a rather simplistic model is used where a tri-lateral network between state, industry and academia is the base. An ideal type of this network occurs when the three actors in the network meet in overlapping arenas like networks or hybrid organizations (Leydesdorff & Etzkowitz, 2000). The three actors are seen to be in three different contexts of values, cultures and institutions and the aim is not that they become equal, but that they relate dynamically to each other.

“A Triple Helix in which each strand may relate to the other can be expected to develop an emerging overlay of communications, networks, and organizations among the helices” (Leydesdorff & Etzkowitz, 2000, p.112). “The Triple Helix development model focus on creating intermediary mechanisms that play a broader role than in developed environments” (Dzisah & Etzkowitz, 2008, p.105).

A circulation regime where people from the three actors float between the actors, are seen as the important part of the actor relations. “The actors from the different spheres negotiate and define new projects ... Thus, a Triple Helix dynamics of university-industry-government relations is generated endogenously” (Leydesdorff & Etzkowitz, 2000, p.115).

In order to get this internal generated process going a three step process is recommended (Dzisah & Etzkowitz, 2008, p.107):

- Bring relevant partners together.
- Form a commissioned study to precisely identify opportunities

- Formulate an action plan that may adapt organizational models or invent new ones.

The main question is: who decides? For example who picks the relevant partners? Maybe ideally they should pick themselves and self-organize? When you commission the study, who does the job and how “relevant partners” should frame the commission is unclear. The role of a triple helix facilitating organization seems at the outset to be nonexistent because the dynamics and force are created by the friction and negotiation from the meeting of the three actor spheres, but when we look at the recipe we see that facilitation is needed to bring partners together, commission studies, and to formulate and follow up action plans. The triple helix concepts would also imply that the facilitating organization should be anchored in the three spheres.

3.4. Regional Innovation System

When we look at the umbrella concept, regional innovation systems that include all the concepts discussed above, what can be generalized from them? Table 3.2 shows an overview over the different concepts, their policy recommendations, and the position of the facilitating organization if any in the concepts.

There are researchers critical to these concepts and it seems that the cluster concept is the most attacked. Maskell and Kebir state: “..the cluster concept will join those rare terms of public discourse that have gone directly from obscurity to meaninglessness without any intervening period of coherence” (Maskell & Kebir, 2005, p. 31). Martin and Sunley even suggest that “the cluster concept should carry a public policy health warning” when used especially within a policy context (2003, p. 5). Nevertheless the cluster concept seems to be the most popular known and is used by politicians, bureaucrats, and regional actors. It is the cluster concept that is the inspiration for the national Norwegian Centers of Expertise program and the proposals for this program are

still, as of summer 2009, being measured against their “cluster-score.” This example shows that regional practitioners must somehow relate to these concepts and their normative directions.

Concept	Core phenomena	Policy recommendations	Role of facilitating organization
Clusters Innovative Milieu Industrial districts	Geographical agglomeration, industrial atmosphere, and competitiveness	Hands off policy Development of regional infrastructure and competitive framework conditions	Cross firm organization and networking
Learning regions	Regional learning and renewal	Broad regional collaboration to develop the regions social capital	Organization of regional learning and renewal
Regional innovation system	Systemic promotion of regional learning processes for all factors that can promote innovative action	Develop research, learning, performance of important organizations, financing and incubation for new companies	Organize inter actor collaboration and networks
Triple helix	Interaction and friction between industry, academia, and government	Circulation between the three actor groups	Hybrid organization to ensure circulation, for example Technology Transfer Offices

Table 3.2: Regional innovation systems concept with a rough overview over characteristics and the role of the facilitating organization in them

My main critique of regional innovation system concepts is that the theories should be used as analytic tools and the prescriptive initiatives on the basis of these should be done very carefully.

My main research question relates to how this implementation of regional innovation systems is done regionally. To examine this it is necessary to reposition oneself from theoretical concept view to the view of a region trying to enhance its innovation potential. To rephrase Martin and Sunley: How does one play a ‘cluster creation game?’ (2003, p. 18).

The theories mentioned above all have a point of departure on describing phenomena in a geographical area. The main phenomena may be seen as competition in Porter's cluster theory (1998), cooperation in the Triple Helix theory (Leydesdorff & Etzkowitz, 2000), learning in the learning region theory (Morgan, 1997; Florida, 1995), characteristics of districts in the Industrial Districts theory (Asheim, 2000) and the systemic approach in the regional innovation system theory (Braczyk, et al., 1998). The different theories also seem to have been influenced by a spillover effect between them. In addition they have some features in common. One commonality is that the borders of the geographical area are seldom clearly defined. Another commonality is that as the theories have evolved they have increasingly become normative, that is, policy recommendations are often made on basis of the theory. In a critical article on clusters Martin and Sunley state: "Porter has not only promoted the idea of 'clusters' as an analytical concept, but also as a key policy tool" (2003, p.6). An example of this is: "Cluster-based thinking can help guide policies in science and technology, education and training, and promotion of exports and foreign investments, among others"(Porter, 1998, p.253).

These policy recommendations are followed by recommended actions in companies but also to the creation of formal and informal organizations which should aim to influence cluster development: "Individual companies can independently influence cluster development, and cluster pioneers or leading firms often play this role because they gain major benefits. Given the important externalities and public goods involved in clusters, however, informal networks and formal trade associations, consortia, and other collective bodies often become necessary and appropriate" (Porter, 1998, p.258).

Another example of the normative tendency in cluster theory is from the Maskell and Kebir article (2005) discuss the different policy implications of three cluster theories: Industrial

District; Competitive Cluster; and, Innovative Milieu. For Industrial Districts the politics should focus on local spillovers, for Competitive Clusters on competitiveness and for Innovative Milieus on regional development. Maskell and Kebir discuss this in the article “What Qualifies as a Cluster Theory?” Their main conclusion is: “What is urgently needed is further work aimed at distilling basic explanatory elements of some of the many theories currently in play in the field and bringing them to trial by confronting them with real-world data” (Maskell & Kebir, 2005, p. 42).

One challenge is to adapt the innovation theories to real life because reality is highly complex and create diversities in the explanations. Crevoisier, who has a part in developing the concept of Innovative Milieus, states: “In fact, the problem for economic science today is not to construct more theories – since there are already numerous and contradictory theories – or to identify the single correct theory. The difficulty is more one of identifying and understanding the economic mechanisms that operate in a concrete context” (Crevoisier, 2004, p.377).

The different concepts’ definitions are unclear and to some extent overlapping. In addition the authors using these concepts not only use them as analytic tools but also give normative directions and policy recommendations. This ambiguity of the theoretical concepts together with the complex and varied regions where the concepts are used leaves room for opportunism by actors using the policy recommendations since the development of regional innovation systems involves almost everything in a region. This room is also open to actors with a deliberate agenda, for example to use the cluster initiative to promote and legitimize the actor’s own activities. The local actions generated as part of regional innovation system initiatives are also influenced of other, regionally embedded mechanisms than those described and proposed in the innovation literature. The local implementations of regional innovation systems are mostly done by a

facilitating organization or a single facilitator. It is through the facilitation of innovation systems initiatives the concepts meet the real world and understanding of the function of this facilitation, and will potentially shed more light on this problematic meeting.

3.5.The Facilitating Organizations and the Regional Actors

In all of the concepts mentioned thus far, the need for organizing the activities and collaboration is expressed explicitly or implicit in that the activities suggested need some sort of organizational support. At the outset it seems to be two different kinds of organizations needed: one to develop the innovation system itself and one to implement the concrete action steps needed in the system. Examples of the first type of organizations are cluster facilitating organizations based on Porter's theory. There are cluster facilitating organization schools and whole consultancy firms built on advising on cluster facilitation. Another example is from Cooke and Crevoisier who both use the term "animator" of organizations needed to initiate and develop Regional Innovation Systems and Innovative Milieus (Cooke, 2002; Crevoisier, 2004). From the Triple Helix concept an example of the second type of organization is the technology transfer organization whose purpose is to transmit academic knowledge from the university to the companies and thereby stimulating innovations. In the Triple Helix concept this is called a "hybrid" organization (Leydesdorff & Etzkowitz, 2000).

When examined closer the division into two types becomes less distinct because the animator often needs to show more concrete results than just animation of a system, and thus have to initiate "do" activities. The "do" organizations on the other side may evolve into animators by the collaboration they have in their activities. They may even influence the governance of the innovation systems to be able to protect their own activity and secure resources for their activities. This indicates that the organization activities needed to get an innovation system

rolling have the potential to influence the innovation system in many directions – wanted or unwanted. Cooke discusses governance of innovation systems, but to a lesser extent the inner dynamics of organizations created as part of the innovation system (Cooke, 2002). In the Triple Helix concept the inner dynamics of the system is the driving force for innovation (Dzisah & Etzkowitz, 2008; Leydesdorff & Etzkowitz, 2000), but these forces are created by frictions from the three different spheres: academia, government, and companies, and not directly from the hybrid organizations developed.

Nearly all regional innovation system initiatives need some sort of facilitation to get going and to sustain themselves. The facilitating organizations in regional innovation systems do policy development for the whole region, both a sector policy for developing industry itself, but the organization may also need to have an influence on broader policy issues since the theoretical concepts and policy recommendation influence many parts and issues of a region. Governance and choices of direction for the region is important, and the understanding of the local governance structures is therefore an issue. This means that the organizational, and of course personal, set up of a facilitating organization influences the outcome of a regional innovation system initiative.

When it comes to understanding the concrete choices and actions the individual regional innovation system initiative implements and where this region succeeds or fails we have to look elsewhere. This is particularly important when innovation systems meet regional partnership processes. Frank Peck and Christine E. Lloyd claim: “Partnership processes can actually determine the characteristics of cluster strategies in some regions where consensus building is considered to be a priority.” They continue: “As a consequence of these regional and local policy processes, the definition of clusters and forms of clustering owe as much to political processes

and governance structures as they do to theoretical debates about the nature of clusters”(Peck & Lloyd, 2008, p. 402).

The broad implications innovation has in the learning economy means that we will have to look for a broader understanding of the society. Governance and choices of direction for the region are important, and the understanding of the local governance structures is therefore needed. The resources that are put into regional innovation systems initiatives may even end up in the innovation system organizations manipulating society beyond what is reasonable. This can end up in an uneven, local playing field for development and even in a potential democratic deficit. It is therefore necessary to look more closely on the regional actor level for explanations rather than in the conceptual systems level of the regional innovation system concepts.

3.6.The Facilitating Organization as a Governance Network

The previous discussion on regional innovation system concepts is theoretical context by which facilitating organizations are established. The understanding of the how and why the facilitating organization works is important to gain a better understanding on how regional innovation initiatives really impact the region and the region’s actors. I follow Peck and Lloyd (2008) when they state that political processes and governance structures may be better than innovation theories in explaining the nature of clusters, for example when clusters are established by a partnership of actors. Even though at least in the Norwegian context facilitating organizations most often are temporary organizations in the form of projects, they are anchored in relatively broad partnerships of different private and public actors. These partnerships are put together for the purpose of enhancing a region’s competitiveness and economy. This influences many actors and issues in the region at the same time the actors are autonomous. This means that the facilitating organization can be seen as a governance network or as a part of one. A governance

network is a horizontally organized network of autonomous actors that takes part in public governance (Sørensen & Torfing, 2005).

In a conference paper, Ismael Blanco et al. criticize and try to clarify the ambiguity in definitions between different network concepts: “‘Policy networks’ and ‘network governance’ are, in our view, the constituting concepts of two distinct theoretical approaches that aim to explain a similar empirical phenomenon, which we could generically refer to as ‘governance networks’” (Blanco, Lowndes, & Pratchett, 2009, November, p. 3).

The authors claim a common ground for the three concepts:

“‘Policy networks’, ‘network governance’ and ‘governance networks’ share with them some basic assumptions:

a) that governance is not monopolized by governments and that authority is fragmented;

b) that different actors have important resources for policymaking, so they are interdependent; and that

c) as a result of this, these actors tend to cooperate with each other to reach common goals, in the frame of informal, but nonetheless structured/ institutionalized patterns of action”

(Blanco, et al., 2009, November, p. 4).

They further define policy networks and network governance as theoretical approaches while governance network is an empirical manifestation that can be explained by the two other terms:

“...we will conceive policy networks and network governance as the constitutive concepts of two distinct theoretical approaches and governance networks as the (evolving and varying) empirical phenomenon that they both attempt to tackle.” (Blanco, et al., 2009, November, p. 7)

I am studying and want to analyze an empirical phenomenon namely the facilitating organization created in regional innovation system initiatives inspired by the theoretical concepts of regional innovation systems. Sørensen and Torfing (2005) have as Blanco (2009, November) states kept open an ambiguity and use a wider theoretical platform for the examination of the fuzzy real world. I will use Sørensen and Torfing's perspective on the governance network concept as point of view for my discussion where I see the facilitating organization as a governance network.

3.7. Definitions of Governance Networks

With the focus on governance networks it is relevant to look at some definitions. Bob Jessop has a preliminary definition of governance: "as the reflexive self-organization of independent actors involved in complex relations of reciprocal interdependence, with such self-organization is based on continuing dialogue and resource-sharing to develop mutually beneficial joint projects and to manage the contradictions and dilemmas inevitably involved in such situations" (Jessop, 2003, p. 101). R.A.W. Rhodes says: "...governance refers to self-organizing, inter-organizational networks characterized by interdependence, resource exchange, rules of the game, and significant autonomy from the state" (1997, p. 15).

Sørensen and Torfing's definition of governance networks is based on Rhodes and Jessop's definitions. According to Sørensen and Torfing, a governance network is:

- A relatively stable horizontal articulation for interdependent, but operationally autonomous actors;
 - Who interact through negotiations;

- Which takes place within a regulative, normative, cognitive and imaginary framework;
- That is self-regulating within limits set by external agencies;
- Which contributes to the production of public purpose.

(Torfing & Sørensen, 2007, p. 9)

Table 3.3 below is adapted from Sørensen and Torfing and shows their overview over governance network theories.

	<i>Calculation</i>	<i>Culture</i>
<i>Conflict</i>	Interdependence theory (Jessop, 1998; Kickert, Klijn, & Koppenjan, 1997; Rhodes, 1997)	Governmentality theory (Foucault, 1991)
<i>Coordination</i>	Governability theory (Mayntz, 1993)	Integration theory (March & Olsen, 1995)

Table 3.3: Overview over four different governance network theories (Sørensen & Torfing, 2005, p. 36)

Sørensen and Torfing distinguish between the four theoretical positions in Table 3.3 based on their conceptions on social action and societal governance (2005). The driving force for social action can be either rational calculation or culture-bound rule-following. Societal governance can be perceived either as persistent conflicts or coordination (Sørensen & Torfing, 2005).

Where does the theoretical and practical context of regional innovation systems place the facilitating organization in table 3.3? Is the facilitating organization a driving force for action calculation or culture? The main stated objective of regional innovation systems initiatives is to

enhance economic growth in private companies. Private companies are usually inhabited and managed by economists and engineers. This should emphasize a belief in rational choice.

However, in the context of a partnership with many other actors, the dominance of rational choice and market orientation is diluted, making rational calculation difficult, and the glue of the partnership may to a larger extent be the actor's regional culture. This does not rule out elements of rationality but tips the balance in the direction where action is based on culture. This is in line with the discussion on talk, decision, and action above where Brunsson's (2002) argument is that an institution's ideology and a shared set of rules determines an organization's development.

What then about governance of the network? All the innovation system concepts argue for collaboration between many different actors and actor types to build a competitive region. There are possible areas for conflict, especially in a pure Porter cluster where competing companies are part of the same cluster. The dominant governance mechanism for the concepts is coordination, especially when seen in a partnership context. This should place the theoretical position of the facilitating organization as a governance network within the integral position of March and Olsen. March and Olsen (1995, p. 70) state that contemporary democratic politics are composed by loosely coupled institutional spheres with different purposes, logics, principles, and dynamics. In their view a governance network is "relatively stable, self-organizing networks of interdependent but partly autonomous actors with resource bases and rule structures of their own." This definition is complementary to Sørensen and Torfing's definition quoted above.

3.8. The Integration Position of Governance Networks

I have quoted March and Olsen's definition of governance networks above. One base for integration theories on governance networks is the view of action:

“Political actors act and organize themselves in accordance with rules and practices that are socially constructed, publicly known, anticipated, and accepted. Actions of individuals and collectives occur within these shared meanings and practices, which can be called identities and institutions. Institutions and identities constitute and legitimize political actors and provide them with consistent behavioral rules, conceptions of reality, standards of assessment, affective ties, and endowments, and thereby with a capacity for purposeful action” (March & Olsen, 1995, p. 30).

Action is taken on basis of an appropriate match of the actors’ behavior in relation to a situation, and coordination is done with rules and practices the actors agree upon. This may lead to actions that may be instrumental for the problem, but most important is the action in relation to the rules and expectations of the actor (March & Olsen, 1995, p. 31).

3.8.1. How Does the Facilitating Organization in the form of a Governance

Network Start up?

Governance networks occur when there is a need for balance between political authority and individual autonomy. Governance networks contribute to this balance because the interdependence between the actor increase their need for autonomy, which again requires stronger governance (Sørensen & Torfing, 2005, p. 95). There are at least two theories on how governance networks are established. March and Olsen have a micro-perspective where capabilities are diffused through networks of contacts. The objective is not to strengthen any particular institution “but to make it possible for the collection of institutions that constitute a polity to gain and use knowledge” (March & Olsen, 1995, p. 107).

Powell and DiMaggio's point of departure is that there are some broad, fashionable thoughts on how governance and cooperation between organizations and individuals should be organized. Through an isomorphic process the organizations are forced to become more equal to other organizations. Most often legitimacy is more important than efficiency in choosing the network organization (DiMaggio & Powell, 1983). Sørensen and Torfing state that these two theories can be combined in the analysis of governance networks (Sørensen & Torfing, 2005, p. 98).

When looking at the two theories on the establishment of governance networks in relation to the establishment of the facilitating organization of a regional innovation system initiative we see that both points of departure above may explain this. The regionalized economy and the thoughts on regional innovation systems are new and fashionable thoughts on how a region should organize itself to do better. Much of the literature on regional innovation systems base their examples on regions that have gone well and should be copied, as DiMaggio and Powell state. The facilitating organization is also established like March and Olsen states above, with the purpose to organize several actors to collaborate to make the region better.

3.8.2. The Function of a Governance Network

In integration theory governance networks are seen as a framework for developing the actors identities and capabilities (Sørensen & Torfing, 2005, p. 99). Identity is related to who we are and what we do; capability is related to what we have and what we know or can do. March and Olsen expand on this: "When citizens claim or accept identities as citizens of a political unit, members of an occupation or profession, or persons of a particular gender, ethnicity, or religion, they connect themselves to groups of others similarly identified. Group identity becomes cognitive and motivational basis for the elaboration of beliefs and behavior" (March & Olsen, 1995, p. 74). Further elaborating on this they state: "Individuals secure their identities and develop self-esteem

through solidarity with groups of similar others. They notice and glorify characteristics of their own groups that contrast with characteristics of groups to which they do not belong (March & Olsen, 1995, p. 75).

When it comes to capability March and Olsen define four kinds of it: (March & Olsen, 1995, pp. 92-95)

- “Rights and authorities empower citizens and officials”
- Resources available to individuals and institutions: These are assets that make it possible for individuals to do things or to make others do things.
- “Competencies and knowledge possessed by individuals, professions, and institutions”.
- “Organizing capacity that allows utilization of formal rights and authority, resources, and competencies.” For March and Olsen the focus is mainly to organize for political, democratic action.

The democratic issues are fundamental for March and Olsen since their main focus is democratic governance, but for a regional innovation initiative the development of collective innovation in the region is the focus. However the policy recommendations in the regional innovation concepts require a broad societal impact and also the democratic effects of the facilitating organization can be important. Is the facilitating organization of a regional innovation system initiative democratic or have democratic deficiencies? This question remains to be answered.

To be functional a governance network has to have both an identity and capabilities to function according to March and Olsen. To analyze a facilitating organization anchored in a regional partnership both its identity and its capabilities to function as a governance network must be uncovered. The identity of the facilitating organization may be connected to the characteristics of the regional innovation system it relates to. One possible example is an identity connected to the geographic area where the facilitating organization works since a geographical concentration is common in several of the innovation system concepts. Another possible identity is the type of industry the facilitating organization addresses where it can have identity features connected to business or industry, for example oil-equipment manufacturing. A third possibility of identity features is connections to the dominating professions of the industries the facilitating organization work with, for example an engineering identity of an industrial cluster.

The facilitating organization's capabilities may be more concrete and easier to detect than its identity. Capabilities can be seen as financing, budgets, the number of people involved, and their ability to organize themselves. Also the formal mandates of the facilitating organization will be possible to uncover through the organization's documents. However informal mandates and competencies that may be stronger than the formal capabilities of the facilitating organization can be more difficult to uncover and may even only be seen through what the facilitating organization is able to do.

3.8.3. Success or failure of governance networks

When is a facilitating organization a success? When the organization is seen as a governance network, Sørensen and Torfing answer that it is a success: "When the interaction in the governance network contributes to the solution of the specific challenge and/or are able to utilize new possibilities" (Sørensen & Torfing, 2005, p. 102). So if the facilitating organization of a

regional innovation initiative enhances the economic success of the region it is according to this definition a success. This may be a bit of a naïve definition of success because there would likely be problems of contributing the developments especially of complex issues to a concrete facilitating organization's actions and interactions.

For a social constructivist the governance network's success would depend on its ability to claim that their actions have solved a problem and then to get at least some external recognition of their claim. In referring to the social construction of success and failure March and Olsen define them by two values: the measure of political performance, and the measure of political aspirations. If those two do not match or cannot be socially constructed to match, disappointment is the result. In the construction of success and failure there is a bias towards failure because the actual realized return most often is less than the expected return (March & Olsen, 1995, p. 201).

One condition for effective governance is: "Developing the capacity for dynamic, interactive learning among autonomous but interdependent agencies about causal processes and forms of interdependence, attribution of responsibility and capacity for actions, and possibilities of coordination in complex, turbulent environment;"(Jessop, 2003, p. 104). This learning capacity should also be important when facilitating the innovation activities in a region. March and Olson claims that it is the change process which is the key to success for a governance network as a political institution (1995, p. 183). "Political institutions have been described as requiring greater learning capacity, improved ability to produce experiments, better skills at monitoring results, greater capabilities for evaluating and interpreting experiences, and more effective procedures for storing and retrieving the lessons of history" (1995). This change involves learning and co-evolution where environments adapt to institutions and vice versa. (1995, p. 189) This learning and co-evolution has many instruments. "They [political institutions] anticipate their futures and

act to shape them. They contemplate their pasts and learn from them. They observe the actions from others and reproduce them. They engage in discourse, debate, and discussion and derive insights from conflicts and contradiction. They experiment with competing alternatives and preserve those that show advantages” (1995, p. 197).

This connects very closely to Nils Brunsson’s (2002) picture of an ideal political organization. I have renamed it to the thinking and reflecting organization. If a governance network chooses to do what is expected of them with the identity they relate to, how will it be possible to experiment freely and not just “do what we always do”? The success of the facilitating organization depends on an ability to be in thinking and reflecting position, but at the same time have legitimacy with its surroundings. For legitimacy to be maintained it is necessary for the facilitating organization to be seen as matching its ambitions and plans with its results.

3.8.4. Meta-Governance of Governance Networks

“Meta-governance is a way of enhancing coordinated governance in a fragmented political system based on a high degree of autonomy for a plurality of self-governing networks and institutions” (Sørensen, 2006, p. 100). The key variable of meta-governance is thus coordination and as the prefix meta indicates meta-governance is something between uncoordinated autonomous actors and the ideally coordinated organization with hierarchy and command lines. The facilitating organization of a regional innovation initiative is based on coordination of several autonomous actors who are participating voluntarily in the initiative. As such the coordination of a facilitating organization is similar to the meta-governance of a governance network.

In integration theory the focus of meta-governance is to shape the actors’ identities and capabilities. Tools for regulating the identities can be developing the institutional rules and

norms, storytelling of “best practices,” creating new symbols and rituals, but also regulating the agenda of and the access to the network to regulate the conflict level (Sørensen & Torfing, 2005, pp. 106-107). March and Olsen’s (1995) aim for meta-governance is to reduce the conflict level and create a democratic, political consensus. The actors’ capabilities can be regulated by resource and mandate distribution between the actors. Meta-governance of the capabilities should—in a very conscious way—distribute the capabilities, and there is a clear danger that actors with strong capabilities can block this conscious distribution and veto proposal not in their primary interest (Sørensen & Torfing, 2005, p. 107)

In integration theory there is no clear theory on who the meta-governor is. March and Olsen who mainly discuss democratic governance networks, refer to the political system, the government and the modern democracy as a meta-governor, thereby referring to the pluralist balance between different actor groups. In the facilitating organization in a regional innovation system initiative democracy is not the main issue and there are several possible concrete meta-governors such as the national organization’s funding and governing the program, actors in the region where the initiative takes place, and even actors from the industrial companies that are participating in the initiative.

Sørensen has a more concrete way of looking at meta-governance that can connect to the facilitating organization and claims that meta-governance can be exercised in four distinct ways:

- Hands-off framing of self-governance
- Hands-off storytelling
- Hands-on support and facilitation

- Hands-on participation

(Sørensen, 2006, p. 101).

Framing is exercised by shaping the political, financial, and organizational contexts to challenge the self-governance of the actors. Self-governance is a new concept referring to autonomous actors' governance of themselves. "The term 'self' indicates that these agents share a certain capacity to act not due to some innate quality, but due to the social and political processes in which self is embedded" (Sørensen & Triantafillou, 2009, p. 2). The self-governance also includes "...that vast array of situations in which the self is allowed and possibly even urged to govern itself by external, non-deterministic forces" (Sørensen & Triantafillou, 2009, p. 2).

So by framing the budgets, contracts, and other contexts of the facilitating organization it should by itself move in the direction desired by its meta-governors. Accountability is a framing mechanism where a person, group or organization can be held responsible for their actions and can even have to suffer the consequences for their decisions and actions. The accountability for a facilitating organization does not only go to a national body running and funding the program. Accountability may, even to a larger extent, be directed to the different actors' mother organization or to another professional or personal network and as such be part of the facilitating organization's method of creating a symbolic accord with its surroundings that is its legitimizing process.

Meta-governance by storytelling: "Can also be exercised by shaping these [i.e. the actors interests] through the formation of meanings and identities that constitute the self-governing actors." "Through storytelling, it is possible to shape images of rational behavior through the

construction of interests, images of friend-enemy relations, and visions of the past and possible futures for individuals and groups and for society at large” (Sørensen, 2006, p. 101)

From my argument earlier the stories of regional innovation systems can be seen as both a framing and a storytelling meta-governance exercise. The regional innovation system concepts can be used as a framing mechanism because they give policy recommendations on what to do and how to do things. This challenges the local actors’ political and organizational contexts because the local actors must adapt or at least seem to adapt to them. For example local actors like a small university have to be drawn into the facilitating organization in order to fulfill the requirements of the regional innovation system concept even though the companies involved may see it as an unimportant knowledge provider. Storytelling is a part of the cases discussed in the regional innovation system literature; they often use concrete successful cases like Silicon Valley, modern industrial Italy, and Oulo, Finland that was an important inspiration in the establishment of the Norwegian Centers of Expertise program. These cases are success stories told to disseminate “best-practices” to influence the self-governance of the local actors.

As for the two hands-on meta-governance exercises, that is facilitation and participation, can be observed in the facilitating organization. The more interesting part of this is who and how the facilitation and participation is done.

The facilitating organization may at times act like a normal organization, if such an entity exists, with clear command lines and instructions that are followed. But the participants in regional innovation systems initiatives are at the outset autonomous actors with their own resource bases that to participate in such initiatives must coordinate their strategies and actions. The facilitating organization established by these regional stakeholders will have the characteristics of a

governance network, and the four mechanisms of meta-governance will be relevant to uncover when studying the facilitating organization.

3.9. Critique of the Governance Network Theories

Mark Bevir discusses governance as narratives, and states: “Currently the dominant narratives of governance are the neo-liberal one and that of governance as networks” (2003, p. 203). As I see it the main point of Bevir’s critique is:

“To explain people’s actions, we implicitly or explicitly invoke their beliefs and desires. A rejection of positivism implies that we cannot properly do so by appealing to allegedly objective social facts about them. Instead we must explore the theories and meanings through which they construct their world...” (2003, pp. 204-205)

Bevir’s conclusion is that advocates of governance as networks should: “Move towards a decentered account of governance; they should unpack the institutions of governance through the study of various contingent meanings that inform the actions of the relevant individuals.” “The decentered approach analysis of governance, in contrast, would focus on the social construction of networks through the ability of individuals to create meanings” (2003, p. 209).

I have used some space on Bevir because I recognize myself in his critique of institutionalists. I have stated above that I put the actors into categories like engineers, industrialists, former Kongsberg Våpenfabrikk employees, etc. I have in my problem statement the question “Where did that idea come from?” I take it for granted, but have not proven in this dissertation that a single person puts ideas into the network somehow. Thus in this case Bevir’s suggestion that the level of analysis should be on the individuals should be followed. But when I choose not to address the facilitating organization as a governance network mainly in the decentered way, it is a question of the level of analysis. I am mainly interested in uncovering how the ideas and policy choices gain momentum, or not, in the facilitating organization. To gain momentum it is

necessary for an idea to get broad acceptance in the actor groups of the governance network. This is especially important since the regional innovation systems concept address the participants as actor groups: industrialists, academics, politicians, and bureaucrats. So my level of analysis of governance networks will be studying actor groups, but that does not mean that Bevir's decentered approach would have been interesting when studying how ideas propagate and get acceptance within the actor groups, because it could explain the origin of ideas that seem to pop up from nowhere and after some time gets the acceptance of a group.

3.10. The Analysis Model

The analysis model is constructed to test my three main theses: first, the regional innovation system facilitating organization can be seen also in the form of a governance network; second, the governance network may be manipulated by single actors and actor groups; and third, the governance networks ability to develop to fulfill its articulated aims is limited. These theses lead to the broad research question: how does the facilitating organization work, and why does it work like that? To answer this question the base for my analysis model is that the facilitating organization of clusters and other regional innovation system initiatives is mainly a governance network when seen from the regional actors' perspectives.

Figure 3.1 brings together my two main theoretical arguments: first that the facilitating organization can move between being an organization, a network, and sometimes even seen as individual actors. The second argument is that the facilitating organization can move between being action- and thinking-oriented. This brings me to the horizontal axis in figure 3.1 which is describing a continuum from individual or loosely coupled actors, via network to an organization. In figure 3.1 and in this discussion an actor can be a person, a company or another organization of some kind, and both the governance network and the facilitating organization are built up of

these kinds of actors. The left hand side of the figure represents uncoordinated individual actors and the right hand side represents a higher degree of coordination with the ideal organization to the extreme right. The governance network takes the middle position.

Where is the facilitating organization on the horizontal axis? Formally it is an organization, most often at least in Norway, a project organization for a predefined time. However, when comparing the facilitating organization with the characteristics of a governance network the differences are small. So the facilitating organization will be positioned mainly in the right half of Figure 3.1.

The vertical axis in Figure 3.1 refers to the two ideal types of organization in Brunsson's (2002) thinking; the action-oriented on one side and the thinking/learning-oriented on the other side.

This axis, as Brunsson states, is also continuous the facilitating organization is positioned somewhere between the two extremes. The four quadrants in Figure 3.1 can thus be named according to their level of coordination and their orientation towards action versus thinking. This is done in Table 3.4.

Based on the argumentation above on the complexity of actors and tasks for the facilitating organization it is reasonable to state that although the facilitating organization formally is an organization, in reality it has functions and should be analyzed as a governance network.

	Uncoordinated	Coordinated
Thinking	Q1: Uncoordinated thinking	Q2; Coordinated thinking
Action	Q4: Uncoordinated action	Q3; Coordinated action

Table 3.4: The four quadrants demonstrate the possible modes of a facilitating organization.

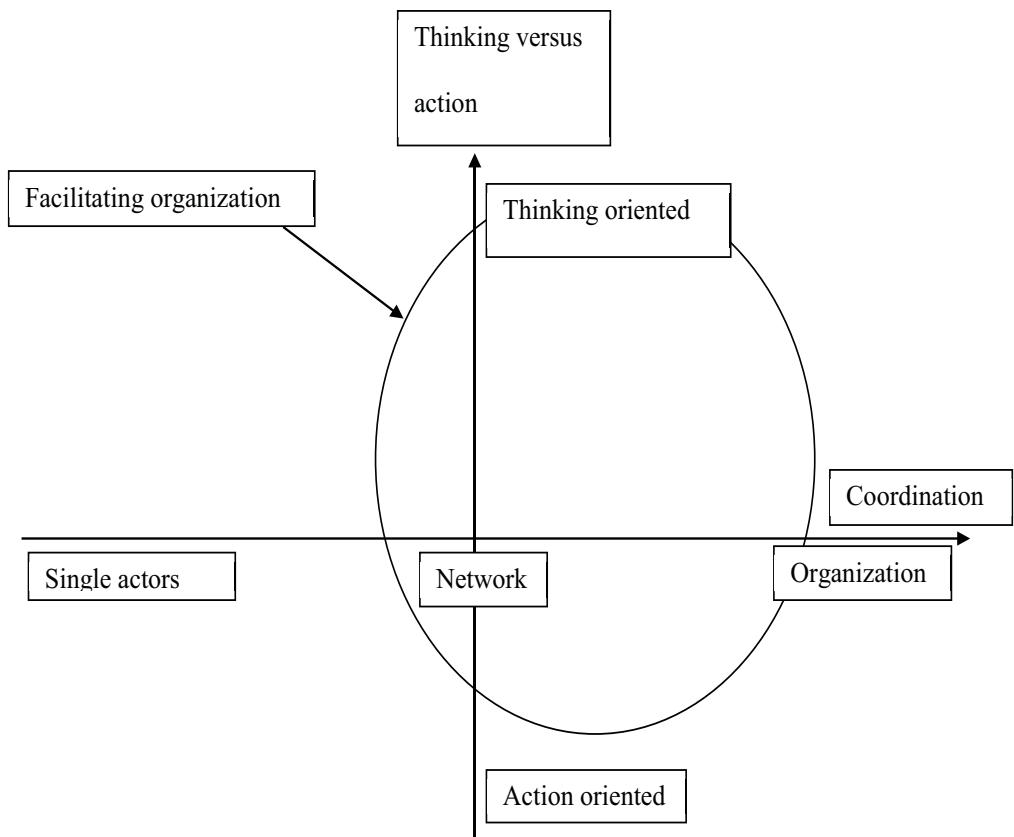


Figure 3.1: Possible positioning the facilitating organization on two axes: horizontally the degree of governance, and vertically the degree of governance.

Fortunately the founding theories for the study of networks and organizations have a common platform which makes it possible to study the facilitating organization both as an organization and as a governance network. For example March and Simon (1993) do not construct their discussion on organizations around hierarchical coordination but around decisions. Their definition of organizations is: “Organizations are systems of coordinated action among individuals and groups whose preferences, information, interests, or knowledge differ” (March, et al., 1993, p. 2).

March has later, together with Olsen, expanded his discussion into governance networks with an emphasis on democratic governance (1993, 1995). In neo-institutionalism it is socially constructed institutions in the form of culture, rules of behavior that influence decisions and action. Brunsson’s (2002) analysis on talk, decisions, and action in organizations in a complex and inconsistent environment also falls within a neo-institutional paradigm. Within the governance network literature one of four theoretical positions (Sørensen & Torfing, 2005) is the integration position. In the integration position the main theorists are March and Olsen (1989, 1993, 1995). The actions of governance networks in the integral position are governed by culture and institutions, and governance is done by coordination rather than conflict mediation.

This lead to a second model of analysis of the facilitating organization and the coordination of it based on March and Olsen’s (1995) integration position on governance networks. The model in Figure 3.1 will be used to analyze the position of the facilitating organization in relation to thinking versus action and the degree of coordination of the actors. Figure 3.2 will be used in the analysis of how and why the facilitating organization acts and moves in relation to Figure 3.1 in the different activities studied. Figure 3.2 shows the overview of the analytic model of the forces within and outside the facilitating organization and has three main elements: the facilitating

organization itself; the meta-governance of the facilitating organization; and the facilitating organization's output in the form of talk, decisions, and actions. Meta-governance here refers to who and how the facilitating organization is governed.

The actors in the facilitating organization are defined by their identity and their capabilities. Meta-governance mechanisms drive and develop the facilitating organization actors' identities and capabilities. This identity and capability creates the talk, decisions and actions in the facilitating organization. The development of the facilitating organization's talk, decisions, and actions is related to how the actors with their identity and capability have and use their intelligence. This development in the facilitating organization gives a picture of how the facilitating organization copes with its heterogenities and complexities, perhaps sometimes by Brunsson's pragmatism. Pragmatism not in the meaning of lying, but in a meaning where talk, decisions, and action do not directly match each other. The reason for the use of pragmatism is that the facilitating organization needs legitimacy, which is to get its output accepted as desirable and useful for itself and its meta-governors. The output is where the talk, decisions, and actions are fed back to the facilitating organization itself and to its meta-governors to gain legitimacy for further resources and mandates.

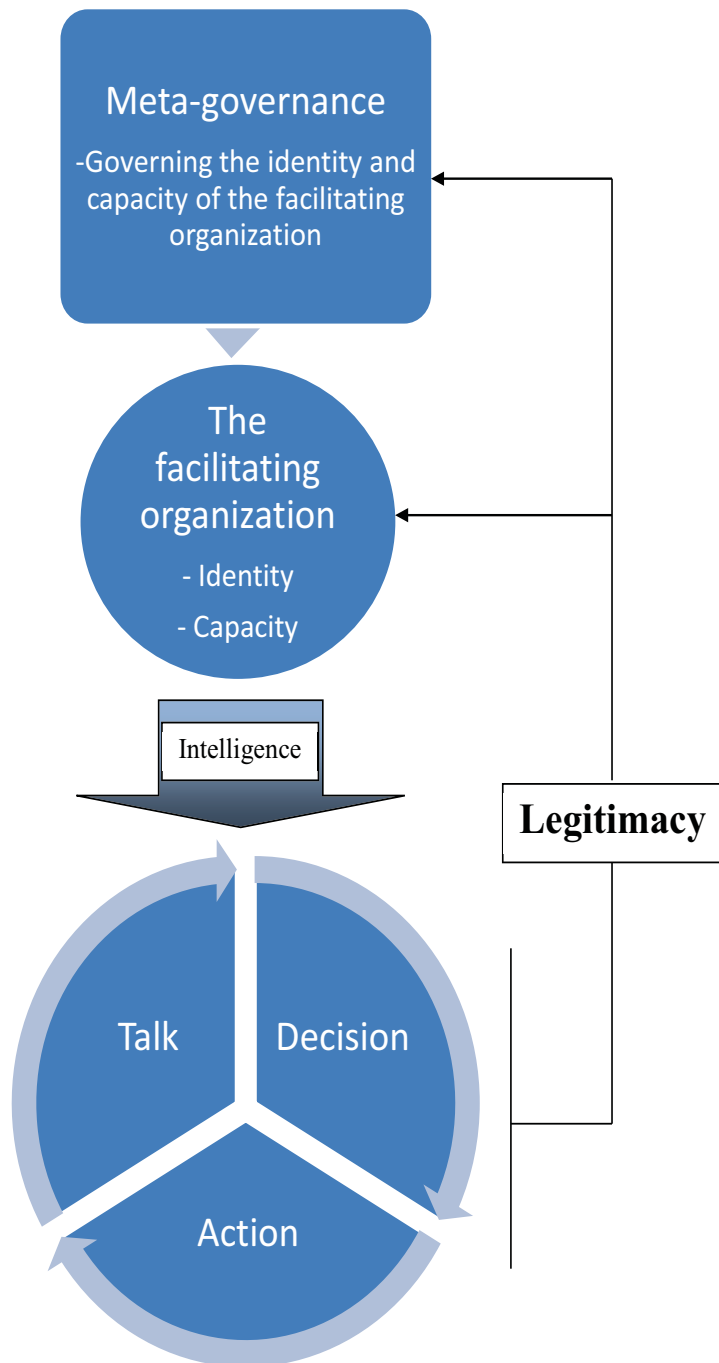


Figure 3.2: The analysis model: Forces influencing the facilitating organization’s identity and capability and creating politics in talk, decision and action process

3.10.1. Uncovering the Facilitating Organization's Identity and Capability

The actors are the members of the facilitating organization on all levels. In studying their identity the focus will be to study features of their identity as a facilitating organization more than individually. The group identity is the cognitive and motivational base for the elaboration of beliefs and behavior while the individuals secure their identities through their solidarity with their groups. The individuals' group identities are not necessarily the same as the facilitating organization's group identity (March & Olsen, 1995, p. 74). It is therefore necessary to uncover the facilitating organization's identity at two levels: the identity of the facilitating organization itself and the identities of dominant groups, if any, which are members of the organization. This identity should manifest itself in the data in who the actors think they are, and what they think they should do with bases in their identity. The first research question is what is the identity of the different actors groups involved and in the facilitating organization as a whole?

The next task is to uncover the facilitating organization's capability to perform. March and Olsen (1995, pp. 92-95) identify four components of capability in a governance network: first, the mandate of the network; second, the resources in the form of people and economy which are mainly provided by the meta-governance; third, the competencies of the people, professions, and institutions involved in the network; and fourth, the network's ability to organize and to get things going.

The research questions to be answered first are:

- Which mandates are given, and who gives mandates? When do mandates lead to development of politics, or in other words, which mandates are taken seriously and which are not?

- Which resources and people are available to the facilitating organization, and which competencies do they possess?
- The last question is to uncover the organizational capability of the facilitating organization: how does it work to create talk, decisions, and actions?

3.10.2. The Meta-Governance of the Facilitating Organization Seen as a Governance Network

In integration theory the main purpose of meta-governance is to ensure peace and reduce the conflict level in the governance network (March & Olsen, 1995), but part of this is to coordinate the governance in a fragmented political network of autonomous institutions and networks (Sørensen, 2006, p. 100). The research questions regarding meta-governance focus on three elements of meta-governance in the regional innovation system facilitating organization.

First, who is performing meta-governance? In Norwegian innovation systems initiatives there are several actors with an interest in this. One way of arranging the potential meta-governance actors are hierarchical based on national, regional, and local levels. On the national level the ministries and politicians with responsibilities for regions and industrial development are actors. In addition, the national agencies for research, development, and business and industry policies will often have the national ownership of the program where the regional facilitating organizations are located. In later years the regional level in Norway has gotten a larger responsibility for developing their regional economical systems. Regional actors are county politicians and bureaucrats, regional employers and employees unions, and regional representatives of the above mentioned national agencies. At the local level actors and institutions outside the facilitating organization may have an interest to influence the facilitating organization. They may be local

politicians and individuals with opinions on the initiative, or they may be institutions, organizations, companies, or personal networks not directly part of the initiative, but with a power to influence the identity and capacity of the organization.

The second step in uncovering meta-governance is addressing which actor is addressing what and how this is done. The central objective of meta-governance is to try to shape the actors' identities and capacities. The identities are shaped by regulating the access and agenda of the network, telling "best-practice" stories, and developing rules, norms, and symbols for the network.

Sørensen (2006, p. 101) identifies four distinct ways to exercise meta-governance. First, framing of self-governance where the financial, political, and organizational contexts are shaped to motivate autonomous actors to govern themselves. The second method is storytelling that constitutes the formation of meaning and identities of the actors' and motivates self-governance. The last methods are support, facilitation, and even participation in the facilitating organization and as such having an active hands-on role in the developments. So the second research question on meta-governance is: How do the actors do the meta-governance of the facilitating organization?

3.10.3. The Development of Talk, Decision and Actions

Talk, decisions, and actions are the output from the facilitating organization and depend, among other things, on the actors' identities and capacities and the meta-governors' influences on the actors. The three elements are: discussion on which issues are brought to the table in the facilitating organization; the formal decisions made by the partnership, its board, or the project managers; and actions which are the concrete things done by the facilitating organization. The outputs do not go into a void but are observed both by the actors and their surroundings and should give legitimacy to the facilitating organization. The outputs create in some cases, but not

all, a feedback on the output to the actors and their meta-governors which again may lead to changes in meta-governance and the facilitating organization's behavior.

The research focus is to study the talk, decisions, and actions of the facilitating organization in light of the organizations actors and meta-governance as studied above. Brunsson (2006, pp. 26-27) has divided organizations into two parts: the dream world of the rational organization and the real organization we live with. One way to deal with this is pragmatism as a way of handling complex issues and conflicting values simultaneously (Brunsson, 2002). The consequence of pragmatism is that talk, decisions and actions have to be studied independently as there is not necessarily a chain from an issue that is brought to the table, the facts are studied as basis for a rational decision which in turn is the platform for successful action. It may be the other way around or talk, decisions, and action may be independent of each other. A part of this research question is to also try to position the facilitating organization between an action organization and a thinking organization, and to see if this position changes over time or issue.

Since one main research question for this study is about the facilitating organization's ability to learn and develop it is important to look for change and development mechanisms when studying the data from my case. Brunsson (2006, p. 14) introduces intelligence as a concept for learning and development in an organization. In Brunsson's intelligence concept rationality is only one of four components. The three others are experience based learning, imitation, and rule following. These four mechanisms will be taken into account when studying the facilitating organization's activities.

In the study of talk, decisions, and actions some major activities in the case of this study, the facilitating organization of the Kongsberg cluster initiative, will be selected and analyzed. Each

activity will be studied in light of the findings on the actor's identity and capabilities, the meta-governance of the facilitating organization, and Brunsson's concepts of pragmatism and intelligence. For each selected activity the following questions are asked:

- When and how did it emerge in the facilitating organization?
- Why did it emerge and develop?
- Which internal actors or meta-governance actors played a role?
- What mechanisms, if any, of meta-governance was used?
- How did the activity play out over time in relation to coordination and action versus thinking axes in Figure 3.2?

4. Methodology

4.1. Outline

As stated earlier my motivation for starting my PhD work was to reflect on an important part of my work-life as a university manager over a couple of decades. Regional innovation systems emerged and became a hype in this period and were especially important to connect to for a university manager wanting to be taken seriously. I have used the regional innovation system language over years to enhance Vestfold University College and also my own career. In this chapter I will first examine my pre-understandings and assumptions, then go on to describe my choice of case and data-collection strategies. From these points of departure the analysis strategy and concrete analysis is described and motivated. The chapter concludes with a discussion of my insider positions in my unit of analysis and a discussion on Action Research perspectives in my project.

4.2. Pre-Understanding and Assumptions

I have a master of science within the field of physics, and in my academic career I have worked with computer science and control engineering so my basic understanding of what is true, how we know that, and how we should approach the world to get knowledge was strongly inspired by physics and engineering. This experience makes the regional innovation system approach to understanding regional economic development appealing because the bases for these theories are mainly the fields of economy and geography. These disciplines share many of the epistemological, ontological, and even the methodological characteristics of physics and engineering. However, from my experience as a university manager and project manager for regional innovation system initiatives I have observed that even if you follow the recipes of the

theoretical concepts of regional innovation systems they neither work nor explain the developments within the initiatives. The same was true when I tried to analyze the decisions and actions in concrete initiatives within the regional innovation system conceptual frameworks.

My first reflection on this mismatch between the theories and the realities of regional innovation systems was that I did not know the theories well enough and did not understand their true nature. The second reflection was that I had misinterpreted the realities and contexts in the initiatives I had participated in. However while reading Peter Berger and Thomas Luckmann (1971) I also found some notes from my time in a cluster initiative called Electronic Coast in the late 1990s which lead me into the epistemological and ontological paradigm of social constructionism. My notes from Electronic Coast suggested that my strategy for developing the project was to pretend that Electronic Coast existed, and to convince important stakeholders to invest time and effort in Electronic Coast. Eventually Electronic Coast would become something useful to all of us. The abstract type and the diverse composition of stakeholders in regional innovation systems initiatives, at least in the Norwegian context, make social constructionism a point of departure in trying to understand why and how they exist and function because they seem to exist because a number of people think they exist.

It is hard for me to believe in strong social constructionism as a universal epistemological and ontological position. Hard realities exist like death, starvation and accidents leading to concrete and visible results. In connection to my context in this dissertation new products are made and contracts and jobs are won or lost thus having very concrete impacts on the lives of people.

However John R. Searle sees social reality as a subclass of reality, that is he sees the world as a whole as a physical and social reality. The human social reality distinctive feature is:

“The way in which it differs from other forms of animal reality known to me, is that humans have the capacity to impose functions on objects and people where the objects and the people cannot perform the functions solely in virtue of their physical structure. The performance of the function requires that there be a collectively recognized status that the person or object has, and it is only in virtue of that status that the person or object can perform the function in question” (Searle, 2010, p. 7).

This social reality is created by constitutive rules in the general form X counts as Y in context C with as an example Barack Obama (X) counts as the president (Y) in the United States (C) (Searle, 2010, p. 10). “Institutional facts exist only within a system of constitutive rules”(Searle, 1995). With this position the regional innovation systems initiatives should be studied within this social constructionist paradigm and their existence seen as a set of constitutive rules called institutions. In previous chapters I have argued that the integration position of regional governance network which is based on an institutional theory like this should be used when studying the facilitating organization as a governance network. This calls for an understanding of the habits and institutions within the regional innovation system initiatives.

4.3.The Case – Norwegian Center of Expertise in Kongsberg

The theoretical model developed in the previous chapter is used on a case where the unit of analysis is the facilitating organization of the Kongsberg cluster initiative. My interest in this case was mainly what Stake calls instrumental. I wanted “to provide insight into an issue, the case itself is secondary.” Stake claims that an instrumental case is the opposite of an intrinsic case where the aim is a better understanding of a particular case (Stake, 1995, p. 445). However I do not necessarily see the classification of cases along the instrumental to intrinsic axis. I have been admitted to parts of the Kongsberg society and have worked with them for more than three years. Many people have given me access to their thinking and knowledge during this time. So even though I am interested to provide insight into regional innovation systems initiatives in general, I agree with Alan Peshkin who is quoted by Stake: “I mean to present my case so that it can be

read with interest in the case itself, but I always have another agenda – to learn from the case about some class of things” (1995, p. 447).

I have called the facilitating organization of the Kongsberg cluster initiative a case. One useful concept for identifying a case is its boundedness and its activity patterns. I have stated above that there are several issues in Kongsberg that are interesting when looking at the cluster initiative there. One example of issues is the local university’s role in relation to innovation in industry. Another issue may be the local innovation company’s ability to create new industrial companies, an ability that has been questioned by several people. A third issue is the three largest industrial companies’ power in the municipality and in the cluster initiative. A last issue worth mentioning is the possible existence of a powerful personal network often referred to as “the good old boys club.”¹⁷ In my opinion the issue of the innovation company and the powerful personal network would be issues which if pursued could be controversial to a degree that my access to the Kongsberg cluster initiative would be restricted and my research thus would become impossible. The tactic of not addressing the most difficult issues is according to the advice and the guidelines on insider action research (Coghlan & Brannick, 2005, p. 75). Addressing difficult issues would also mean evaluating persons which are not easily accessible. The main reason is that I fall outside many of the institutions that are the dominating sets of constituting rules in Kongsberg. I am an engineer, but I am seen as an academic. I have no relevant industrial experience that also places me in a group external to the Kongsberg industrial network. I live outside Kongsberg and am thus also not a Kongsberg patriot.

¹⁷ in Norwegian “Gutteklubben Grei”

The last two issues are less controversial and more openly talked about and are interesting, but my focus was the function of the facilitating organization of a cluster initiative itself and the above mentioned issues could also derail the dissertation from this main intended focus.

The decisions and actions are implemented by the facilitating organization of the cluster initiative and it was my opinion that the important characteristics of the Kongsberg cluster would become visible through the workings of the facilitating organization. The local university legitimized my entrance into the facilitating organization by appointing me project manager of the knowledge development project thus giving me access to the board and the project manager group as an insider. This access enabled me to enter deep into the processes especially in the core of the facilitating organization and thus enable a potential for understanding the development of the politics in the Kongsberg cluster initiative. The boundaries of my case are the same as the formal facilitating organization with its partnership, board, project managers and other project participants. This is also the unit of analysis of this dissertation.

4.4.Data Collection and Sampling Strategy

The data sources of this dissertation are divided into six main categories:

1. Minutes from meetings in the facilitating organization
 - a. Partner meetings: Minutes from five meetings from 21 January 2008 until 24 August 2010. In addition minutes from one meeting with only the company partners and the project management present at 21 April 2009.

- b. Board meetings: Summons for 28 and minutes from 25 meetings in the period 7 July 2006 until 30 November 2010. In addition a minute from the provisional board meeting after the refusal of the first proposal dated 4 February 2005.
 - c. Project manager meetings: Minutes from 50 meetings from 9 August 2006 until 13 October 2010
2. Other project documents and memos produced for or by the facilitating organization:
- a. The two proposals for the establishment of a Center of Expertise in Kongsberg.
 - b. The four yearly reports from the project to the national program owners from the years 2006 – 2009.
 - c. The self-evaluation report from the Kongsberg cluster initiative to the national evaluators in 2008 and the evaluation report from Econ Poyry AS.
 - d. Several contract documents between the national program owners and the cluster initiative and also internal contracts in the initiative.
 - e. Plans for the part-projects in the cluster initiative.
3. Project documents and reports produced for or by the national coordinators of the Norwegian Centers of Expertise program.

4. Published reports and research on the Kongsberg industry listed in the Reference chapter.
5. My own interviews with persons who are or have been involved in the facilitating organization. I have 11 interviews following the interview guide in Appendix 1.
6. My own observation notes and memos from my experiences in the facilitating organization.

In addition there is a dialogue with colleges in Kongsberg on the Kongsberg Våpenfabrikk culture. Most of the data-sources were imported into a NVivo 8 database, this program was also used as a tool in the analysis.

Number in group	Type	Board Member	Working in the project	Observer
2	Representative of national agency			2
2	University employees	1	1	
1	Municipality employee		1	
3	Industrial representative	3		
3	Projects participants	1	2	

Table 4.1 Informant typography

All the available project documents were used in the analysis. Interviews were done on a selection of participants in the facilitating organization. The selection was done on the basis of an analysis of the minutes from the meetings, and I chose people with an experience from the pre-Kongsberg cluster initiative period because the official documentation starts with the formal

establishment of the project. In addition two observers from the national agencies running the Norwegian Centers of Expertise program were interviewed. Table 4.1 shows the typography of the interviewees.

4.5.Interviews

Since the official minutes of the facilitating organization starts with the formal establishment of Kongsberg cluster initiative in the summer of 2006 and it was interesting to get data from the processes leading up to the establishment, I have mainly chosen informants who participated in the processes before 2006. However, I have informants who entered Kongsberg cluster initiative at a later stage. Only two of my informants have left the cluster initiative during the process. I have not interviewed all participants in the cluster initiative because I felt I might have a need to do a second round of interviews when some results from the analysis were clear. A summary of my findings was presented to the project managers and their response did not reveal a need for further interviewing.

The interviews took place during the first eight months of 2009 and lasted between forty-five and ninety minutes. The interviews were done in Norwegian and most of them were transcribed. However, for a few of the interviews the transcription was only done on parts relating directly to the particular themes of the analysis. The invitation to the interview and the interview guide is shown in Appendix 1. The intention of interviews was to get a dialogue between the interviewee and the interviewer, reflecting on the past, present, and future of the facilitating organization. The interviews followed different lines of interviewee's interests and knowledge. Some of the interviewees had prepared for the interview by reading documents, and some seemed uncertain of my intentions with the interview. At the end of the interview I asked them if there was anything

they would have thought I would ask them, but had not. Only a couple had suggestions for topics not covered.

The interviewees were informed about my project, and promised to read and approve quotes in context. There are few people in the project and the environment is rather transparent. It was seldom important for me to point out who gave me the information and I have tried to make the informants as anonymous as possible in the text. The informants are identified by characters in the sequence as they appear in the text. I have tried at most places not to identify the informants' organizational belonging. In addition the interviews are transcribed into normalized Norwegian and from there translated into English, thus filtering out individual language characteristics.

4.6. The Analysis Strategy

The analysis of the data has three stages. The first phase was the reflection on the data as it was gathered, drawing on my past experiences and combining them with my observations in the facilitating organization. One result from this phase was the theoretical model in Figure 3.1, which is one base for Phase Two.

Phase Two was a structured examination and coding of all collected data into three different sets of nodes. The first set is a hierarchy of nodes deducted from the theory discussion and model in Chapter Three; the second is a set of free nodes used when something interesting popped up in the data which did not fit into the deductive model. Such free nodes are listed in Appendix 2. The third set of nodes was what NVivo calls cases. I used cases to organize data on interesting persons and important initiatives and collected data on a person or a project in their own case. The cases, except the names of the persons, are listed in Appendix 2.

Of the three sets of nodes only the deductive model needs further explanations. The model in Figure 3.1 has three main elements which are related to the operative research questions from chapter 3; the Actors (Chapter 5), the Governance of the actors (Chapter 6), and the Talk, Decisions, and Action (Chapter 7). These elements I call nodes.

Each of the three nodes is again deconstructed according to the reasoning in Chapter 3. For example Actors are divided into two categories: Identity (who we are and what we feel we should do) and Capability (what we are able to do). This division continues as far as the theory chapter gives directions for it; Capability is further divided into Resources, People, and Mandates. Appendix 3 shows the complete map and hierarchy of the nodes of the model, and was one base for the deductive analysis of the data in Phase Two.

The result of Phase Two was data coded and collected into three sets of nodes. In the first set of nodes based on the theoretical model, the nodes had different amounts of data. For example the node Accountability had only one reference while the node Talk had 248 references from fifty-two sources. This told me that the theoretical model was not covering my case adequately and a Phase Three of analysis was necessary.

An example of coding in Phase Two: From the minutes from the Norwegian Center of Expertise project manager team meeting 9, October 2006 the following statement appears: “We depend on many qualities, knowledge and capacities in addition to networks and it is therefore important to establish a good team and use the right persons to solve the right tasks. In this context it is important to relate to “the best” partners where we cannot ‘cope.’”¹⁸ This is coded under the category “Rituals and symbols” because I have interpreted it as something that is necessary to say at the beginning of a project. It could also have been coded under “Storytelling” as in: “We are

¹⁸ In my translation HA

from Kongsberg and we are world class, we cooperate only with the best.” But both categories are children of “Identity” so placing the data under one or both of them may still contribute to the explanation of the Kongsberg cluster initiative’s identity.

Phase Three was more target oriented aiming to answer the operative research questions from the end of Chapter 3. In this phase the data from the three node sets in Phase two were examined and condensed to find answers. For example, by examining the nodes connected to the Identity node important identity characteristics of the facilitating organization were condensed. An example from the coding in Phase Three when looking for the identity of the facilitating organization was one statement that signals two different identity characteristics: “The Kongsberg cluster initiative has both a national and a regional role and these roles may in some instances be contradictory. To have clear rules for prioritizing under such circumstances, the national role is the most important.”¹⁹ This statement is coded into a characteristic “National mandate.” Further, I have also included it in the identity characteristic “Kongsberg Våpenfabrikk” because Kongsberg Våpenfabrikk had a strategic national task to develop a modern Norwegian industry. When traces in the data from the Kongsberg cluster initiative refer to the possibilities of getting a national mandate again, I interpret this also as a reminiscence of Kongsberg Våpenfabrikk.

The Phase three analysis mentioned above was used in the chapters analyzing the actors’ identity and capacity and the meta-governance of the actor network. When analyzing the facilitating organization’s talk, decisions, and action, the conclusions from the two previous chapters is used in addition to the nodes relating to Policies. For example when discussing the difficulties in establishing a research institute I use the data collected in the case NISE (Norwegian Institute of Systems Engineering) together with the identity characteristics National Mandate. Together they

¹⁹ Minutes from Kongsberg cluster initiative’s project managers meeting October 9. 2006

may indicate that when the National Mandate was to create new Norwegian industry based on the strategic research done by national research institutes, it might be difficult for people with this identity to invest in strategic research themselves.

4.7. An Insider Research Project

To be able to uncover the developments within the facilitating organization I became a member of the organization – an insider. The local university recruited me based on my previous experience as a university manager and my main mandate was to incorporate the university's activities in the Kongsberg cluster initiative into the university. At the point of starting my work in Kongsberg the master program initiated as part of the cluster initiative was seen as an alien part of the university's activities. It was seen as necessary to work to get the cluster initiatives knowledge activities to become an integral part of the university's normal activities. It was my task to work on that. I was not invited into either the university or the facilitating organization as a researcher. However, my research was known to the university, the facilitating organization, and the people I worked with there.

Since the facilitating organization is put together from several independent organizations I have had at least three different, yet overlapping roles. The researcher role with the project I had defined myself on how to understand the workings of a facilitating organization. Second I have the role of a project manager of one of the projects implemented by the facilitating organization. In this role I am an equal to the other project-managers and the main project manager is my boss. I was not invited into this role to contribute with my own research but to provide useful knowhow on academics for the project. My third role is that of an employee at the local university where the Dean of Engineering and the Rector of the university are my bosses. Even in this role I am not invited in as a researcher, but as an academic manager and expert.

The triple role management has challenges: how can I attribute the difficulties in establishing a research institute to the characteristics of the Kongsberg Våpenfabrikk-identity in Kongsberg, when the establishment, at least from the middle of 2009, has been a deliverable in my project?

There is a possibility that weak project management was the real reason. How can I question other projects in the facilitating organization when I compete with them to get resources to the university where I am employed? This calls for a discussion on the trustworthiness, validity and credibility of the findings in this dissertation. Egon Guba and Yvonna Lincoln (1989) have established criteria and methods for establishing trustworthiness of qualitative research within the constructivist paradigm. Trustworthiness in constructivist inquiry is related to credibility, transferability, dependability, and conformability.

The first method for establishing credibility is prolonged engagement and substantial involvement in the study's unit of analysis to ensure trust and avoid distortion in the interpretation of the data. This study has lasted for more than three years and I have been committed full time to the unit of analysis, the facilitating organization of the Kongsberg cluster initiative. Half time I have been contributing as a project manager in the organization, and the other half working as a researcher. The amount of engagement does not secure complete trust by the local actors, I am still an outsider, but I have made it possible to evaluate where I am trusted and where the trust in me is limited as it is for example in relation to the development of new companies in the cluster initiative. The involvement in the organization has shown that although there are different views on several issues among my informants these are understandable and consistent with the larger picture of the unit of analysis.

The second method of Guba and Lincoln (1989, p. 237) is sufficient observation to identify those characteristics and elements that are most relevant to the issue studied. My data consist of all

written material from the facilitating organization I have gained access to as a member of the organization. The written material has been harvested from a database maintained by the project manager of the cluster initiative and is used as a working tool for the facilitating organization. None of the material produced by the organization is secret except for the business ideas and strategies related to the creation of new companies. In addition both the national program owners of the Norwegian Centers of Expertise and the people I have wanted to interview have all been willing to talk to me and share their information with me.

A third method I have used is member checks (Guba & Lincoln, 1989), which is testing out findings and hypotheses with the participants in the unit of analysis. I have done this in mainly three ways. First, the informal talk with stakeholders who I meet through my work and who often ask me on the progress of my research. Second, by a short report on my findings to my fellow project managers in the facilitating organization which although short, resulted in an acceptance of the main findings. The third and most documented and structured member check was through the interviews where I forwarded and asked the interviewees on my thinking and observations to get their response on issues of interest. The interview took place after I had observed and studied the facilitating organization for a period of two years, and I had time to formulate questions and hypothesis when the interviews took place.

Guba and Lincoln (1989) mention three other methods that are useful: peer debriefing; negative case analysis; and progressive subjectivity. I have not used peer debriefing and progressive subjectivity rigorously. When discussing the examples of the facilitating organization's work in Chapter 7 negative case analysis has to some degree been used to develop the core framework that it can explain developments in the studied examples.

Transferability is a second criterion of Guba and Lincoln who suggest in a constructionist paradigm that a thick description of the case studied enables the reader to understand the context of the unit of analysis and set out the working hypothesis for the study at hand. Guba and Lincoln claim that for a constructionist it is not possible to provide confidence limits for their studies, but that it is the responsibility of the receiver to evaluate the usefulness of the study in their situation (Guba & Lincoln, 1989, pp. 241-242). The last two criterion are dependability and confirmability where the suggested method is setting up clear audit tracks (Guba & Lincoln, 1989). For dependability it is the processes of inquiry that are important to trace. For confirmability it is important to be able to trace the data to their sources. I have used a computer program called NVivo to organize my data and my analysis processes. All data sources are traceable and also the different steps of the analysis are transparent through this program. The program can also document the inquiry processes for example the interviews are recorded and can be replayed, and transcriptions and coding can be checked.

I have studied the facilitating organization of the Kongsberg cluster initiative while working inside the organization. William Torbert discusses this as a first person action research or action inquiry (1991). For Torbert an action researcher should have a clear view of the self and the weaknesses in the self and asserts that self-transformation is necessary for societal or organizational transformations (1991). For me the triple role management as a research, project manager, and university employee has been important and I have addressed that with openness to my informants and co-workers on which role I saw myself in the different situations I encountered. As to a further discussion on myself and my weaknesses I have continuously reflected on them during the period of research, but choose not to document them through this dissertation.

One question has arisen during the study: Is it an action research project or not? One definition of action research is: “Action research is social research carried out by a team that encompasses a professional action researcher and the members of an organization, community, or network (stakeholders) who are seeking to improve the participants’ situation. Action research promotes broad participation in the research process and supports action leading to a more just, sustainable, or satisfying situation for the stakeholders” (Greenwood & Levin, 2007, p. 3). Greenwood and Levin further require all of the following three elements to be present in action research: action; research; and participation. Based on this a model for co-generative action research is presented (Greenwood & Levin, 2007, p. 94). I will use this model as a point of departure for the analysis of my project’s position in relation to action research.

The first elements in the model are the problem definition, which should be done in cooperation between the researcher and the insiders. In my project I am formally an insider even though I will always be seen as an outsider in Kongsberg and industrial Kongsberg. Even though Coghlan and Brannick use another, but partly compatible definition of action research, their typography of insider projects can be used (Coghlan & Brannick, 2005, p. 49). They classify insider projects along two axis: the stakeholders intention or not for a self-study in action, and the researchers intention or not for self-study in action. For my research project my position is that I, the researcher, do an intended self-study, but the other stakeholders do not. The result is what Coghlan and Brannick call: “Individual engaged in reflective study of professional practice” (2005). So the problem definition of this dissertation is not done together with the local stakeholders, however in the unit of analysis, the Kongsberg cluster’s facilitating organization, I have participated in board meetings and project manager meetings often discussing issues outside my responsibilities. At times these have been arenas for mutual reflection and learning and

problem solving resulting in actions and initiatives in the facilitating organization. It is from these arenas and activities data for my dissertation is taken.

One example from this co-inquiry is from the part project aiming to increase the attractiveness of Kongsberg. A slogan was needed and the project manager group and some other participants met and discussed the matter. On one point in the discussion the proposal for the slogan was “Technology town Kongsberg – sees the opportunities.” At this time I was analyzing my data to find the identity of the Kongsberg cluster and one candidate for a characteristic was “opportunism.” The group was not satisfied with the relative passive formulation “see.” I put forward in the group the “opportunism” issue, and after a short discussion “sees” was changed to “grabs.” Sadly it seems the slogan has died in the aftermath of this effort, and in addition I did not find enough data in my material to keep it as an important identity of the facilitating organization of the Kongsberg cluster initiative.

The interviews for this project have themselves been areas for reflection. As my observations and input of data increased, the interviews became reflections on issues in the facilitating organization. It is difficult to tell with confidence that issues discussed here were brought back to the discussions in the facilitating organization. One example of such issues was the role of the facilitating organization in relation to the municipality and the Chamber of Commerce. Three informants²⁰ suggested that the facilitating organization had a superior knowledge of Kongsberg and as such played the leading role in the development of the municipality. I found this strange and confronted all three informants on this and we had a discussion on it. In a board meeting²¹ the issue of roles in Kongsberg society was raised by the Chamber of Commerce.

²⁰ Informers H, K, and O in interviews

²¹ Minutes from board meeting in the Kongsberg cluster initiative June 23 2010

My conclusion is that this project is not yet an insider action research project according to Greenwood and Levin's (2007) definition; it has research and participation in the knowledge development, but it still lacks the social action. Social action may however come in the future if the actors in the Kongsberg cluster initiative choose to read the dissertation and act upon its conclusions. As indicated above by my triple role in the organization, questions may arise on the external credibility of my research. I have managed that issue on three levels. First, in my analysis I have depended mainly on written documents and my interviews in order to make the analysis and data as transparent as possible. Second, the main part of my analysis is based on a theoretical model developed directly from existing literature, thus connecting my path of thinking to existing theoretical discourses. The third level was to be particularly clear to myself and my surroundings on which role I had in situations where role management was needed.

5. Findings: The Facilitating Organization's Identity and Capability

The identity and the capabilities of the facilitating organization of a regional innovation system define the institutional framework that the organization or the governance network operates within. This chapter argues that the facilitating organization of the Kongsberg cluster initiative is not dominated by cluster thinking or the knowledge glue of the cluster but of two partly overlapping and partly conflicting identities: the Kongsberg Våpenfabrikk identity and the modern industrial Kongsberg identity. These two main identities are condensed: first, the successful, high technology industrial identity developed in the last fifteen to twenty years in the companies with mainly foreign owners. This identity is manifested mainly through the almost exponential growth in turnover among the main companies in Kongsberg. The second identity is the Kongsberg Våpenfabrikk-identity characterized with technologically focused development funded as a part of a national mandate to create new industries. The chapter argues that the Kongsberg Våpenfabrikk-identity is the dominating one in the collaborative efforts like the partnership-based facilitating organization of the Kongsberg cluster.

The second part of this chapter discusses the capability of the facilitating organization of the Kongsberg cluster initiative. The chapter argues that the facilitating organization's capability is impaired by three main factors. First, the resources and funding are limited, and the local actors demand public money for the collaborative efforts. Second, few people are involved and their roles are diffuse because they have different positions and roles in different local settings where they meet. Third, although the formal mandate for the facilitating organization is clear, the real mandate and the mandate givers are a lot more blurred.

5.1. The Group Identities in the Facilitating Organization

The facilitating organization of the Kongsberg cluster has three main bodies: the partnership; the board; and the project manager group. The partnership meets two times a year at most and the top managers of the partners in the clusters are present at these meetings. The partnership also has a nomination committee who nominates candidates for the board which is elected by the partnership meeting. Within the different bodies of the facilitating organization different groups are represented. The first group is the industrialists who are people employed by the industrial partners of the Kongsberg cluster. The second group is members of other important organizations in the partnership outside the primary industrial partners such as the Chamber of Commerce, Kongsberg Municipality, and Buskerud University College. This group is very diverse with very different institutions and including members from academia, politics, and even partly from the industry itself. In this group I have also put the industrial owned Kongsberg Innovation AS, a company co-owned by several industrial companies in Kongsberg to serve them as an innovation company. This means that this group is defined by other important local partners, and not primarily by industrial partners. The third group is observers from public development agencies working on regional innovation system initiatives like the Kongsberg cluster initiative. Finally, the fourth group is people hired to do specific task in the project who are not directly connected to the three other groups, an example of this is the communication advisors in the facilitating organization. Table 5.1 shows the different groups' representation in the different parts of the Kongsberg cluster's facilitating organization.

Group	Partners	Board	Project managers
Industry	9	3	0
Others	6	3	5
Agencies	1	1	1
Hired people	0	0	1

Table 5.1: A typical group representation in the facilitating organization in the Kongsberg cluster over the project period from 2006-2010. Full members and observers meeting regularly are treated as equals.

Table 5.1 clearly demonstrates that the industrial dominance diminish in numbers from the partners, via the board, to the administration where none of the members are directly employed by a local industrial company. This is of course partly natural, especially in the project manager group, because the members there are using a large portion of their available work capacity in the facilitating organization. Some of these project managers have experience from the Kongsberg industry, others have not. In the project manager group it has been seen as an advantage that some members, among them the communication people, have been recruited outside Kongsberg. The numerical set-up of the members in the different parts of the facilitating organization could give a clue to where the identity of the Kongsberg cluster lies, but the identity of the facilitating organization will also depend on the relationships between the partnership, the board, and the project managers. This will be analyzed below from the qualitative data from meetings, plans, and interviews.

5.2. The Negotiated Identities of a Knowledge Cluster and Systems

Engineering

The Norwegian Center of Expertise program was designed to develop the best industrial clusters in Norway. The inspiration to the program came from similar initiatives in Finland and other countries and was at the outset inspired by several regional innovation system theories.²² In the meeting between this cluster concept and the actors in Kongsberg a negotiated consensus between the local actors and between Kongsberg and the national actors had to be established.

When the program was designed the national actors had Kongsberg in mind as one highly potential candidate²³. However as the program developed the national actors used and discovered innovation system research and practices that made it difficult for the national actors to recognize Kongsberg as a cluster. According to one source:

The research Council did not think Kongsberg was a cluster. They said we had subsea-, automotive-, defense-, space-, and many other industries. In addition, we were not a technology cluster because our companies were not based on one type of technology; we had many technologies and many industrial domains. So we started to convince the research council that we were a knowledge cluster. This was a challenge because they thought more in terms of industrial domains.²⁴

One consequence of being a knowledge cluster was to define the kind of knowledge that defined the cluster. Another source explains:

We worked and toiled enormously in the application development to find out what we should be within a Norwegian Center of Expertise. We started with innovation, when Systems Engineering emerged it was very correct, also because the university college had a role in it. Systems Engineering was the natural choice.²⁵

²² Among others: Arbeidsnotat 41/2005 by Mariussen and Ørstavik "Utfordringer ved utviklingsprosesser i klynger"

²³ Informer A in interview

²⁴ Informer B in interview

²⁵ Informer C in interview

In the proposal for the pilot program, the motivation for choosing Systems Engineering is explained, “We are good at uncovering the operational need of a customer and then deliver. Assemble technologies and deliver. First we called it industrial innovation, in the first round.”²⁶ Even though industrial innovation was exchanged with Systems Engineering “We thought much of the same in the second round.”²⁷

The argument for the knowledge cluster was successful and one source explains it this way,²⁸ “We see them [Kongsberg industry] as a knowledge cluster. We have many of the impacts of cluster dynamics, but they do not have a common market and they do not compete, but the smaller companies compete hard...I think we see the cluster dynamics here, but there is no competition among the large companies except on work force.”

The Kongsberg initiative towards the Norwegian Centers of Expertise program was able to argue and define themselves as a knowledge cluster with the knowledge of Systems Engineering as the cluster glue. The national program owners were also able to accept this. However after the Kongsberg cluster initiative was established the facilitating organization started to distance itself from this negotiated consensus.

One of the first projects in the Kongsberg cluster initiative was to look for lessons learned in the Kongsberg industrial history. In their second board meeting on August 25 2006, the board made a decision to do an empirical study by an external researcher²⁹ to make a synthesis of the main findings of previous research done on the cluster and its companies. A draft of the report was presented to the board of the Kongsberg cluster initiative in their meeting on December 4 the

²⁶ The proposal for the pilot program of Norwegian Centers of Expertise program called Center of Expertise

²⁷ Informer B in interview

²⁸ Informer A in interview

²⁹ Informer D

same year. The researcher had developed an analytic framework based on cluster theories and viewed the developments in the Kongsberg companies in light of this framework. The analytic framework was based on three main types of driving forces for development of regional, dynamic, and industrial environments. First, the development of companies with advanced internal competencies, which were enhanced through competition in demanding markets. Second, upgrade mechanisms developed in functioning clusters, such as common input factors, pressure for innovation, and knowledge flow. Third, the ability of the companies in the clusters to have active contact with good, knowledgeable industrial partners and other world class knowledge providers.

When viewing the Kongsberg cluster through these three lenses, the researcher suggested that the central force for the development of competencies was based on the activities in Kongsberg Våpenfabrikk (Kongsberg Weaponry factory in English). Kongsberg Våpenfabrikk's competence, market position, and market knowledge was built through its governmental ownership and national strategic task to build the modern Norwegian industry. This knowledge was taken over by the new companies that emerged after Kongsberg Våpenfabrikk collapsed and the knowledge was developed further by their new demanding and competent owners and an increase in the amount of engineers in the companies. In their official feedback to the researcher the board states in the minutes of the meeting:

Even though the report states that “the task is understood,” much of the content in the report deals with the issue of how the Kongsberg cluster's development does not coincide with the theoretical assessments of cluster effects. It is important that Norwegian Center of Expertise gets an impartial, professional party's understanding of the mechanisms behind Kongsberg's successful development because this will increase the awareness and by that have a more objective reasoning to influence the government in their policy towards the industry inclusive their policy instruments. In this lies the potential that traditional cluster-theories applied on a limited industrial environment like in Norway, is not the only explanation for industrial success.

One informer³⁰ had the following observations:

The top managers said: this is not correct, this is not how it happened, and everybody must know that. All the other reports are wrong. There was also some criticism: The Kongsberg environment had been lucky through the history. It did not have a demand to make profit. We were a political instrument and got a lot of money to get top knowhow, and a political instrument to gain access to American defense environments. This was some of the observations in the report which the industrial leaders denied because they had demands to make profit and stuff for their companies. So the researcher had to reformulate the report and put it before the board again. The board was not happy with is, but we got a version that everybody could agree on and the report has not been used much since then.

In their meeting on 2 February 2007 the board of the facilitating organization was again able to define themselves as a cluster by stating, “Kongsberg has not developed according to “traditional” cluster theory...The findings on Kongsberg fits more with newer cluster theories and the foundation now documented by objective, reputable researcher is now ready for dissemination within and used for development of the cluster and in communication to the government to influence the future industrial policy.”

Or as one informant concluded,³¹ “No, this general theory, that is the Porter-theory, it did not give much to look at it in light of Porter. We did not get an interesting picture from that.”

The strategy for finding the reason for Kongsberg success was changed and as of summer 2010 was still not finished. The work was renamed to “The Kongsberg Story” and done mainly by a Kongsberg industry insider and focuses on product industrialization cases. The conclusion is that the Kongsberg cluster and its facilitating organization do not see traditional or Porter cluster theory as a part of its identity. However they seem to have found newer theories like knowledge

³⁰ Informer C in interview

³¹ Informer E in interview

clusters, where they can recognize themselves.³² These theories do not seem to be very present in the strategy development for the facilitating organization. In preparation for a strategy process, in the autumn of 2010 the program managers discussed their input to the partially new board of the facilitating organization. “The Kongsberg Story” was referred to as almost finished, but no explicit references were used or referred to when the project managers discussed future strategy for the cluster. Nor were there references to knowledge cluster concepts in the strategy meeting. The negotiated identity of a knowledge cluster with the discipline Systems Engineering as the cluster glue was important to get the Norwegian Center of Expertise status. The national actors had built the program on regional innovation systems concepts but accepted a compromise with the local actors. The two rounds of development of the Kongsberg cluster initiative show that the local actors struggled with defining themselves within the usual thinking of the regional innovation system concepts. After the Kongsberg cluster initiative got accepted and received national resources it started to distance itself from the negotiated identity of being a knowledge cluster. The negotiated identity of a knowledge cluster was thus weak and not an identity strong enough to establish itself as a core identity in the facilitating organization.

5.3. Engineers and the Other X-Techs; the Divided Kongsberg

In 2009, the project manager of the facilitating organization of the Kongsberg cluster presented a Power Point entitled “The Uniqueness in Kongsberg Industry”³³ which breaks it down into several dimensions. There is a “strong socio-cultural network” with managers with great social responsibility and local patriotism that sponsor public goods like cultural and sports initiatives, educational initiatives locally and nationally, and transportation infrastructure such as a new road

³² On theorist on this new cluster theory is Christian Keetels who was invited to speak on “Industridagene 2008” the largest industrial conference in Kongsberg.

³³ Powerpoint presentation made by Kongsberg cluster initiative project manager January 2009

to Kongsberg. From this it would seem that a dominant identity for the people living Kongsberg is the nature of the town. But Kongsberg also has a long history of industrial achievements from the silver mines, via the national weapons factory, to today's industrial companies. In fact, the town has more industrial and engineering workplaces per capita than almost all other regions in Norway. Many people commute into Kongsberg to work, and the town itself is too small for its present industrial activities. It is a spoken objective to increase the number of inhabitants in the city from today's 24,000 to 40,000 people³⁴ to accommodate further growth in the industry.

There is a division in the town – inside and outside the fence. The fence refers to the actual fence around the Kongsberg Technology Park³⁵ where most of the companies are located and where the former national weaponry factory, Kongsberg Våpenfabrikk, was located. An anecdote illustrates this: one top manager of the former Kongsberg Våpenfabrikk is said to have told the mayor of Kongsberg, “We will take care of the workplaces in Kongsberg, you have to take care of the rest.”

Later, another mayor of Kongsberg stated, “The duties of us on the outside was to provide building sites for industry and living and the other things needed for Kongsberg Våpenfabrikk to develop” (Onsager, 2005, p. 117).

One informant³⁶ refers to Kongsberg outside the industry as reactionary especially the municipality and even refers to Kongsberg as a Soviet³⁷-oriented town. This difference between the industrial and the “other” Kongsberg is strengthened by another informant³⁸ who participated

³⁴ Kommuneplan for Kongsberg 2009-2020 at <http://www.kongsberg.kommune.no>

³⁵ For information see <http://www.kongsberg-teknologipark.no>

³⁶ Informer H in interview

³⁷ The statement probably refers to a statement from a former Swedish minister of commerce who referred to Norway as the last Soviet-state in frustration of the political processes in Norway

³⁸ Informer A in interview

in the application process of the Kongsberg cluster initiative: “We have a need to develop the city.” because it did not match the industry. When confronted with the claim that the municipality’s political awareness of the importance of the industry was low, the informant³⁹ stated, “Yes, I think that is correct because like in all other places the municipal council and other councils are recruited from the public service sector. And these people have difficulties in understanding a lot of the activities in the industry and they do not understand the energy there, I think.”

The division is also discussed by Fraas (Onsager, 2005, p. 116) who relates the division to the historical role of Kongsberg Våpenfabrikk as a national industrial political tool. This role resulted in a focus from Kongsberg Våpenfabrikk on national actors mainly in Oslo while the local Kongsberg community could not influence the development of the factory.

In “The Kongsberg Story” draft⁴⁰ in December 2010, the headline given is “From small, national and one-sided to big, global and diversified.” One other slogan often used in Kongsberg is “World class.” One interpretation of this is that Kongsberg has a world-class industry and the rest of Kongsberg should also be world class. Regional actors initiated an analysis in 2002 studying as one case the regional innovation system in Kongsberg.⁴¹ It revealed systemic failures in three main areas: the lack of risk capital; lack of cluster dynamics; and lack in competence/knowledge infrastructure. These so called systemic failures were expanded. The minutes of the project manager meeting 8 January 2010 states:

The non-industrial actors have not recognized the fact that the competition climate has changed dramatically. At this point we undeniably have a world-class industry but if it is going to continue the development here (in Kongsberg) the rest of the systems (primarily

³⁹ Informer F in interview

⁴⁰ Power Point presentation dated 07.12.2009

⁴¹ Report: “Innotech: Klyngeutvikling gir resultater. Inno-techs historie og resultater 2003-2005

the university college and the municipality, but also the private service providers) must have similar ambitions and objectives and support the industrial development.

This illustrates a division between Kongsberg and the Kongsberg industry; in addition, it seems the industry sees itself as superior to the rest of the society: We are big and global, look to us and develop yourselves.

The facilitating organization of the cluster initiative has taken up this challenge and the development of an attractive Kongsberg as host to a hi-technology industry as one important activity. One focus of this project was to develop a slogan for Kongsberg. This was announced the spring of 2010. In my translation the slogan states: “Kongsberg the technology town – seizes the opportunities.” In the project group there was a discussion on whether one should dare to use the words industry/technology to characterize Kongsberg at all. One project participant⁴² who works close to the industry stated that it was difficult to accept this because Kongsberg was not only industry. As stated earlier Kongsberg is a town with just under 25,000 inhabitants and more than 6,000 people work in the industrial companies, and still it is difficult for some to accept that it is an industrial city.

It was not only difficult for some Kongsberg people to accept that Kongsberg was an industrial town. In the same project to develop the attractiveness of the city, an initiative was to develop new workplaces outside the industrial domains. The main motivation for the facilitating organization was to establish workplaces for partners of engineers especially for females who could draw and keep male engineers for the industry. This initiative refers to these workplaces as X-Tech not technological as opposed to the technological. This initiative was placed as a part-project of a part project and had few resources while the initiative to establish new technology based workplaces was in itself one of three major part-projects in the facilitating organization.

⁴² Informer I

Kongsberg is divided between the industrial Kongsberg and the rest of Kongsberg. The industrial Kongsberg is known worldwide, at least in the industrial domains where the Kongsberg industry works, while the other Kongsberg outside the fence is recognized by most of its inhabitants. This division is enhanced by the national program owners of the Norwegian Centers of Expertise who have instructed the Kongsberg cluster initiative to put the cluster's industrial needs in the front seat. As such, the facilitating organization's identity is dominated by the industrial Kongsberg and not the other Kongsberg, and this division has a long history. This observation leads to the discussion on today's industrial Kongsberg.

5.4.Kongsberg the Technology Town

The debate mentioned above on Kongsberg as an industrial or a technological town is probably mostly artificial and related to the establishment of an external positive image for the city. In normal language industry will refer to the production of goods while technology will refer to usage and knowledge of different types of tools and techniques. In the companies in Kongsberg both industrial and technological would on the surface be seen as good descriptions of their activities.

In the Norwegian Center of Expertise project in Kongsberg it is an important activity to present the industrial cluster and the project to stakeholders, potential stakeholders and others. A typical presentation⁴³ of the Kongsberg cluster will normally start with a photo of Kongsberg Teknologipark where most of the industry is located, showing the collective size of the factories. Then a presentation of the different companies through their main products is shown. From the almost bankruptcy of Kongsberg Våpenfabrikk in 1987 the companies emerging out of this crisis

⁴³ Power Point from Torkil Bjørnson January 2009 "Teknologibyen Kongsberg – Rollemode for en fremtidsrettet industri"

in the mid 1990s have had exceptional growth. There were some ripples during the financial crisis in 2008, but the industrial companies in the cluster in 2010 are back on a growth path.

Other numbers presented are often the total turnover, total number of employees, total number of engineers, and the numbers of countries Kongsberg companies represent. Often these numbers are expanded to report the number of nurses, teachers, and public service employees that can be paid by the companies' profits. An additional point often made is that Kongsberg has the largest density of engineers among the industrial employees, thus reinforcing the hi-tech profile of the cluster. This means that the size, impact, and knowledge of the cluster are important to communicate.

It is important for the cluster companies and the cluster facilitating organization to be seen both inside Kongsberg, outside the fence, and outside Kongsberg. In the board meetings there are several references to the importance of being seen as important, "The board agreed on the accumulated need to tell the surrounding world of the industrial success and importance of the companies in the cluster for future industrial development in Kongsberg and in Norway."⁴⁴

The reason for the importance of being important may be instrumental because the companies and the cluster facilitating organization will need this visibility to impact the political conditions for further development. Another interpretation discussed later in the chapter is more hidden: the visibility outside Kongsberg may be important to fulfill the national mandate of industrial development that the former Kongsberg Våpenfabrikk had.

When looking at the industrial companies in the Kongsberg cluster's development since the Kongsberg Våpenfabrikk crisis in 1987 by using the total turnover of the main companies as a measure, it seems the growth started for the cluster in the mid 1990s. The explanation of this

⁴⁴ Minutes from Kongsberg cluster initiative board meeting April 13. 2007

growth is not simple because the companies that emerged were mainly parts, like divisions, of Kongsberg Våpenfabrikk, and they were manned mainly by the same people and management as before. In the above-mentioned commissioned report on Kongsberg successes,⁴⁵ the main explanation was new demanding owners and more engineers. Morten Fraas (Onsager, 2005, pp. 130-136) supports these three elements in his findings on the Kongsberg cluster. These findings are also supported by some of my informants who refer to the new owners and the customer focus developed as the key success factors.⁴⁶ It is difficult and beyond the scope of this dissertation to explain the success of the Kongsberg cluster, but for the members of the facilitating organization of the cluster the key factors of success are seen to be the knowledge base from Kongsberg Våpenfabrikk combined with new owners, customer focus, and more engineers. Today it seems that a customer-centric approach has grown in the post-Kongsberg Våpenfabrikk era. Several informants have stated that the customers today are the main force for innovations in their companies today.⁴⁷

The engineering identity of the Kongsberg cluster is particularly visible and present in Kongsberg and in the facilitating organization. The engineering focus also seems to create another division in Kongsberg: the engineers and the others. In Kongsberg a large part of the industrial workforce are engineers, and the products of the Kongsberg industry is a result of technological development. In the draft of “The Kongsberg Story”⁴⁸ a cultural feature of the industry in the period 1955-1985 was: “Technological challenges were always possible to solve, it took time and money.”

⁴⁵ Memo from informer D

⁴⁶ Informers F,H in interviews and informer L and M

⁴⁷ Informers L and M

⁴⁸ Power Point presentation dated 07.12.2009

In the whole project period of the Kongsberg cluster there has been focus on attracting good engineers to Kongsberg. An example is from a conference⁴⁹ in 2008: “The technology industry depends on recruitment to Kongsberg to be able to deliver on contracts done and to be in a position to win new contracts.”

One of the main activities of Kongsberg cluster initiative has been to strengthen the attractiveness of Kongsberg. In a draft for the plans for this project in 2006-2007⁵⁰ three of the suggested objectives involved recruitment: It should be easier to recruit competent workers to the industry; an increased number of work places for partners should be supplied; and one to two large public or private organizations and nine small or medium sized companies should be established in Kongsberg. It is notable that the attractiveness activity includes actions to establish new businesses, while a separate large activity in the Kongsberg cluster initiative is to establish new industrial locomotives. This effort is managed by the development company⁵¹ which is co-owned by the existing local industrial companies. The effort to create new partner workspaces was organized under the attractiveness initiatives of the facilitating organization. This means that there is a difference between workplaces for partners and workplaces in industry where the partners have the supporting role of attracting good engineers to Kongsberg. The board of the Kongsberg cluster initiative seems to see it this way,⁵² “...the effort to attract a suitable public institution to the town to provide X-tech workplaces.” X-tech was used as a working title for partner workspaces and the initiative has resulted in the establishment of “Kongstanken”⁵³ which

⁴⁹ Kongsberg Kommune “Hvilke fremtidsstrategier skal Kongsberg ha. Resultater lokal næringskonferanse 21. april 2008”

⁵⁰ NCE KONGSBERG – ATTRAKTIVITETSUTVIKLING HANDLINGSPLAN ”Attraktivitetsutvikling-hplan 13.10.06” Perioden 2006-2007

⁵¹ Kongsberg Innovation AS

⁵² Minutes from The Kongsberg cluster initiative board meeting 22. June 2007

⁵³ www.kongstanken.no – quote downloaded 22. June 2010

is “a development building for new businesses – a center for idea makers, entrepreneurs, and newly established enterprises in Kongsberg.”

The division between engineers and others are clear and the roles are also manifest in the division of responsibility for new workplaces. Tech workplaces are left to the industry-owned development company while the X-tech workplaces are left to the others. One informant⁵⁴ states, “The purpose of Kongsberg Innovation AS was to make Kongsberg an interesting place to work for creative engineers.” He continues, “I have said that the establishment of new engineering workplaces is lead by Kongsberg Innovation AS, and the municipality should establish more non-engineering activities.”

One main critique of the Kongsberg cluster as a Porter cluster is that they do not compete with each other and that they are in different value chains and industrial domains. At least five of the seven founding industrial companies of the Kongsberg cluster have their roots directly as divisions, departments, or projects in their mother Kongsberg Våpenfabrikk. The industrial domains of the companies differ a lot—from airplane engine parts to automotive parts, and from defense systems to subsea oil- and gas-field systems. This means that there are no common customers or markets that unite the cluster, and thus also could unite the facilitating organization. From the above argumentation it follows that the present common identity of the cluster companies are that they connect to the international industrial community, they see themselves mainly as engineers, they succeed because of their customer focus, and they are successful. But to what degree this internationally oriented, customer orientated, successful engineer identity is also shared by the Kongsberg cluster-facilitating organization is not yet discussed. As shown in

⁵⁴ Informer F in interview

Table 5.1 the industrial presence is diluted from the partnership, to the board, and to the project management.

5.5. The Kongsberg Våpenfabrikk Identity

The memo commissioned on the success of the Kongsberg cluster pointed at the knowledge base created by Kongsberg Våpenfabrikk as a key factor of success for the today's companies in Kongsberg. To study the characteristics of Kongsberg Våpenfabrikk several texts could have been chosen. My point of departure is two relatively new texts written with different purposes, but both with a link to the post world war two developments of Kongsberg Våpenfabrikk as part of their argumentations. The first text is a dissertation written by Stein Bjørnsrud, the aim of his dissertation was to study the mechanisms of innovation that led to the recent deepwater technologies and industry in Kongsberg. The second text was written in 2005 by Morten Fraas as part of a book edited by Onsager with the aim of studying four small technology towns in Norway in order to discuss implications for innovation- and regional policy. Kongsberg was one of Onsager's cases.

In his thesis Stein Bjørnstad outlined a broad mapping of the Kongsberg Våpenfabrikk history in his search for explanations on innovations in deepwater technology in the Kongsberg industry. His observations point to the national mandate Kongsberg Våpenfabrikk was given to build up a modern Norwegian machine tools industry after World War Two. The driving force behind this mandate was Jens Christian Hauge who together with Finn Lied, the manager of the Norwegian Defense Research Establishment, and Bjarne Hurlen, the managing director and chair of the board at Kongsberg Våpenfabrikk, established and ran both the national research institute system and the Norwegian industrial development system for more than thirty years. The national research institutes did the research and development and Kongsberg Våpenfabrikk did the

industrialization (Bjørnstad, 2009, p. 47). Fraas also states that Kongsberg Våpenfabrikk was a national political instrument for industry development and for integration in the NATO defense alliance. As such Kongsberg Våpenfabrikk was primarily a part of the national innovation system. This national mandate developed the company's culture in a direction that put less weight on economic performance than the national policy and strategy (Onsager, 2005, pp. 117-119). Fraas attributes Jens Christian Hauge for the establishment of most important business areas in Kongsberg Våpenfabrikk such as defense, automotive, oil, and gas through arrangements done on a national political level. Even the jet engine operation came from the purchase of United States fighter planes in the 1970s. From these national arrangements from the 1950s, 60s, and 70s today's largest companies in Kongsberg have their roots: Kongsberg Defense and Aerospace in the defense domain; Kongsberg Automotive in the automotive domain; FMC, Kongsberg Maritime, and Dresser Rand in the oil and gas domain; and Volvo Aero in jet engine parts.

Fraas also mentions another characteristic of the consequences of the national mandate, the poor economic performance of Kongsberg Våpenfabrikk. He attributes the establishment of several public industrial funding arrangements to the economic needs of Kongsberg Våpenfabrikk (Onsager, 2005, p. 120), thus contributing to an understanding that long term funding for risk projects would be a national responsibility. According to Onsager, "They were taught that politics and the political system arranged development costs, markets, and new funding when deficits occurred" (2005, p. 121).

In the late 1950s many engineers came to Kongsberg Våpenfabrikk and engineering excellence became a main value in the company. Bjørnstad observes that engineering excellence informed every single allocative decision taken within the firm and explains, "The general attitude that radiated from Hurlen down was one of technological risk-taking" (Bjørnstad, 2009, p. 47). The

main activity for Kongsberg Våpenfabrikk was to create hi-tech industry and to lift Norway's position in technology, thus requiring many good engineers.

The term "Hurlen down" may be very concrete because Bjørnstad describes Hurlen as a patriarch who embraced Taylorism and scientific management (Bjørnstad, 2009, p. 99). Scientific management and the division of labor was done on a national level where Kongsberg Våpenfabrikk industrialized product research and development from the defense research establishment and other national technological research institutes (Onsager, 2005). This Tayloristic approach was also seen within the Kongsberg Våpenfabrikk organization.

Another feature of KV was, according to Bjørnstad, "His" [Hurlen's] company failed to develop a customer-centric and entrepreneurial approach" (Bjørnstad, 2009, p. 100). Bjørnstad also describes that a customer centric approach was introduced by people in Kongsberg Albatross developing and selling dynamic positioning systems during the 70s and 80s. A former mayor of Kongsberg has formulated an opinion of this: "Historically at Kongsberg there has not been a climate to think that anyone should be a positive force to create new workplaces and living for themselves or others. The attitude has been that the government should create the jobs" (Onsager, 2005, p. 117).

So the Kongsberg Våpenfabrikk identity was characterized by being a national political tool for industrial and technological developments. Engineers and engineering excellence was the most important, but in addition the lack of understanding of customer needs and an entrepreneurial spirit was also significant. The organizational capability is strongly inspired by Taylorism.

5.6. Identity of the Facilitating Organization

An analysis of the identities of the present industrial Kongsberg and of the past Kongsberg Våpenfabrikk is done above. Table 5.2 shows the main findings from these discussions. Not all identity characteristics apply to the Kongsberg Våpenfabrikk—or the Kongsberg industry today—columns. The task of this section is to discuss the remaining question-marks in the facilitating organization column, so the question that remains unanswered is: What are the characteristics of the facilitating organization of the Kongsberg cluster?

Identity	Kongsberg Våpenfabrikk	Kongsberg- industry today	Facilitating organization in Kongsberg
Regional innovation system	-	No	No
National innovation system	Yes	Mostly no*	?
Professional owner	No	Yes	?
Engineer	Yes	Yes	?
Tayloristic organization	Yes	?	?
Customer oriented	No	Yes	?

Table 5.2 Identity characteristics in Kongsberg (“?” means uncertain “-” not relevant) *The defense industry is part of the national innovation system.

Being part of the national innovation system or to have a national mandate for industrial development was the most important identity-creating feature of Kongsberg Våpenfabrikk, and it is also important for the facilitating organization of the Kongsberg cluster. There was from the start a view that Kongsberg was a natural Norwegian Center of Expertise and an opinion that the

program would not be complete without the participation of the Kongsberg industry. There was also a feeling that industrial Kongsberg should have a special and not a regional, position, as one informant⁵⁵ noted when talking about the motivation to apply for Norwegian Center of Expertise status:

This was may be Kongsberg should do, but then there was a time period where talk said that tourism in Lillehammer could become a Center of Expertise. We did not want to be associated with these more ordinary clusters because we are world class companies. If we should jump on the bus we had to be sure that this was made to do the best better. If it was a regional measure we may be should not join the program.

In a project manager meeting in the facilitating organization early in the project the national role was further discussed as a challenge, “Kongsberg cluster initiative has both a national and a regional role and these roles may in some instances be contradictory. To have clear rules for prioritizing under such circumstances, the national role is the most important.”⁵⁶

At this early point, the Kongsberg cluster initiative was called “NCE Kongsberg” hence referring to a local name and initiative, later the name “NCE-SE” was chosen, thus referring to the core competence Systems Engineering of the cluster more than the regional connection. The reason and motivation may not be entirely based on the thinking in Kongsberg, in a project manager meeting⁵⁷ it was stated “Several central actors think that some Norwegian Centers of Expertise have a more national role than others, primarily Kongsberg and Raufoss.”

In the memo on the success of the Kongsberg industry it was stated:⁵⁸ “One should note that Kongsberg Innovation in that way follows up much of the intentions from the earlier Kongsberg

⁵⁵ Informer B in interview

⁵⁶ Minutes from The Kongsberg cluster initiative project managers meeting October 9 2006

⁵⁷ Minutes from The Kongsberg cluster initiative project manager meeting September 27 2007

⁵⁸ Memo commissioned from Arne Isaksen

Våpenfabrikk that is to contribute to increased competitiveness for the Norwegian industry as a whole.”

The local innovation company is co-owned by the major Kongsberg companies and has a charter to generate new industry, primarily based on ideas from its owner companies. The national role in innovation is followed up by the board of the facilitating organization when they were searching for new potential industrial companies with a potential of creating an annual turnover above 100 million Norwegian Crowns. In 2006, the board suggested that, “In addition to consider to do a systematic search for a ‘national role’ within an ambitious priority area.”⁵⁹

In 2008 the board stated:

The board is pleased with the focused efforts within renewable industry, but questions the availability of sufficient resources and means to a really large industrial effort within this area. Therefore it is important to mobilize the Kongsberg industry to convince the government that Kongsberg is able to create a new industrial adventure.⁶⁰

This means that the reason to be seen nationally is to make sure the national authorities renew the Kongsberg industry building mandate and also renews the flow of public money to create industry similar to the Kongsberg Våpenfabrikk days.

In the draft of “The Kongsberg Story”⁶¹ the Protector⁶² case was selected as the evident winner of Kongsberg industrial products with short time to market and with good economic results.

Protector was mainly developed after 2000, which is clearly post-Kongsberg Våpenfabrikk. The facilitating organization on the other hand had chosen another industrial domain renewable energy for its new industrial locomotive initiative. This initiative handled by Kongsberg

⁵⁹ Minutes from Kongsberg cluster initiative board meeting December 4. 2006

⁶⁰ Minutes from Kongsberg cluster initiative board meeting September 8. 2008

⁶¹ Power Point presentation dated 07.12.2009

⁶² A defense product from the Kongsberg Group

Innovation had a slow start and efforts are still going, but with limited national mandates and resources. Although Kongsberg Innovation was given resources from its industrial owners, the project is predicted to need substantial additional, long term funding to become a large industrial success. The thinking in this respect seems to have its roots in the national mandate of Kongsberg Våpenfabrikk. One informant⁶³ said:

If I could decide I would have entered into something that could be a lighthouse for Kongsberg, that is different from the present locomotives we have talked about. An area where we can solve an important problem in society like alternative energy, water or other different things which are important to solve. I think we need this because we are in the oil, gas, defense, and cars. Those areas are not the most environments friendly. I think an important motive is that there are a lot of clever people here who we can spur with an important challenge, which is the most important. I think the climate crisis depends on working technologies that can be implemented quickly.

This may be back to the stated dominant cultural feature for Kongsberg Våpenfabrikk 1955-1985: “Technological problems are always solvable – it costs time and money.”⁶⁴

However, it also states a need to regain a national status within an important area for society, and also to create a distance from the image of weapons and polluting industry.

As another informer⁶⁵ who refers back to Kongsberg Våpenfabrikk, explained when talking about creating new companies:

One important building stone in the development of industry in Kongsberg has been that all great things have been created in very close cooperation with the government and all Norwegian public authorities. All the great things have been created like that. Even FMC – the oil division was started in Kongsberg Våpenfabrikk as a strategic tool and Hurlen and his political contact with the Labor Party and the government and the development the oil division when it really took off. This was in the period from 1979 to 1990 when the foreign oil companies were forced to use money on development in Norwegian companies.

⁶³ Informer K in interview

⁶⁴ Power Point dated 07.12.2009

⁶⁵ Informer E in interview

These large ambitions on being “World Class” and national were not only well received in Kongsberg and its surroundings. Another informant⁶⁶ stated:

The industry needs more humility in relation to the rest of society and their roles. This is something they do and they have come back to. The result is less involvement from other actors like the county administration. I think that the Kongsberg people appear in a way that it is difficult to maintain the enthusiasm. The enthusiasm for this project [the Kongsberg cluster initiative] has gone away. We have seen this before, if there is little interest for Kongsberg it is the others fault. It is like “you have to understand this.”

The identity characteristics of having a role in the national innovation system seem to be deeply rooted in the facilitating organization of the Kongsberg cluster. It also seems that this influences the choices made in the facilitating organization both in the attempt to create new, large industrial companies and in the urge to understand and communicate Kongsberg’s own success.

From the near bankruptcy of Kongsberg Våpenfabrikk in 1987, the group of companies that grew out of it in the mid 1990s had great successes until they were hit by the financial crisis in 2008. Even during this crisis there were indications that most Kongsberg companies were performing better than other Norwegian companies. There was however a debate on why this industrial success happened: does the success today come from Kongsberg Våpenfabrikk’s technological triumphs, and will the growth be sustainable even when the Kongsberg Våpenfabrikk spirit dies out?

Previously, three identity features were used explain the post Kongsberg Våpenfabrikk successes: the engineering community; the professional ownership; and the customer centric innovations. The Engineering identity’s presence in the facilitating organization will be discussed in the next section, but the presence of professional ownership and customers need to be uncovered. The

⁶⁶ Informer A in interview

definition of professional ownership may not be entirely clear, but I will use Fraas' characteristics of the foreign ownership as a point of departure. Good owners demand an international focus from their companies and managers. Good owners provide competencies and resources to other parts of their organizations. They are concrete in their demands for economic profitability to their companies, and they demand that the local company has access to resources and are able to adapt to changing demands.

The owner-structure of the Kongsberg cluster is complex. I have defined the partnership as part of the facilitating organization and from that perspective it is self owned like an independent foundation. It is however a clear demand in the Norwegian Center of Expertise program that the companies in the cluster should be in the lead and decide the course for the facilitating organization, so the partnership can be seen as owners and customers. In addition the funding bodies of the facilitating organization have stakes and demands on how their money is used. So the unclear owner and customer structure itself along with diverging demands from other stakeholders makes the facilitating organization's ownership and the customer base unclear.

In both today's Kongsberg industry and in Kongsberg Våpenfabrikk the engineering culture dominates. How is the engineering identity in the facilitating organization? In all three of the main activities in the organization engineering and engineers are the most important. The educational effort was to create a master program in Systems Engineering, the new companies that were to be the future locomotives of industrial development in the cluster were based on technology, the aim of the attractiveness of the project was primarily to attract good engineers. When other initiatives beyond the engineering sphere are addressed they are named X-Tech. The clear division between X-Tech and Tech also has a gender perspective. In a board meeting of the

facilitating organization⁶⁷ the board emphasizes that the new incubator (later named “Kongstanken”), should especially focus on attracting female entrepreneurs. From informal talks with people in the facilitating organization it seems that the public institutions they want to attract to Kongsberg mainly should have female work places. The thinking is that when a male, tech engineer settles with a female X-tech, the industry gets a more stable engineer. This indicates that the engineering identity is strong in the facilitating organization.

The ability to create new workplaces outside the existing companies in the Kongsberg clusters seems to be weak. Fraas documents that counting the establishment of new companies from 1998 to 2005 Kongsberg is far below the Norwegian average; the percentage of new versus total number of companies is 131% in Kongsberg and 186% in Norway. He states: “The small number of ‘spin-off-companies’ from the larger companies must be seen in relationship with the Kongsberg Våpenfabrikk history” (Onsager, 2005, pp. 139, 147).

One informant comments on the possibilities for new industries as spin-offs from existing companies like this:⁶⁸

I will state that spin-offs are difficult. Firstly we have good and secure workplaces; the contribution from the government is minimal if it exists at all. Then we invest in core business, things close to it and the adjacent space. But our surroundings do not see this as spin-offs but as growth. I do not think it will be easy to create new industrial activity in a society like this. New dynamics would be useful, but it requires more interventions from the government.

In the main activity to create new large industrial companies in Kongsberg has had a slow start and the mandate and resource input into the effort was strengthened in 2009-2010; however, the

⁶⁷ Minutes from Kongsberg cluster initiative board meeting 8. September 2008

⁶⁸ Informer H in interview

results are at an early stage making it difficult after four years to predict the outcome. It seems the facilitating organization has inherited an identity that makes it difficult to create new companies.

It is difficult to make a clear judgment of the Tayloristic inspiration from Kongsberg Våpenfabrikk into the facilitating organization. In the Kongsberg industry most developments are done in the project form of organizing work, and this form was used when organizing the activities in the facilitating organization. In the establishing phase of the facilitating organization and its activities the board had a central role and chose to divide the task in sub projects each having their own mother organization which at the outset should be capable of achieving the sub-projects' aims: The knowledge development project was given to the university; the development of new workplaces to an innovation company; and so on. The board's role was to manage, push for aims, critical success factors, milestones, and more and then to wait for reports. In this way, with the focus on division of labor between the participating organizations, the organization may be seen to have some Tayloristic inspiration.

5.7. Conclusion

When talking about collaboration activities in the Kongsberg cluster initiative, an informant said that these activities had gone very well in Kongsberg because, "The whole bunch had been at Kongsberg Våpenfabrikk and had cooperated before."⁶⁹

When looking at present and former board members of the facilitating organization, five out of eight have at one time been in Kongsberg Våpenfabrikk. Another one is the rector of the local university, and yet another one is an observer placed there by the national agencies to follow up the project. In the project manager group the Kongsberg Våpenfabrikk presence is smaller in

⁶⁹ Informer G in interview

number, only two of the nine people who are or have been members of this group have previously been employed there. However, of these two, one is the main project manager and the other is a former top manager of Kongsberg Våpenfabrikk. This means that in the project’s governance—especially from the industry side—there is a dominance of people with a background in Kongsberg Våpenfabrikk.

In Table 5.3 the previous discussion is taken into account in a revision of Table 5.2 with focus on the identity of the facilitating organization. The facilitating organization is of course and should be embedded in the industrial Kongsberg; however, it must be noted that many identity features are similar or close to Kongsberg Våpenfabrikk features. Whether or not this is a good thing is not within the scope of this dissertation to judge; it may very well be that the future of the Kongsberg cluster lies in much of the modus operandi of the past Kongsberg Våpenfabrikk.

Identity	Kongsberg Våpenfabrikk	Kongsberg-industry today	Facilitating organization in Kongsberg
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Regional innovation system	-	No	No
National innovation system	Yes	Mostly no*	Yes
Professional owner	No	Yes	No
Engineer	Yes	Yes	Yes
Tayloristic organization	Yes	?	Some
Customer oriented	No	Yes	No

Table 5.3 Identity characteristics in Kongsberg revised (“?” means uncertain “-” not relevant)

*The defense industry is part of the national innovation system.

5.8.Capabilities

When it comes to capability, March and Olsen define four different kinds: mandates; resources; competencies; and the organizational ability to make use of these capacities (March & Olsen, 1995, pp. 92-95). These capabilities exist in individuals, groups or institutions. This chapter seeks to uncover the existence of the four kinds of capabilities in the facilitating organization of the Kongsberg cluster.

The facilitating organization gets its mandates from several sources and the different mandates have different strengths; some mandates are not strong enough to lead to anything while other mandates may be even informally given leads to large changes. March and Olsen's words on mandates for democratic governance networks defines mandates as rights and authorities empower citizens and officials. To examine this we will uncover who gives the mandates and in which form these mandates come.

The formal mandate to establish Norwegian Center of Expertise program came from national actors like the Ministry of Trade and Industry and agencies like The Norwegian Research Council, Innovation Norway and The Industrial Development Corporation of Norway. The mandate given to the local actors was: Convince us that you are one of the best industrial clusters in Norway and have the potential to become even better in the next ten years! Twelve proposals from regional actors who wanted to develop their existing clusters and who had cluster policies and initiatives to be carried out within the program mandate were accepted by the national mandate givers. The national actors have given the regional cluster initiatives relative freedom to propose a development policy based on their local needs and wishes. Only in some cases have more detailed governance signals been given: the demand to increase female participation in the clusters' activities; the amount of co-financing in the form of work and money needed; and a

signal to focus on creating new companies was more pronounced in the transition from the first to the second three year contract period of the Norwegian Center of Expertise program.

How is the national mandate interpreted locally, and how it is distributed locally? The mandate is received by the local actors at an early stage of the development process in the ministries. Even though the official proposal for the national actors did not arrive until 2005, in 2003 and early 2004 memos circulated for example in the local university arguing for the establishment of a center of expertise in Kongsberg. In the autumn of 2003 there was even a meeting with a cabinet minister to sell in the Kongsberg cluster.⁷⁰ The actors engaged in these lobby activities and possibly negotiating the mandates were non-industrial actors like the local university and the local innovation company⁷¹ —not the industry itself who first accepted the center of expertise proposal after Kongsberg was rejected in the first round of proposals.⁷² After the rejection of their proposal in 2005 an interim board with participation from large industrial companies, developed the second and successful proposal for the Norwegian Center of Expertise in Systems Engineering. When this proposal was accepted in 2006 the new board of Norwegian Center of Expertise developed a local program plan for the Kongsberg cluster. The creation of a facilitating organization and the selection of participants and their mandates and tasks were based on this plan. The University College should develop world class Systems Engineering, the municipality should be attractive to engineers, and Kongsberg Innovation should make new industrial locomotive companies.⁷³ The board of the facilitating organization changes, confirms, or removes the local mandates as the project moves along. The formal mandates in the facilitating

⁷⁰ Meeting on 13. November 2003 with Minister of Local Government and Regional Development

⁷¹ Informer B and N

⁷² Informer F in interview

⁷³ For example the minutes from the Kongsberg cluster initiative board meeting August 25 2006

organization have the form of contracts and project plans, and the summer of 2006 the board⁷⁴ pushed hard to get the different project managers to developed plans that matched the board's demands. The board has also removed mandates from initiatives that from the start were seen as a part of the cluster development. In the board's meeting on 13 April 2007 the university owned innovation company⁷⁵ initiative lost their mandate and was told to coordinate further activities through Kongsberg Innovation. This innovation company is an incubator with the aim to support entrepreneurs in the start-up phase of their companies and was established by the local university. The company still exists, but outside the scope of the Kongsberg cluster and the facilitating organization.

There are however more candidates for the local mandate giving than the board of the facilitating organization: the good old boys network (in Norwegian Gutteklubben Grei);⁷⁶ the largest companies in Kongsberg;⁷⁷ persons with strong industrial legitimacy in Kongsberg;⁷⁸ and other networks or organizations in Kongsberg. As one informant⁷⁹ states:

It is not easy to be creative. For example the KIFT⁸⁰-house, which is now Kongstanken⁸¹. It was supposed to create alternative workplaces. Then suddenly someone had decided that it should be KIFT workplaces without doing any research on that. Somebody had the correct answer. I put forward some suggestions but someone had decided how it should be.

This means that somewhere in Kongsberg someone could give the mandate that decided the contents of the incubator for partner workplaces.

⁷⁴ See minutes from Kongsberg cluster initiative board meetings 7 July, August 25, and October 23 2006

⁷⁵ DRIV

⁷⁶ Informer F in interview

⁷⁷ Informer O in interview

⁷⁸ Informer O in interview

⁷⁹ Informer F in interview

⁸⁰ A classification of one type of businesses: Knowledge Intensive business services

⁸¹ <http://www.kongstanken.no>

Another example shows that formal mandates given from the facilitating organization were removed by more legitimate mandate givers outside the facilitating organization. The example is from the process to establish a research institute in Kongsberg. The initiative to establish a local research institute was received positively by the most industry leaders, many of the companies and the board of the facilitating organization. To anchor the final step towards an establishment of a research institute the leaders of the potential founders and owners of the institute were visited and given information on the institute's establishment. This anchoring process was done by well known business leaders in Kongsberg. However the process stopped abruptly after one of the industrial locomotives put their foot down. The reasons given were that the research agenda of the institute was wrong, the research institute should be independent of the local companies to be able to do real research, the establishment process was wrong, and so on. All valid reasons, but they could have been given at an earlier stage in the process.

The initiative to create a research institute was restarted by The University College at a later stage. The research institute is still—as of the autumn of 2010—not established other than on paper. This means that the facilitating organization did not have a mandate to create a research institute, even though research and knowledge development were main focus areas which all partners of the Kongsberg cluster had agreed on. Either one of the industrial locomotives or one or more powerful persons had the mandate to stop this initiative just before the meeting to establish the institute.⁸²

It is still an open question if the mandates are connected to the position of a person or the person himself. In the facilitating organization of the Kongsberg cluster I have observed both possibilities. This discussion has also been taken into the election of the board of the facilitating

⁸² Minutes from Kongsberg cluster initiative board meetings January 27 and April 29 2008

organization itself. As one informant⁸³ put it when asked if he thought it was a problem if one of the three largest companies was not represented in the facilitating organization’s board on top management level, “No, this is one of the challenges I think we have. That is why I think it is important to have these people in these kinds of organizations.”

Outside the industry the facilitating organization’s board has demonstrated a need for having people in positions in the board by inviting the rector of The University College and the Mayor of Kongsberg into the board as more or less permanent members.

Project	2006-2007	2008	2009	2010
Common activities	10%	5%	6%	0%
The Kongsberg Story	7%	5%	6%	0%
Knowledge development	39%	40%	35%	31%
Several cooperation projects	11%	22%	17,5%	9%
New industrial locomotives	22%	17%	17,5%	46%
Kongsberg attractivity	7%	5%	12%	7%
Project management	5%	6%	6%	7%

Table 5.4: The distribution (in percent of total budget) of resources to the different projects in NCE-SE. 2006 was a start-up year and the numbers from 2006 and 2007 are presented together.

In addition to mandates, the funding and resources are important parts of the facilitating organization’s capabilities. Table 5.4 shows the rough distribution of the facilitating

⁸³ Informer F in interview

organization's contribution to the different part-projects. When looking at budgets over the first five year period of the sub-projects the distribution seems relatively stable indicating a relatively stable prioritizing over these years. The largest changes are seen from 2009 and 2010 when the project renewed its plans and its contract with the national funders. The national agencies did not increase their contributions and in 2009 and 2010 the cluster initiative in Kongsberg for the first time has economical challenges.⁸⁴

The main changes are that "The Kongsberg Story" was cut from the budget as the work was completed. No final report on the project had been made. The contribution to The Knowledge development project had dropped as the master-program it was meant to finance was now transferred to the local university's budget. In 2009 the local industrial owners of the innovation company which is responsible for The New Industrial Locomotives project, strengthened their commitment to this project and in return demanded public money for the project through the facilitating organization. From the minutes of the facilitating organization's board meeting 26 January 2010:

X⁸⁵ had an orientation on the new focus of Kongsberg Innovation⁸⁶ and the capital increase towards Vardar and SIVA⁸⁷. This effort is a unique collaboration in Norway and it is important that the government understands this and contribute to the financing of further project development which may lead to new, large technology companies with an international market within green technology.

Similar statements have been made in other board meetings.⁸⁸ This redistribution of funding which leads to a strengthened commitment from the facilitating organization to the connected

⁸⁴ Minutes from Kongsberg cluster initiative board meetings on January 26 2010 and June 23 2010

⁸⁵ Manager of Kongsberg Innovation AS

⁸⁶ The industrial owned innovation company

⁸⁷ New potential owners and investors

⁸⁸ Minutes from Kongsberg cluster initiative board meetings November 24 2009 and March 18 2010

innovation company and the weakening of the commitment to the local university (owner of The Knowledge Project) may have many reasons. It may be seen as a rational decision to prioritize an opportunity to create new companies that had occurred and this was also a priority of the national owners of the Norwegian Centers of Expertise program. It may also point to a development where the innovation company owned by the industry reclaims its place as the actor where the Kongsberg cluster initiative should have been placed. As one informant explained, “If you look at the objectives for Kongsberg Innovation they are very similar to the objectives of the Kongsberg cluster initiative.”⁸⁹

There was a discussion on whether the ownership of the program should be in the innovation company or in the Chamber of Commerce when the Kongsberg Cluster initiative started.⁹⁰ In the application phase of the initiative one informant⁹¹ saw the Norwegian Centers of Expertise program as a potential financial source for the innovation company after it had lost some of their public funding. A third element and reason for the demand that public money should match the industrial can be a strong feeling in the Kongsberg industry that risky technology development projects should have significant government financing just like in the Kongsberg Våpenfabrikk times. Signals from the Norwegian Centers of Expertise program management indicate that they were pleased with the Kongsberg industry’s willingness to put resources in the form of man-hours into cluster initiative, but frustrated with their lack of willingness to put money into it. When the financial challenges in the cluster initiative manifested themselves again in 2010 it was discussed in the board again with a reference to other Norwegian Centers of Expertise. The Kongsberg initiative was the only Norwegian Center of Expertise without a membership fee and

⁸⁹ Informer F in interview

⁹⁰ Informer C in interview

⁹¹ Informer B in interview

another initiative, the Oslo Cancer Cluster, was given a good example where the companies matched the 5 million NOK from the national program with an equal amount⁹². The board decided to initiate a discussion with the partners in the Kongsberg cluster on a partner- or membership fee on the next partner meeting in the late summer of 2010. This indicates that the discussion on fees is very delicate and the ambitions in the Kongsberg cluster initiative are high and the financial situation in the project is critical with several initiatives waiting for financing and where the current obligations done may lead to a deficit in 2010. One interpretation is also that the board feels that it lacks the legitimacy to forward a concrete proposal for a fee. The partner meeting in August 2010 agreed to make a temporary contribution to the cluster initiative with a strong emphasis on “temporary” and “contribution” and not a partnership fee.

Another part of the resource discussion relating to the facilitating organization’s capability is the human resources. On his first board meeting the new chair of the Kongsberg cluster initiative noted the special circumstances in relation to management. At that point he was recruited as an industry professor to the local university. His observation was that in his position as industry professor he was the subordinate of the project manager of The Knowledge Development project and to the rector of the university. In his other position as chair of the board, the rector was a member of the board and the project manager was in the administration and as such both were now his subordinates. He added that this was no problem and a usual situation in Kongsberg.⁹³ The normality of the situation also indicates that Kongsberg is small and with few people to man the key positions in these kinds of projects. Since the facilitating organization has other organizations and companies as partners and uses independent organizations to implement its actions, Table 5.5 shows an example of the set up of people, positions and organizations. The

⁹² Minutes from Kongsberg cluster initiative board meeting June 23 2010

⁹³ Observation notes from Kongsberg cluster initiative board meeting September 9 2008

organizations are either companies or projects, but they are all important in relation to the Kongsberg cluster initiative. The data collected in this study does not directly reveal any problems for the participating persons to manage their roles in different positions and organizations, but there have been a few instances where potential dual roles have been corrected, and also in informal talks some criticism has been raised. The organizational bodies of a company or a project require a good understanding of roles in different positions if they are to function. Most often a clear distance between persons in different roles is seen as essential to maintain autonomy between, for example, board and administration. There are at least two hypothetical problems that can be extracted from table 5.5.

Organization	Owner or board member	Top manager or project manager	Project worker or consultant
1	A	B	
2	E,B	D	A,B
3	B,C,D,E	A	
4	B,E	C	

Table 5.5: Example of different roles in different organizations connected to the Kongsberg cluster initiative⁹⁴

Persons B and E are in positions with strong responsibilities as owners or board members in organizations 2, 3, and 4. What if in one of the organizations, a company where B or E has a large investment and another organization is the cluster project, the primary focus of B or E would naturally be the company. How will this affect the performance in the governing of the cluster project? If we look at persons A and B we can see that they change positions in institution 1, 2, and 3. Will it be possible for them to keep their roles in the different institutions separated and correct? However most informants in Kongsberg think that this is good and that it functions

⁹⁴ This is a real distribution at one point in the facilitating organizations project period

in Kongsberg, probably because of the strong tradition to organize industrial activities in projects.⁹⁵

Table 5.5 and data from the rest of the project also reveals another problem. There are very few people involved in the Kongsberg cluster initiative and other local collaborative initiatives. This means that when a task or project is initiated there are very few people to turn to. An additional factor in Kongsberg is that many of the people possible to turn to have a history in Kongsberg Våpenfabrikk. As one informant supported by another informant⁹⁶ puts it, “The people in the Norwegian Center of Expertise are mainly the division managers within old Kongsberg industrial domains.”

When this is put together it seems that the personal resources are limited in number and there is a dominance of people who had leading positions in the old Kongsberg Våpenfabrikk.

There are several sides to the organizational capabilities of the Kongsberg cluster. The formal organization of the facilitating organization is described in chapter 2.3, and as one informant describes:

It was the partners’ meeting it was like the shareholders’ meeting. Then we said we organize it like we are used to in our daily lives. Then we have a board and the board is not a formal organization but connected to KNH project⁹⁷. So now we have the shareholders’ meeting and the board then we need an administration. How should we design that? That is the next step we said, first we have to decide what to do.⁹⁸

⁹⁵ Informers F and K in interviews

⁹⁶ Informers G and K in interviews

⁹⁷ KNH Project AS is owned by the Kongsberg Chamber of Commerce and is the legal entity that is the formal contract partner for the Kongsberg cluster initiative

⁹⁸ Informer E in interview

In addition to choosing an organizational form close to the usual industrial organizational structure the project is also must used as a work-form in Kongsberg. In the draft of “The Kongsberg Story” it is stated “All started as projects.”⁹⁹ Another informant¹⁰⁰ said:

We made a board with municipality, companies and the university, and then a project manager. So as usual in a board we discussed what to do, made plans, wrote contracts, and so on. The more strange part was that independent organizations were responsible for the different contracts and areas.

This means that the formal organization is clear on paper and well-known by the participants, however the last statement above points to a question: What is the relationship between the facilitating organization and the other independent organizations related to the Kongsberg cluster?

The Kongsberg cluster initiative is the only forum in Kongsberg where we have a body, which routinely is looking at the whole picture. The other forums are the top manager meeting in the Chamber of Commerce and the elected municipal council these are not places looking at the whole picture.¹⁰¹

Another informant¹⁰² observes:

The formal definition is OK. The Kongsberg cluster initiative has defined itself as a subordinate actor in the development of the society. The real position is more difficult in Kongsberg. The Kongsberg cluster initiative has become a powerful organization, which is important to the developments.

A third informant¹⁰³ does not see this as a problem:

⁹⁹ PowerPoint presentation dated 07.12.2009

¹⁰⁰ Informer K in interview

¹⁰¹ Informer K in interview

¹⁰² Informer O in interview

¹⁰³ Informer E in interview

The Kongsberg cluster initiative is not superior in relation to the others, I do not agree on that at all. It is limited to do things limited within the program to 18 to 20 million Norwegian kroner each year where 5 million Norwegian kroner is support from The Norwegian Centers of Expertise program nationally. What the Kongsberg cluster initiative does with this money is targeted activities, that is what the Kongsberg cluster initiative manages and it is not superior to the Chamber of Commerce, the municipality or others.

When confronted with the view that the Kongsberg cluster facilitating organization was superior to other actors in Kongsberg the response from the informant¹⁰⁴ was, “I think this is the reality today. The reason is mainly the people in there. It is a network thing.”

The three different views represent three perspectives on how the facilitating organization is used; the first an active use of the organization to change other society actors; the second the more passive observer who sees the power the organization has; and the third only seeing it as the official description of the organizational context. The traditional hierarchical organization of the program and the projects is thus clear on paper, but there is some confusion among the participants on the real function and the real capabilities of the facilitating organization.

5.9. Conclusions on Capability

The resources in the project seem to be distributed relatively stable over the first project period. In the second period when ambitions exceed resources it is Kongsberg Innovation who is the resource winner in the first year. The companies are willing to put some human resources into the Kongsberg cluster initiatives, but cash is much harder to get. The companies insist on substantial public financing in these collaborative initiatives.

There are few people available for work in the facilitating organization’s collaborative initiatives, often the same persons are used in different positions. On paper the organization of the

¹⁰⁴ Informer O in interview

Kongsberg cluster initiative is a clean project organization with clear lines, but the same people have different positions in the different companies thus making the governance difficult because these relationships may be dominant in the practical reality. However, Kongsberg's self image is that these changing of hats are unproblematic and that they over time have learned to handle this.

The mandate given from the national actors to the local partners is clear on paper. The same goes for the way the local board of the facilitating organization distributes mandates. However, on important issues questions are raised on where the local mandate sits in reality: in people; in positions; in hidden or open networks; and so on. This lack of clarity can impair the mandates given and also the strength and clarity of the mandate changes from project to project.

In total there are issues on four major areas that together impact the facilitating organizations capacity to act. Resources are less than ambitions. People are few and their multiple roles may affect the facilitating organizations accountability and its ability to learn, change and act because the organizational line is disrupted. The organizational knowledge is based on industrial and project organization, but the real organizational lines are unclear, especially in relation to other autonomous local organizations. These problems are enhanced by the unclear local mandates in the facilitating organization.

6. Findings: The Meta-Governance of the Kongsberg Cluster Facilitating Organization

The facilitating organization of the Kongsberg cluster initiative as shown in the previous chapter is dominated by two strong industrial identities: the Kongsberg Våpenfabrikk identity and the modern industrial Kongsberg identity. Is it possible to govern an organization with a strong identity that knows what it should do? The headline of this chapter meta-governance indicates that it is something between the no governance of independent actors and the governance of an organization. There are two main groups participating in the meta-governance of the facilitating organization of the Kongsberg cluster initiative: the national actors who treat the facilitating organization as an organization and the local actors who treat the facilitating organization as a governance network. Between these two groups are the regional representatives of the national actors who are stuck with one leg in each group.

The local actors are divided into two main groups. The strong local actors are the largest industrial companies in Kongsberg and a personal and professional network of people from Kongsberg Våpenfabrikk. They are the main carriers of the industrial identities in the facilitating organization. The weak local actors are the local university, the municipality and the innovation companies. They are dependent on the support of the strong local actors to be able to do something. However in the facilitating organization all these actors must be present. This calls for meta-governance that can negotiate a balance between actors who participate voluntarily and with different objectives for their participation. In addition the meta-governance should enable the facilitating organization to perform in accordance with its objectives. However the data presented below will show that the meta-governance of the facilitating organization is too fragmented to be able to do little more than to keep the peace among the actors.

According to Sørensen, one definition of meta-governance is, “Meta-governance is a way of enhancing coordinated governance in a fragmented political system based on a high degree of autonomy for a plurality of self-governing networks and institutions” (Sørensen, 2006, p. 100)

The use of the term meta-governance of the facilitating organization implies that the organization is seen not an organization but as a political actor in the form of a governance network. I have argued earlier that the facilitating organization of the Kongsberg cluster can be seen both as an organization and as a governance network. In the discussion on the facilitating organization’s capabilities in the form of mandates and organizational competencies in the previous chapter I have stated that the formal side of mandates and the formal organization are clear and well documented, however there is a gap between the formal and the real facilitating organization. The real facilitating organization has members with a high degree of autonomy, it is a local political actor, and there are a lot of different stakeholders. As such the real facilitating organization can be studied from a governance network perspective where the meta-governance of a network and not the governance structure of an organization are focused. The view that the governance of cluster initiatives may not only be seen as the governance of an ordinary organization is supported by the formal program owner of the Norwegian Centers of Expertise program on their web-site.¹⁰⁵

Clusters and cluster projects cannot be managed in the same way as companies and other organizations. The cluster organization is to a large extent based on the voluntary participation from the actors. They cannot be instructed and governed. All collaborative activities have to be based on a consensus and support on objectives, strategies, roles, and responsibilities. The development of trust based relations between the actors is a prerequisite to gain collective support for these common strategies.

¹⁰⁵ http://ekstranett.innovasjon Norge.no/templates/Page_Meta_58316.aspx downloaded 9 October 2010

When this perspective is seen in relation to definitions of governance networks we see that the special features in the cluster organization are similar to the features that separate governance networks from organizations. By studying the facilitating organization as a governance network this chapter seeks to uncover the following: Who does the meta-governance? What do they try to influence? How do they do the meta-governing?

Figure 6.1 shows an overview of the governance and meta-governance actor-groups of the facilitating organization in the Kongsberg cluster.



Figure 6.1: Actor groups involved in the meta-governance of the facilitating organization in the Kongsberg cluster

6.1. The National Actors

The formal national ownership of the Norwegian Centers of Expertise program is The Ministry of Local Government and Regional Development. Their focus on the project is demonstrated through their reports and budget proposal to the Norwegian parliament each year. The report

from 2009 focus is on numbers; the number of innovation projects started, the share of these innovation projects with a research and development part, the number of projects focusing on education, and the number of workplaces created through the project.¹⁰⁶ The budget of the Norwegian Centers of Expertise program is channeled through one of the national development agencies. So the government focuses primarily on the inputs and outputs from the cluster initiatives and as such treats the initiatives as organizations.

There are three national development agencies¹⁰⁷ involved in the Norwegian Center of Expertise program. These three national actors developed the program description for the Norwegian Centers of Expertise program in 2005 (Innovasjon Norge, 2005). The three agencies work on mandates from several ministries.¹⁰⁸ The three agencies have different roles in the Norwegian Centers of Expertise program. One, Innovation Norway, is the formal contract partner of the twelve local centers of expertise and runs the national board and program management. Another, The Industrial Development Cooperation of Norway, has observers in the local boards of the centers of expertise and through that follows up and advises the local facilitating organizations. The Norwegian Research Council focuses on advising the local cluster initiatives in relation to research funding.

The three national agencies also have regional organizations and representatives. The regional representatives of the national development agencies have the direct day to day contact with the facilitating organizations of the cluster. In addition these regional representatives also work in

¹⁰⁶ Stortingsproposisjon 1S (2010-2011) fra Kommunal og Regional Departementet, pages 42 and 43

¹⁰⁷ Innovation Norway is partly owned by the Ministry of Trade and Industry and partly by the 19 Norwegian counties together. Innovation Norway's objective is to develop the Norwegian regions and industry and to promote Norwegian trade and industry abroad. The Industrial Development Cooperation of Norway works to create strong regional environments for economic growth and to strengthen Norway's overall capability with regard to innovation and creativity. The Norwegian Research Council is the national instrument for research funding.

¹⁰⁸ The Ministry of Local Government and Regional Development is the main owner of the Norwegian Centers of Expertise program. The other ministries are The Ministry of Education and Research and The Ministry of Trade and Industry

close relation with many important local stakeholders and institutions as part of their tasks in the region. This is the reason why I will handle the regional and national parts of these development agencies partly as separate actors in meta-governance in Figure 6.1 and in the discussion below.

6.2. The National Agencies Meta-Governance

How do the national program managers of the Norwegian Centers of Expertise work to influence the local projects and who is involved? The preparation for the program and in the call for proposals is the platform for the national program's influence on the local projects. This is a base for the agreement between the local cluster initiatives and the national program owner. The national ownership is organized through the national development agency Innovation Norway. The agreements for the Kongsberg cluster initiative have been divided in two contract periods each for three years (Innovasjon Norge, 2006b, 2010). In addition an intentional agreement for the whole ten year program period was developed. One representative for the national agencies is the point of contact between the national program owners and the local facilitating organization. He is an observer in the local board to serve both as an advisor for the local initiative and to watch the local work on behalf of the national program board (Innovasjon Norge, 2005).

The agreement for the first three year period (Innovasjon Norge, 2006a) has a very traditional structure with plans, budgets, financing and reporting mechanisms. The agreement demands that industrial, academic and governmental partners should be included in the partnership owning the local cluster initiative, thus influencing the local set-up of actors. The agreement for the second period of the first six Norwegian Centers of Expertise was signed in the beginning of 2010 (Innovasjon Norge, 2010). When comparing this document with the agreement from the first period very few changes seem to have been made. This is remarkable since this was a new

experimental program, and one would think that a follow up on the developments over three years and an external evaluation report would result in a larger revision. This means that mainly a traditional governance mechanism was set up with contracts, reporting, and other accountability mechanisms in place. One meta-governance mechanism was imposed: the demand that the local university and the municipality should be active parts in the cluster initiative thus influencing both the identity and the capabilities of the facilitating organization. However the small development in the agreement after a three year period is surprising in an experimental program because if the agreements with the cluster initiatives were the main instrument of governance this would have been reflected in the contract or it would have been an acceptance that no changes were needed in the program.

However some changes were made between the first and second contract period. The heading for the first period was “Agreement” for the second period “Contract” which indicates the intention to hold the local cluster initiatives more accountable for the results in the second contract period than in the first. The second main change is the demand in the contract for a list of all the regional partners and their financial contributions to the project. In addition these contributions should be listed as both cash and contributed working hours for the partners (Innovasjon Norge, 2010, p. 2). The main reason given was that the national program owners wanted the participating companies to also contribute with “real” money. This demand is mirrored by the local initiative, at least in Kongsberg. In the contract there is also a paragraph that calls for public money to match contributions from the partner companies (Innovasjon Norge, 2010, p. 4). This is probably with a reference to an equity dilution and a strengthening of the local companies’ ownership in the innovation company where the aim was to strengthen its efforts to create new large companies, which is a primary objective of the Kongsberg cluster initiative and of the national program.

Financing and putting together joint packages is a major part of national agencies' regional representatives' responsibilities. One informant¹⁰⁹ said that the co-financing work with regional partners is a main part of the job for the regional representatives. The focus on financing tools as a governance tool seems to be strengthened in the second project period.

Both the agreement and the contract between the national program owner and the facilitating organization have a chapter on learning, communication, and dissemination of results:

The Norwegian Center of Expertise program greatly emphasizes learning, communication and dissemination. To support this it assumes an active communication between the different Norwegian Centers of Expertise projects, in relation to external target groups and other stakeholders, and in relation to the programs owners. (Innovasjon Norge, 2010, p. 6)

The main tool for this is the mandatory project managers meetings where all sixteen cluster initiatives are present and meets the national program board and administration. The project manager is often allowed to bring one person from his project to some of these meetings. For the facilitating organization in the Kongsberg cluster initiative the extra person has been one of the part project managers. The Norwegian Centers of Expertise program has also had two meetings for local chairs of its facilitating organizations' boards. I have argued above when discussing the communication between the regional representatives of the national development agencies that much of the communication takes place outside the official meetings and often only with the local project manager as a direct participant. Most communication between the national program owners and the regional project is also channeled through the project managers. It is also the project managers who are the backbone, or may be the whole connection in the network and communicate between the different regional cluster initiatives. This means that much of the

¹⁰⁹ Informer G in interview

learning possibilities are dependent on the project managers framing of the issues, understanding and communications skills.

One informant stated ¹¹⁰ that it seemed that the most interesting part of the national project managers meetings was the networking with colleges. The national meetings have one agenda point where the project managers meet without the presence of the national program managers to discuss common issues in relation to the national program owners. Sometimes the project managers find common ground. One manifestation of this was in the contract negotiations for the second project period where the six first Norwegian Centers of Expertise agreed not to sign the contracts before all six had agreed on the terms. This solidarity between projects led to some concessions from the national program group in the contract for the second period. This means that on national level both the national development agencies owning the Norwegian Centers of Expertise and the network of project managers of the cluster facilitating organizations have a part in the meta-governance. The frames of the meta-governance are negotiated between these two parties and much of the focus is on the financial arrangements, budgets, and reporting.

6.3. The Regional Representatives of the National Agencies Role

The three national development agencies working with the Norwegian Centers of Expertise program cooperate in defining and managing regional project. One of these agencies ¹¹¹ is the formal contract partner and organizes the national program management group and other national initiatives related to the program, for example seminars with the local project managers. However the regional representative of another development agency ¹¹² is the observer on behalf of the three national agencies in the board of the Kongsberg cluster initiative. This observer role has

¹¹⁰In the Kongsberg cluster initiative board meeting 18. March 2010

¹¹¹ Innovation Norway

¹¹² The Industrial Development Corporation of Norway

two dimensions: first, the intermediary role reporting back to the national program management on the developments in the local cluster initiative and pass on signals from the national level to the regional level; the second dimension is facilitation, working with both the national program owners but also other potential, regional stakeholders to obtain, for example, funding for projects in the local cluster initiative. The regional representative and observer in the board of the facilitating organization describe his role as difficult. He follows up their regional partners and projects on behalf of the national main office. But he also is the regional actors' ambassador to his main office. However his first approach when entering the board of the Kongsberg cluster initiative was to make sure that the money was used on the proper activities. The role is also defined as a program advisor and discussion partner, but the objective is to follow up the local project in relation to the national goals of the Norwegian Centers of Expertise program. The role of being the projects ambassador is often to bring back difficult issues to the national program board to develop the overall program so that "the best clusters can develop better."

The role of the national/regional representative of the program owners in the local facilitating organization is mainly defined from the national point of view. The focus on correct spending of resources and the focus on the program's national aims suggest a heavy weight on the accounting function in addition to the participation and facilitation mechanism pointed to above. The management of these triple roles must be difficult: what happens when are you the accountant reporting irregularities or lack of progress to the national owners, and when you are simultaneously the facilitator getting money and resources for the local initiative? From a governance perspective the regional representative is representative of the national owner in the board of the local facilitating organization. As a meta-governor the representative is contributing to the local facilitating organization's identity and capabilities, and thus investing to gain success

for the cluster initiative. In addition to the unclear meta-governance function that results from this, conflicts of interest may also evolve in the national versus local role management.

The roles of regional representatives of the three different agencies mentioned above have been handled differently. The representative of one of the development agencies has changed several times since the facilitating organization was established. This agency has not been a participant in the formal parts of the facilitating organization and the function has mainly been as a relative distant observer and advisor, for example by connecting the Kongsberg cluster initiative to their central offices when questions on concrete proposals needed financing. Still another regional representative also changed during the program period. The original representative for another national development agency¹¹³ participated actively in the local program manager group of the Kongsberg cluster initiative, and was active as an advisor in the write up of the successful proposal for a Kongsberg cluster initiative in 2006.¹¹⁴ Her successor, although invited in, had a fair more distant relation to the project manager team. This distance caused frustration and irritation in the program manager team, because they needed the support and resources from the regional offices of the development agency to be able to start up some of their projects. The minutes of the program manager team meeting on 6 June 2008 states:

It is important that Innovation Norway Buskerud Vestfold¹¹⁵ gives priority to participation in the Norwegian Center of Expertise team because it is important to understand the coherence and prioritizing. The relation between the national Norwegian Centers of Expertise and the regional Innovation Norway offices should be strengthened.¹¹⁶

When the original representative returned the relationship returned to its previous state.

¹¹³ Innovation Norway – Buskerud and Vestfold office

¹¹⁴ Informers A and B in interviews.

¹¹⁵ the regional office of the development agency

¹¹⁶ In my translation

The three national development agencies are behind the Norwegian Center of Expertise program together although one is the contract partner and another has the responsibility for the follow up of the regional initiatives. If we suppose that the three agencies have a unified role in the governance of the Kongsberg cluster initiative, we see that if we look at their three regional representatives' function they use much of the meta-governance mechanisms discussed earlier: accountability; support; and participation. However the differences in the follow up from the different and changing regional representatives indicate that the three national agencies do not have a unified strategy for the governance and meta-governance of the Norwegian Centers of Expertise although they have an intention on a division of responsibility (Innovasjon Norge, 2005, p. 12). For some representatives the personal definition of their roles and interest for the cluster initiative seems to determine the modus operandi towards the program. This is also supported by an evaluation report on the first six Norwegian Centers of Expertise done by Econ-Poyry (2009). The evaluation report states one of the main challenges of the program:

In this work it would be useful to clarify the distribution of responsibility between Innovation Norway, centrally and through the regional offices, SIVA¹¹⁷ and the Norwegian Research Council. Today SIVA is responsible for the operational follow up, Innovation Norway is in many cases observers in the boards while the Norwegian Center of Expertise secretariat is contract partner and responsible for the reporting. This diffusion of responsibility may create vacant spots if the tasks are not clearly allocated. (ECON Poyry, 2009, p. 52)

When looking for the direct methods by which the regional representatives work, it is difficult to find data in the documents and minutes from the meetings of the facilitating organization. However outside these meetings there seems to be a dialogue and may also be negotiations between the regional representatives and the project manager. In some cases the chair of the

¹¹⁷ The Industrial Development Corporation of Norway

board of the facilitating organization seems to be involved in this communication, but the main point of contact is the project manager. However the influence of these representatives should not be underestimated; on two occasions there are indications of a direct link between signals via the regional representatives and initiatives made in the facilitating organization. The first example is from a project manager team meeting on 27 March 2008 when the regional representative gave feedback on the results for 2007 by the Kongsberg cluster initiative. Three signals were given: there were too few results in relation to small and medium sized companies; too few innovation and research- projects were reported; and there were questions on the progress on creating new companies. In the informal dinner after the meeting the research possibilities were discussed and it was agreed to start up the process of establishing a local research and development unit at Kongsberg. The second example is from a board meeting in the facilitating organization in 2009 when plans for the next three-year period were discussed. The observer for one national agency in the board stated that for the next period the resources should be focused on developing new companies. Later in the 2010 budget process the budget had to be reduced and the innovation company which owned the project that aimed to establish new industrial companies kept its original budget while all other projects suffered substantial cuts.

The strength of the link between the regional representatives' statements and the subsequent initiatives and changes in plans is difficult to evaluate. The statements may have hit a ripe discussion or actions already in progress, and as such have not been a deciding factor in the two cases, or they may have been interpreted as a strong signal from the national program administration. The last possibility is less probable because it is a clearly stated policy that the local companies involved in the Norwegian Centers of Expertise should be in the driver's seat of their projects.

To conclude on the regional representatives of the national agencies role in the meta-governance of the facilitating organization of Kongsberg cluster initiative, they seem to be using several of the instruments of meta-governance as described in the literature. The framing mechanism of accountability seems to be the main focus for the representative with the clearest link to and mandate from the national organization, but this representative was also active in participation and facilitation in the Kongsberg cluster initiative. The support and participation instruments seem to have been in use on a more ad hoc base by the other representatives. This makes both the meta-governance and the direct governance of the facilitating organization unclear and it seems difficult for the national program owners to develop the local strong identities of the facilitating organization in Kongsberg with the tools the regional representatives were given. However the capability can be governed with the potential funding channeled through the regional representatives.

6.4. Conclusions on the National Agencies Meta-Governance Regime

In the analysis of the facilitating organization as a governance network I have argued that several meta-governance mechanisms may be seen in the facilitating organization of the Kongsberg cluster initiative. Mechanisms such as storytelling, framing, support and participation can be used in managing the organization's identity and capability. However, the Norwegian Centers of Expertise program has used a narrow bandwidth of these mechanisms when managing the local cluster initiatives. The narrow bandwidth is twofold both because most governance signals and negotiations seem to pass through the project manager alone. The rest of the project organization is only to a limited degree exposed to the impulses from the national and other actors, and mainly through formal documents and evaluations or the project manager. The regional representatives

of the national agencies are exposed over time to many of the local actors, but as discussed above their strategy on meta-governance was unclear.

The second issue is the focus on governing mostly the capability of the facilitating organization through financial and co-financing mechanisms. In addition when referring to governing capability according to the literature discussed above, a deconstruction of capability has three factors: mandate; people; and resources. The focus on only one of these three limits the meta-governance and the national program owners, thus limiting their potential to influence developments and transitions in the local cluster initiative. One reason may be that they mainly see the facilitating organization in the cluster initiatives as a traditional project organization with ordinary vertical command lines, therefore using only traditional governance methods.

6.5. Meta-Governance from the Local and Regional Actors

There are several candidates for exercising meta-governance from local and regional actors. The partnership of autonomous organizations which is the founders of the Kongsberg cluster initiative also influences the facilitating organization not only from the inside, formal structure of the organization but also as individual actors. As mentioned above, co-financing of the facilitating organization's activities are an important tool for the national bodies, this challenges regional institutions to participate in the financing activities. Buskerud county administration, Kongsberg municipality, and a cooperating group of neighbor municipalities to Kongsberg are supporting the Kongsberg cluster initiative with money.

The legitimacy of the facilitating organization both locally and nationally depends heavily on the participating companies' support and their willingness for active involvement. The companies are heterogeneous with a few very large companies, a couple of medium size and several smaller

companies. This gives the companies different roles and impact on the facilitating organization. In addition this section will argue that a personal network established in the former Kongsberg Våpenfabrikk also influence the facilitating organization's identity and capability and are as such part of the meta-governance of the Kongsberg cluster initiative. Other organizations connected to the facilitating organization such as the regional university and the local innovation company seems to be so dependent on the legitimacy and the funding from the cluster initiative that their influence is mostly done through the formal governance of and by negotiations with the facilitating organization. However, both actors work to connect to the Kongsberg Våpenfabrikk network: the innovation company through their owners who are the Kongsberg industry and the university by recruiting known members of the Kongsberg Våpenfabrikk network as industry professors.

The industrial Kongsberg's largest industrial companies have started as divisions in the former Kongsberg Våpenfabrikk. Three of the companies are by far larger than the others and have an annual turnover of 10 Billion Norwegian kroner, and in the next group there are two companies whose annual turnover in 2008 was about 1 Billion Norwegian kroner. One informant¹¹⁸ used the words "the three musketeers" when referring to the three largest and their power in Kongsberg. Other informants stated that they did not know and did not understand this phrase and demanded to know who I thought the three largest were. The three musketeers have power to initiate and drive through initiatives in Kongsberg. One informant stated,¹¹⁹ "When the big ones do something, then it becomes real and it is accepted in the Kongsberg society because it is important to Kongsberg."

¹¹⁸ Informer K in interview

¹¹⁹ Informer O in interview

Several joint initiatives have come out of initiatives by the large companies, also outside the Kongsberg cluster initiative: an international school; a vocational training center; an initiative to get better roads to Kongsberg and so on. So the largest companies in Kongsberg have control over participation and resources in the facilitating organization both directly and through their innovation company.

In the Kongsberg cluster initiative and by directions from the national Norwegian Centers of Expertise program the industrial companies should take the steering wheel in the project.

There is another point to make on the industrial representation in the facilitating organization.

Almost all industrial representatives in the facilitating organization's board and the project manager have a past in Kongsberg Våpenfabrikk. In the board the main exception is the rector of the university. The connection to the Kongsberg Våpenfabrikk-identity was seen as an advantage both by the industrial partners and even from the national agencies owning the Norwegian Centers of Expertise program. The proposal for Kongsberg cluster initiative in 2006 states:

Many of the core companies have come from the civilian parts of Kongsberg Våpenfabrikk. The establishment of new locomotive companies when Kongsberg Våpenfabrikk was dismantled in 1987, was to a large extent built on a solid collaborative culture and shared professional and individual networks.

(Kongsberg Nærings- og handelskammer, 2006, p. 1, in my translation)

One informant¹²⁰ emphasizes the importance of the Kongsberg Våpenfabrikk connection, "The collaborative activities and negotiations on policy went very well in Kongsberg. I think that is because all of them came from Kongsberg Våpenfabrikk."

The Kongsberg Våpenfabrikk culture and networks enabled the establishment of the Kongsberg cluster initiative. Two of the top managers of the major Kongsberg companies were recruited

¹²⁰ Informer G in interview

outside of Kongsberg and do not seem to be a direct part of the governing bodies of the Kongsberg cluster initiative. One present manager (as of spring 2010) and one former top manager of the major companies, who both have a history from Kongsberg Våpenfabrikk, have each chaired the facilitating organization's board. It seems that a history from Kongsberg Våpenfabrikk has enabled the cluster initiative even though the cluster's industrial and commercial success started during the mid 1990s.

The connection to Kongsberg Våpenfabrikk seems to have a large impact on the meta-governance of the Kongsberg cluster initiative. In the process where the university owned incubator was removed from the cluster initiative's project portfolio some have indicated the reason was competition with the industrial owned development company. When in addition the Norwegian Center of Expertise program as mentioned above was seen as a possible major income resource for the development company¹²¹ and some influential people saw the Kongsberg cluster initiative as a prolongation of the development company's mission (Bjørnson, 2004), the missing industrial connection with the university incubator may have been an important factor. Another university initiative in the beginning of the Kongsberg cluster initiative was the master program in Systems Engineering. The dean of engineering at the university at that time worked in the management of Kongsberg Våpenfabrikk. It is an open question if this master program at the local university would have had the central place in the Kongsberg cluster initiative without this industrial connection. One informant¹²² states that although establishment of the Kongsberg cluster establishment was run from the outside of the industry, people with strong connections and history in Kongsberg Våpenfabrikk were necessary to get the initiative going.

¹²¹ Informer B in interview

¹²² Informer O in interview

When turning to the other non-industrial actors in the meta-governance of the facilitating organization of the Kongsberg cluster initiative one contributor—the Buskerud County administration—has the most distant position. Buskerud County, where Kongsberg municipality is only one of several municipalities and not even the largest, participated from the beginning in the efforts to establish the Kongsberg cluster initiative. Since the cluster initiative was launched in 2006 the county administration has not participated with representation in the facilitating organization except for some representation in the yearly partnership meetings. The county administration is as such the largest financial contributor without at least an observer representation within the facilitating organization. One informant¹²³ attributes this to the industrial environment at Kongsberg, that is a lack of humility towards the rest of society and which makes it difficult to create involvement and enthusiasm for the Kongsberg cluster initiative. The informant questions the Kongsberg industrial environment's capability to cooperate with others because their posture is "You have to understand so and so..." The county administration's strategy to govern the facilitating organization is to contribute with money to specific tasks and also demanding co-financing from other actors in order to contribute. This strategy has been consistent from the start of the project until 2010. In their letter where money to the facilitating organization was contributed 11 September 2006 the county pointed at two tasks where the money should be used: the development of a knowledge base for industrial development, and the new master-program in Systems Engineering at the regional university. Later in 2010 when the facilitating organization had financial difficulties it negotiated with the county to get additional funding. The negotiations pointed to research as the area where the county could contribute more money and after a written proposal from the facilitating organization money was granted to three specific research projects. So the county administration

¹²³ Informer A in interview

has limited its meta-governance strategy to a focused financing tool for regulating the facilitating organization's capability and to try to turn its identity in the direction of the county administration's agenda.

Kongsberg Municipality and the Kongsberg regional municipality network also grant money for the development of the attractiveness of the region to the industry. The grant is more of a lump sum of money and the facilitating organization can develop the content of the attractiveness project itself. In addition both the municipality and the municipality network are represented in the board of the facilitating organization by one person, the mayor of Kongsberg. The content of the meta-governance from the municipality can even be seen as reversed where the facilitating organization is trying to influence the identity and capability of the municipality. There may be several reasons for this as mentioned above: Kongsberg is divided between the industry and the rest. One informant¹²⁴ referred to this as typical Kongsberg, "There is a long tradition in Kongsberg that the municipality does not help the industry because the industry takes care of itself."

He added that this had been the case for decades. This informant saw the main issue was to get the influence from the industry into the municipality politics. This also seemed to be the case for the top managers of one of the largest companies¹²⁵ in Kongsberg¹²⁶ who said:

We believe in being a part of the knowledge cluster in Kongsberg, but Kongsberg has to help us. Kongsberg has to be attractive so more commuters and temporary employees choose to move to and start living in Kongsberg.

¹²⁴ Informer O in interview

¹²⁵ FMC Technologies

¹²⁶ Johan Pfeiffer at "Industrikonferansen" as published on http://nce-se.no/index.php/wl_nyheter/enkeltsak/C28/ downloaded 21.03.2010 at 13.10

This top manager has not been part of the Kongsberg tradition, but was recruited a couple of years ago into the company at Kongsberg. It seems that Kongsberg municipality has received this message and adapted it into its main planning tool – the municipality long term strategic plan¹²⁷. In the plan the aim for inhabitants is an increase from 25,000 to 40,000 to accommodate a growing industry. In addition it states, “The technology industry employs 40% of the people working in Kongsberg and is the main force in the development of the municipality.”

An addition to the division between industry and municipality is, from the industry side, the reference to people outside the industrial companies as X-tech. Representatives from the business community and the tourism companies voiced their frustration in a meeting¹²⁸ presenting Kongsberg scenarios for the year 2015; they felt left out of the discussion of their own future. So Kongsberg municipality is part of the meta-governance actors of the facilitating organization in the Kongsberg cluster, but the role is limited to financial support for a project which is a duty for the municipality in the first place. It may seem that the governance line from municipality to the facilitating organization to a greater extent points from the facilitating organization to the municipality.

Both for the local university and the local innovation company it also seems that they are to a greater extent governed by the facilitating organization than having influence in the meta-governance of it. The university has recruited several senior managers from industry into their operation to enhance the contact with the industrial environment thus enhancing their meta-governance capability by gaining contacts within the Kongsberg Våpenfabrikk network. This means that the weak local actors in the facilitating organization seek to gain influence in the

¹²⁷ Kommuneplan for Kongsberg 2008-2025. Downloaded from <http://www.kongsberg.kommune.no> 18. September 2010 16.00

¹²⁸ 7. October 2008

meta-governance indirectly by means of a personal network that has influence over the facilitating organization.

However the board of the innovation company is inhabited with local industry leaders with connections to the Kongsberg Våpenfabrikk personal network. The board of the innovation company is as customary appointed by its owners and some people feel that the Kongsberg cluster initiative is just a prolongation of the innovation company's mission. One informant¹²⁹ said, "When we established Kongsberg Innovation we had financing for three years. May be the Norwegian Center of Expertise could be an instrument for more permanent financing."

Other stakeholders in Kongsberg were more reluctant to hand over control over the cluster initiative to the innovation company. One informant stated:¹³⁰

There was a discussion on whether Kongsberg Innovation should be the contract partner of Norwegian Center of Expertise, but in the discussions it became clear that the municipality, the university and the smaller companies would feel excluded because Kongsberg Innovation was seen as a tool for the larger companies.

The minutes from the board of the development company's board are closed, but there are indications that many important issues for Kongsberg cluster initiative are discussed in this board and among people associated with the development company. One informant¹³¹ said to me in an informal conversation, "If we in Kongsberg Innovation discuss this and agree that this is how it is going to be, the board of the Kongsberg cluster initiative will support us."

One local actor The Kongsberg Chamber of Commerce was originally created after the 1987 crisis when the large weapon factory disintegrated and it included all commercial enterprises

¹²⁹ Informer B in interview

¹³⁰ Informer B in interview

¹³¹ Informer X

form all business types in Kongsberg. At one point the large industrial companies took over the Chamber of Commerce and other businesses left the organization. In 2009 revitalization was done again gathering all kinds of Kongsberg businesses in the organization. Formally a part of the Chamber of Commerce is the contract partner of the Kongsberg cluster initiative and the organization as an observer position in the board and has run one of the important projects in the initiative. The Chamber of Commerce does not have resources to contribute substantially to the facilitating organization, and its mandate to take part in meta-governance seems to be limited. As one informer¹³² put it, “Norwegian Center of Expertise was a boost for the whole environment ... Everybody has a Chamber of Commerce but there is no national drive there. We did not have common ground there.”

The role of the Kongsberg cluster initiative in relation to the Chamber of Commerce has been discussed on several occasions. The latest was in 2010 when the facilitating organization had financial troubles and had to ask its industrial partners for a financial contribution. The industrial partners then questioned whether it was necessary to pay contributions to both the chamber of commerce and to the cluster initiative, and there were voices that demanded that the industry should choose the cluster initiative over the Chamber of Commerce. The boards of the two organizations were debating this in the autumn of 2010 and the aim was to clarify their roles through negotiations.

6.6. Conclusion on Meta-Governance of the Facilitating Organization

The meta-governance of the facilitating organization of the Kongsberg cluster initiative is complex and fragmented and by that weak in relation to the dominating industrial identities in the Kongsberg cluster initiative’s facilitating organization. Table 6.1 shows an overview over who,

¹³² Informer H in interview

how and what is part of the meta-governance of the facilitating organization in the Kongsberg cluster initiative.

The national Norwegian Centers of Expertise program owners seem to use a very traditional accountability-based governance through contracts, budgets, plans, evaluations and other more formal communication. If the program owners to a larger extent recognized the cluster initiative and its facilitating organization as a governance network instead of a traditional project organization, a wider approach could be used. The three agencies cooperating on the Norwegian Centers of Expertise program have possibilities and have expressed ambitions to participate, support and develop learning processes in the regional cluster initiatives, but this part does not seem to be in focus so far. These limited methods of follow up would leave a larger room for the local initiative owners for influence over their cluster initiatives.

The Kongsberg cluster initiative was born dependent on a strong, local collaboration and culture platform, a network created in Kongsberg Våpenfabrikk which had a major crisis in 1987 and was split up. The remaining parts are today the strongest companies in Kongsberg. The Kongsberg Våpenfabrikk culture, networks and thinking seem to be major factors in the meta-governance of the Kongsberg cluster initiative. Actors not sharing the Kongsberg Våpenfabrikk culture seem to have a more difficult time gaining access and resources from the facilitating organization. This effect is strengthened by the strong self image of the engineers managing these “World Class” companies who see others as second class, X-Tech actors.

What

Who	Framing	Participation	Facilitation	Storytelling
Ministries	Financing Reporting Accountability Mainly through national development agency	No	No	No
National development agencies	Financing Reporting Accountability	In national project manager network	In national project manager network	In national project manager network
Regional representatives of the national agencies	Accountability	In board and project manager meetings	Co-financing Negotiations	No
County administration	Task oriented financing. Co-financing	No	No	No
Local university, chamber of commerce, municipality	No	Negotiations	No	No
The largest companies	Mandate giving Co-financing willingness	Participation as civic duty	No	No
Kongsberg Våpenfabrikk network	Tech versus X-tech thinking Mandate development Access to companies	In board In project manager team Through the development company	Anchoring activities in the companies	The way we do things here Type of management and type of organization stories

Table 6.1: Meta-governance of the facilitating organization by actors and mechanisms in use

The three largest companies in Kongsberg are dominant in the development because of their sizes and importance. If anything is going to happen in Kongsberg, one or more of the three must engage at a high level. The large companies have also created an innovation company as a tool for cooperation and development. Three local actors seem to play a very small role, if any, in the meta-governance of the network: the local university; the municipality; and the local Chamber of Commerce. At the outset the Kongsberg cluster initiative reports and analysis suggested that these were underdeveloped in relation to the industrial needs in Kongsberg, and the analysis indicates that they still are and that to a very limited extent they may be seen to participate in the meta-governance activities.

Looking at Table 6.1 we see that the actors discussed fall into three main categories:

1. The actors financing the national initiative provide a mandate through the financing. These actors are the national ministries, the national development agencies and the county administration.
2. The actors giving, anchoring, and facilitating the local mandates and recourses. These actors are the large companies and the Kongsberg Våpenfabrikk network.
3. Actors with limited power and in need for the mandate and recourses that the facilitating organization and the real meta-governance actors can give them through negotiations. These actors are the local university, the municipality, and the local chamber of commerce.

The relationship between the three groups can be seen as a balance of terror. Group three may be the weakest, but they are needed for the facilitating organization to have legitimacy; the local university as an education and research provider, the municipality and the Chamber of Commerce as a community interested in the continued development of its industry. The actors of group three's interest in the facilitating organization rests on the two other groups interests in providing mandates and resources to them. Group two may seem to be the most powerful, but only as long as the larger industrial companies and the Kongsberg Våpenfabrikk network is in line. The companies are international and will only stay in Kongsberg as long as they deliver good results and their owners see it as beneficial. For the Kongsberg Våpenfabrikk network that mainly consists of professional industrialists this is an issue but added is local Kongsberg patriotism, which ties further development to Kongsberg. Group two will only participate in the Kongsberg cluster initiative as long as group one actors provide enough resources and group three actors agree to participate in a reasonably subordinate way. Group one actors are only willing to continue financing as long as the local cluster initiatives deliver in relation to the aims and policies of the national and in this case county actors.

All three actor groups have to be kept interested in the cluster initiative in order for the facilitating organization to be able to function. The facilitating organization has to maneuver in a complex environment with a degree of conflicting interests. The three main groups mentioned above must keep within their own limits of interest at the same time making sure they do not lose the interest of the two other groups. The facilitating organization's ability to survive will depend on negotiating these different groups of actors and to keep legitimacy. One instrument of negotiating the limits for maneuvering was when the project managers joined together against the

national program owners in the negotiations during the transition from the first to the second contract period of the program.

There is another issue that becomes apparent when studying Table 6.1 and that is the different approaches towards governance of group one and the rest. Group one uses tools like financing, reporting, and accountability and sees the local cluster initiative as similar to an organization with command lines. The two other groups consist of independent actors and they use much of the spectrum of meta-governance mechanisms of the governance network. This is especially visible for the Kongsberg Våpenfabrikk personal network.

The national level treats the local cluster initiative more as a traditional organization even though they state on their web pages¹³³ that [quote here from web page?] while the local actors treat it more as a governance network. Their influence of the meta-governance is further impaired by the fragmented addressing of their regional representatives in relation to the facilitating organization. The position of the facilitating organization in relation to network or organization depends on the position of the different actors; the local actors use the full potential of meta-governance and the national the limited governance instrument.

¹³³ http://ekstranett.innovasjon Norge.no/templates/Page_Meta_58316.aspx downloaded 19 october 2010 at 12:30

7. Findings: Talk, Decisions, and Actions in the Facilitating Organization of the Kongsberg Cluster Initiative

7.1. Introduction

This chapter discusses how some activities play out in the facilitating organization of the Kongsberg cluster initiative. The selected examples (Table 7.1) cover a large part of the facilitating organization's activities and budget spending from 2006 until today. To be seen as important to the facilitating organization an activity needs legitimacy within the organization's dominating identities: the modern industrial Kongsberg and the Kongsberg Våpenfabrikk identity. This legitimacy is not mainly based on good results in the activity but rather to which degree it aligns with what people should do within the modern industrial Kongsberg or the Kongsberg Våpenfabrikk. The discussion below will show that development of initiatives in the facilitating organization depends on its position in relation to the two identities. If it is in line with the two identities it will be seen as important and often successful, but if it is out of line it will be eased out of the coordinated actions of the facilitating organization. In one example the activity is trapped in a conflict between the two identities and does not gain the legitimacy to finish. Another finding in this chapter is that the facilitating organization has a tendency to end up in an action modus and that coordinated thinking and learning are less present; production and activity are needed to gain legitimacy by the two dominating identities.

Table 7.1 shows the five examples chosen and the motivation for the choice. The examples are chosen to show different developments based on their legitimacy towards the dominating identities in the facilitating organization. Three of these examples are seen as successful by the facilitating organization: the genesis of the cluster initiative, the master program at the local

university, and the development of workplaces outside the industry. The other examples are either seen as unsuccessful or they are still not finished.

Examples	Motivation for selection
The genesis of the Kongsberg cluster initiative	The example shows how the facilitating organization grows from a loose network to an organization, which only got the capability to act after the industrial actors' identities were provoked.
"The Kongsberg story"	Shows the facilitating organization's difficulties when an activity clashes with its two dominating identities. The activity was given to a single person in the periphery of the facilitating organization and the activity is still not finished.
Knowledge development	Two initiatives within higher education and research take different paths. The master program in Systems Engineering was in line with both identities of the facilitating organization and was kept within the partnership of the organization. The attempt to establish a research institute was outside the scope of the dominating identities and the initiative was placed at a single actor: the

	local university.
New companies	Three different initiatives to develop new companies and workplaces. One from an industrial owned and the second from a university owned innovation company. The third initiative was outside the industrial sphere with the aim to develop workplaces for partners of engineers. The first is still a large project within the facilitating organization, the second was thrown out, and the third finished as a small but successful project within the organization.
The female initiative in the Kongsberg cluster	A national directive to the facilitating organization to increase female participation in the cluster initiative clashed with both dominating identities and was eased out of the facilitating organization to a single actor at the outside of the cluster initiative.

Table 7.1: The examples of activities in the facilitating organization discussed in this chapter

The examples are discussed in light of the theoretical model shown in Chapter 3 and illustrated in the Figures 3.1 and 3.2. In Figure 7.1 the theoretical model is revised and the findings in chapters 5 and 6 are put into the model.

Another main finding in this chapter relates to Figure 3.1 where all but one of the examples discussed falls within the action part of the figure. This is even true about the strategy of the whole facilitating organization that was revised in the autumn of 2010. The strategy now is to do the same things, only to do them better, or as one informant¹³⁴ stated, “The most important thing is to do something and not to do nothing.”

In Chapter 3 the possible positioning of the facilitating organization in relation to two dimensions, the level of intelligence and the level of governance in the organization were discussed. In Figure 7.2 this discussion is represented based on an argument where two different hypothetical positions of the facilitating organization are developed. These positions are learning and development—where actors with different views are drawn into a discussion and the organization is dominated by a network of autonomous actors—and the action position—where discussions are avoided and a more traditional hierarchical organizational form is used. An assumption is that the facilitating organization should be able to be positioned in both positions or move between the positions based on the characteristics of the issues addressed. An alternative to this movement between positions is to separate the two positions either in time or in different parts of the organization together with a conscious management of how different issues should be handled.

¹³⁴ Informant K

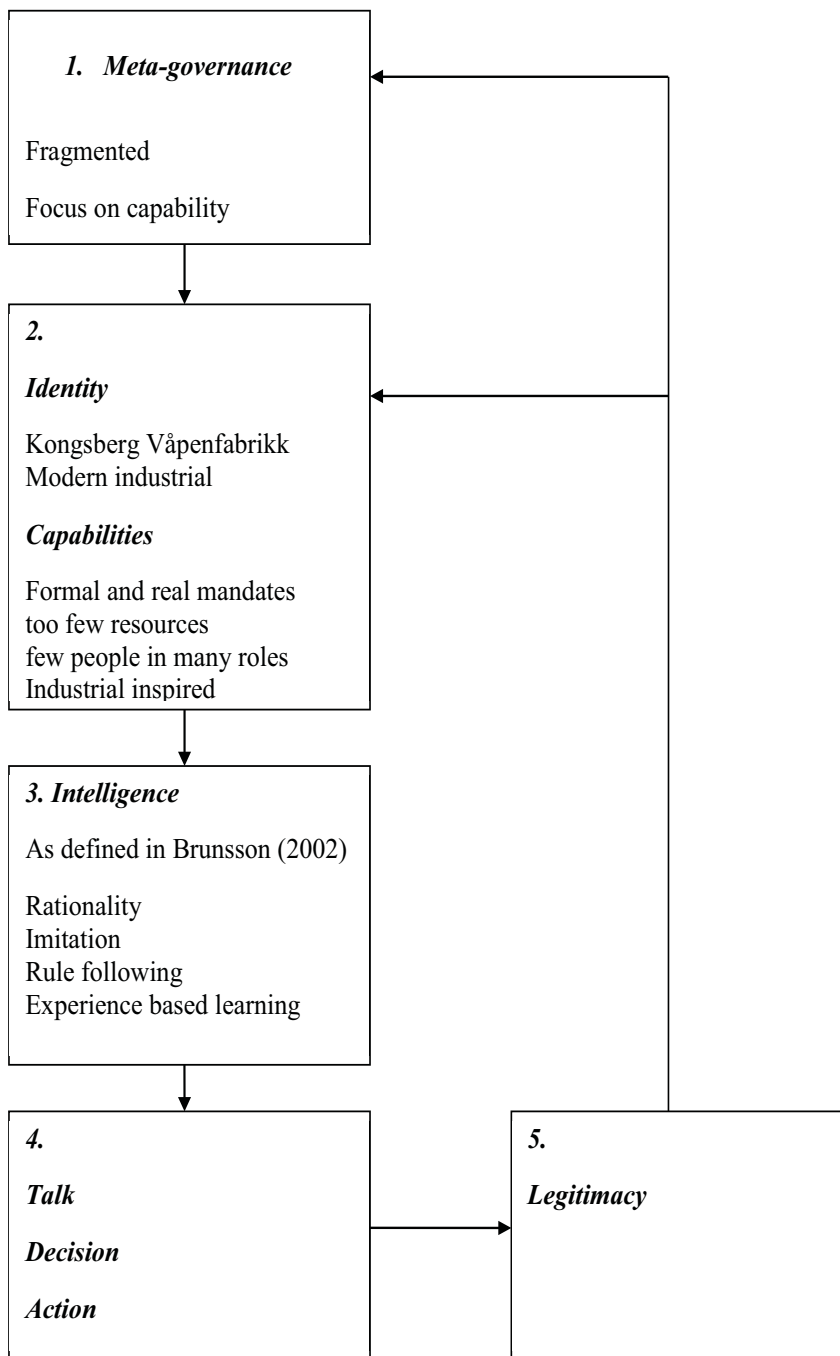


Figure 7.1: Analysis model rephrased based on the findings on the facilitating organization of the Kongsberg cluster initiatives identity, capability, and the meta-governance of the organization.

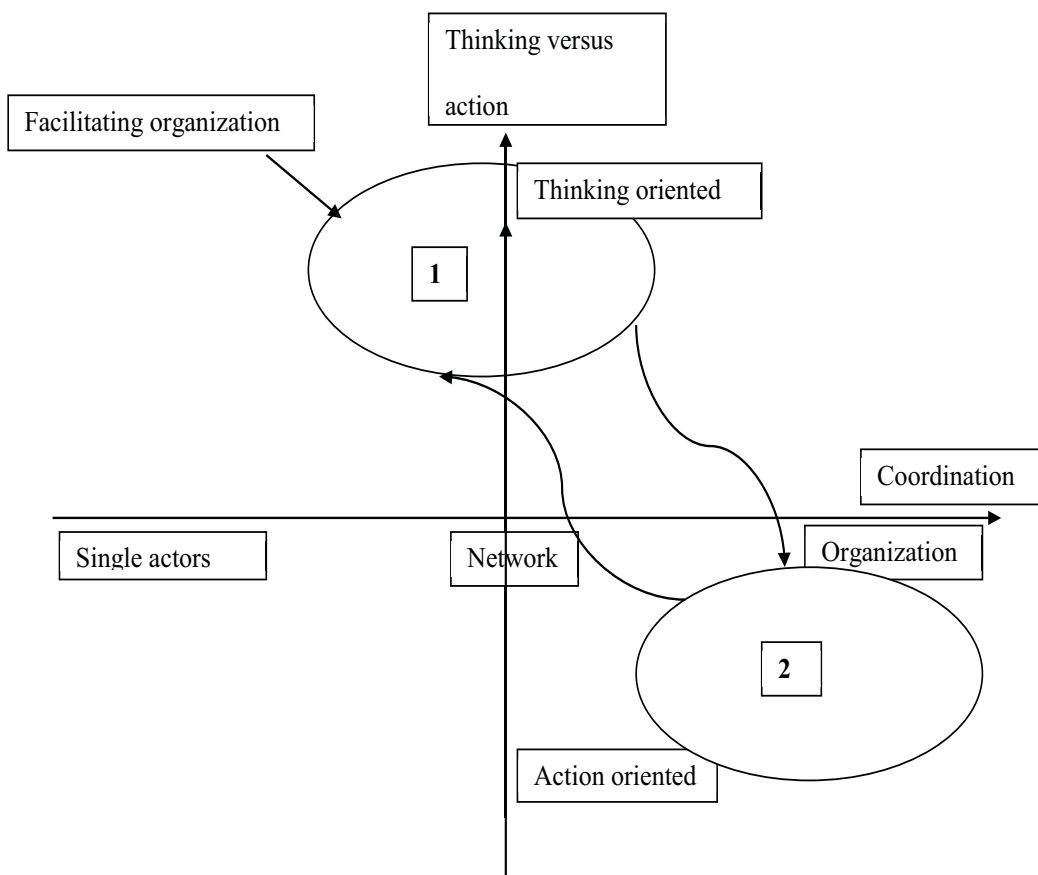


Figure 7.2: Possible positioning the facilitating organization on two axes: Horizontally the degree of coordination, and vertically the degree of action versus thinking. Two possible positions for the facilitating organization are given. 1 is the learning and development position, and 2 is for implementation position. Transitions between positions separated in time, cases, or persons are possible.

The main data for the developments, incidents, and the facilitating organization's evaluation of the issues are taken from the minutes from board and project manager meetings. These minutes display the facilitating organization's processing of the examples and will indicate critical incidents and developments. The interview data was collected in a limited time of the project period mainly in the first three quarters of 2009, and thus reflects the interviewees' understandings at the time of the interview. Additional data is collected from my observations and participation in the meetings mentioned above as well as ad hoc meetings I have participated in related to the different issues. The last sources of data are reports and documents produced as part of the chosen issues. My access to data is asymmetric in relation to the different issues discussed. For the knowledge development issue I am now¹³⁵ and have been since 2007 a project manager of these issues in the facilitating organization. Issues that have played out before August 2007, for example the genesis of the Kongsberg cluster initiative, which I know only from documents and interviews.

The structure of the discussion of the activities is to follow a timeline of emergence, establishment, and the further developments during the activity's lifetime in the facilitating organization with a focus on the analysis of who, when, why, and how as seen in relation to the results on meta-governance, identity, and capabilities of the Kongsberg cluster initiative.

7.2. The Genesis of the Kongsberg Cluster Initiative and its Facilitating Organization

The genesis of the Kongsberg cluster initiative and its facilitating organization may turn into a question of what came first. The cluster initiative and its facilitating organization grew

¹³⁵ December 2010

simultaneously and will be discussed in this case as equals. There were two main actor groups: the industrialists and the innovation helpers. The helpers needed resources and legitimacy from the industry to play a role in the new regionalized economy. The industrialists mostly with a past in Kongsberg Våpenfabrikk, were already very successful but saw a twofold opportunity through the status of “Norwegian Center of Expertise.” First, to regain a lost national role in industry development thus fulfilling their Kongsberg Våpenfabrikk identity. Second, they took part in the new regional innovation system and by that also fulfilled their identity as modern industrialists.

The stories of the genesis of the Kongsberg cluster initiative are different as the actors see the process from different perspectives. In the interviews and the documents related to the process there seem to be a division in the views on the motives for entering the cluster initiative process with the primary industrial actors on one side and the innovation helpers on the other side. The helpers were the regional university, the municipality, the county administration, the local innovation company, the regional office of one of the national development agencies, and other non-industrial actors.

From the early 1990s the national and regional discussion entered Norway. Three national development agencies¹³⁶ were central promoters of this and through programs¹³⁷ mapped the position of different regions in relation to regional innovation systems concepts. One project in this program was Inno-tech initiated in 2003 from the regional office of one development agency¹³⁸. The coordinator of the project has stated that a main motivation was to prepare for

¹³⁶ Innovation Norway, The Norwegian Research Council, and The Industrial Development Cooperation of Norway

¹³⁷ For example the ARENA program with:

“The objective to strengthen the clusters innovative ability through a stronger and more dynamic interaction between the industry, R&D institutions, universities and the public sector. The interaction is to be long-term, goal-oriented and focused on innovative collaboration, international awareness, access to knowledge and new business.”

¹³⁸ Innovation Norway – Buskerud and Vestfold office

cluster development by analyzing the Kongsberg industry based on regional innovation system concepts, thus preparing the ground for future cluster initiatives. This report had several conclusions¹³⁹ where one was that the industrial companies were robust and strong, but that the other actors of the regional innovation system and infrastructure were inadequate to match the companies' needs. The regional university was challenged to enter the regional innovation system playing field. A second conclusion in the report was a lack of cluster dynamics in Kongsberg and the strategy to counter that was knowledge development and the development of arenas for cooperation. The Inno-tech project and the conclusions from it readied the ground for Kongsberg to enter into the Norwegian Centers of Expertise process that was emerging in 2005. It also enabled the local university and the local innovation companies to become active in a regional innovation system perspective.

At least three local helper actors needed resources and mandates to play a role in a regional innovation system in Kongsberg and saw the coming Norwegian Centers of Expertise program as a potential source for themselves. The local university entered the regional innovation system field with two initiatives: the establishment of an innovation company¹⁴⁰ which targeted entrepreneurs and small companies, and the establishment of a cooperative group with the aim to strengthen the relationship between the industry and the university. The main result of this cooperative group was a proposal to establish a master-program in Systems Engineering at the university. The proposed activities in the local university were in need of resources. An informer¹⁴¹ stated that the motivation to invest in establishing the Kongsberg cluster initiative was money. Financial challenges were also encountered in the realization of a master program in

¹³⁹ "Klyngeutvikling gir resultater – Inno-techs historie og resultater 2003-2005" downloaded from <http://www.12k.no/documents/Info-Techsluttrapport.pdf> 21. October 2010

¹⁴⁰ DRIV see <http://www.hibu.no/driv>

¹⁴¹ Informer N in interview

Systems Engineering. The Faculty of Engineering at the university had been hit hard by the model of government financing for staff and equipment. Declining numbers of students, which was the primary base for funding, had left the faculty without resources to develop and start the proposed master program. In internal university memos from the autumn 2003 and winter 2004 the concept for a center of expertise for knowledge intensive industry in Kongsberg was developed.¹⁴²

The Kongsberg industry entered the innovation systems field by establishing a co-owned innovation company.¹⁴³ The aim of this company was to contribute to the establishment of new and profitable growth-companies which could reach a yearly turnover of 1 billion NOK by 2012.¹⁴⁴ An informer¹⁴⁵ remembered, "...when we established Kongsberg Innovation we had financial resources for three years. Norwegian Centers of Expertise could be an instrument to provide a more lasting solution for innovation activities."

In addition to the financial need of the innovation company, the board of the company felt that the objectives of the company were very similar to the proposed Norwegian Centers of Expertise program. At one point the board of the innovation company discussed the possibility to take the full ownership of the Kongsberg cluster initiative.¹⁴⁶

Even Kongsberg Municipality had to put innovation and their attractiveness for private companies on the agenda. In Kongsberg the local government approved a strategy with the aim,

¹⁴² Internal memos to the Rector of Buskerud University College dated 10 November 2003 and 15 April 2004

¹⁴³ Kongsberg Innovasjon AS see <http://www.k-i.no/>

¹⁴⁴ From KI's webpage www.k-i.no. Downloaded 28.12.2009 at 14.23

¹⁴⁵ Informer B

¹⁴⁶ Informers B and F in interviews

“The Kongsberg region shall be the leading region in Norway for innovation and creativity. Kongsberg is and shall be Norway’s industrial capital.”¹⁴⁷

The municipality had to find a platform to exercise its strategy, and when they became aware of the Norwegian Centers of Expertise program they jumped on it. As one informant¹⁴⁸ stated, “Kongsberg had to be in on this. We need a position in this kind of program because we are an important industrial town...”

So the response from the municipality to the innovation system discussion was to enter the process to become a Norwegian Center of Expertise.

The first proposal for establishment of a Center of Expertise in Kongsberg was anchored in an informal network of the helpers. The Norwegian Center of Expertise program was aimed at clusters as defined by Porter (1998). The actors in Kongsberg had negotiated with the national actors and got approval to forward the proposal defining the Kongsberg cluster as a knowledge cluster and not a Porter cluster. The knowledge that united the cluster was called “industrial innovation.” When the proposal was turned down the industrial Kongsberg joined the process to make a new proposal.

Why did companies with a total yearly turnover growing from 10 billion in 2004 to almost 40 billion Norwegian kroner in 2009 enter a partnership that applies for a project with the possibility of raising about 10-20 million NOK per year? A typical answer given was “We are world class,” if any industrial group in Norway should be awarded a Norwegian Center of Expertise project it

¹⁴⁷ Kongsberg Kommune sak 0051/04

¹⁴⁸ Informer O in interview

certainly will be us. As one informant¹⁴⁹ put it, “We thought we could just put our hand out and they would give it to us.”

But the developing agency that had the national administration of the Norwegian Centers of Expertise program was not eager to give Kongsberg this status and project, instead other industrial environments were awarded pilots of Norwegian Centers of Expertise program in 2005. During the development of the first unsuccessful proposal the Kongsberg industry was skeptical of the Norwegian Center of Expertise program. As one informer¹⁵⁰ stated, “It [the Norwegian Centers of Expertise program] did not hit me. We gained much more by spending our time with the customer and with our own development efforts. The program did not get management attention.”

Despite this a number of Kongsberg industrialists entered the cluster initiative process. One informer¹⁵¹ stated, “We agreed that Kongsberg had to be part of it [The Norwegian Centers of Expertise]. It was not possible that Kongsberg would not participate—both for us and the program itself. It would not be a serious program without Kongsberg.”

Another informer¹⁵² continued, “We had seen Raufoss, Horten and Kongsberg as the industrial centers. The two first won the first round and got lots of attention. You may say that it became very evident to us that Norwegian Centers of Expertise was something that was connected to pride and initiative.”

¹⁴⁹ Informer E in interview

¹⁵⁰ Informer F in interview

¹⁵¹ Informer E in interview

¹⁵² Informer F in interview

A third informer¹⁵³ stated this point more clearly, “Our honor was hurt. Horten and Raufoss got it¹⁵⁴ before us.”

Kongsberg looked at itself as the hi-tech industrial capital of Norway and was beaten by two smaller brothers. The main motivation factor for the industrialists seems not to be a potential to develop their companies. They acted more like Kongsberg patriots or even Kongsberg industry patriots. Kongsberg was not seen as “World Class,” and something had to be done.

But the unsuccessful proposal of the innovation lunch network had to be replaced and a more powerful development was needed. A project organization with a steering committee and a work group was established.¹⁵⁵ In the same meeting the group evaluated the proposal for the Center of Expertise and came up with the following reasons for the lack of success:

- The work started too late and there was not enough time to involve enough people in the work.
- The message in the proposal was not clear enough for the decision makers to understand the uniqueness of Kongsberg industry.
- The proposal did not build enough on an existing platform like the local innovation company.
- The lobbying for the proposal was too weak.

¹⁵³ Informer K in interview

¹⁵⁴ Norwegian Center of Expertise

¹⁵⁵ Minutes from meeting in the interim board of the Kongsberg cluster initiative 4 February 2005

It was decided to continue the work and position Kongsberg so that the expected main program of Norwegian Centers of Expertise would take on Kongsberg as a member.

When asked why it was important to the industry that Kongsberg was part of the Norwegian Centers of Expertise program they often refer to two phases of the application process: the first for a pilot program in 2005 and then the real, successful application in 2006. The first phase was mainly driven by “the others” while the industry was more involved in the second phase. The organization of the second application was structured more like a project with a board and a project manager and it had resources to develop an application anchored in a broader partnership. This partnership also involved some of the industrial leaders in Kongsberg. The industry’s spoken motivation for participating in an Norwegian Center of Expertise was the need for a better partnership with the local university to develop more relevant education; a better collaboration with the municipality to help the city grow to a size and quality to match its industrial size; and a need to develop an innovation company so that it could contribute more significantly to industrial innovation and growth. These answers are all relevant to Kongsberg situation and also in line with several regional innovation system theories very present in the minds of the people involved in industrial development. My interviews were mainly performed in 2009 and three years after the application process took place. The three areas mentioned above were the main three areas developed in the 2006 application and as a result of a consensus process in the partnership.

Several factors were different in the second try, most importantly the personal and organizational set up of the work. In an interview with one of my informants on what and how things get going in Kongsberg we talked about the position of the three largest companies. The informer¹⁵⁶ stated,

¹⁵⁶ Informer O in interview

“When the large ones do something then this is done and it is accepted in the Kongsberg society because it is important for Kongsberg.”

The new proposal was developed in dialogue with companies and top managers from at least two of the three largest Kongsberg companies who were involved in the development. In addition a more formal organization with developed objectives, plans, and financing was set up to do the anchoring and the write up of the proposal. The steering committee for the work with the new proposal was established 4 February 2005 and among the members were two of the top managers of the largest companies in Kongsberg. The top two managers involved had a long history in the industrial Kongsberg back to the Kongsberg Våpenfabrikk days.¹⁵⁷ The people who set the tone in the Kongsberg cluster initiative were the people with history from Kongsberg Våpenfabrikk and they all have strong connections to the industrial Kongsberg. This is of course not a surprising observation since most successful and large companies in Kongsberg were parts of the original Kongsberg Våpenfabrikk.

One other weakness with the first application was the definition of the knowledge glue of the cluster in Kongsberg. One informer¹⁵⁸ describes the development of Kongsberg as a knowledge cluster where the core knowledge was Systems Engineering, as “a meeting of minds.” It was probably not a coincidence that Systems Engineering also was the focus of the local university’s plans for a master-program. In order to get funded by the proposed Norwegian Center of Expertise the planned master program in Systems Engineering at the university had to become central in the proposal. Another important factor for the consensus on Systems Engineering as the knowledge glue of the cluster was that the companies in the proposed cluster were in very

¹⁵⁷ During the process the Kongsberg cluster initiative all of the three largest companies have changed their top management. Two of the companies have recruited top managers with no Kongsberg Våpenfabrikk history and with people outside Kongsberg. These top managers have not been visible in the Kongsberg cluster initiative.

¹⁵⁸ Informer K in interview

different fields of industry. Two main factors made this consensus possible: first the perception of Systems Engineering as a discipline, and second that both the local university and the industrial owned innovation company¹⁵⁹ had influential people with strong connections to the industrial Kongsberg who were promoting Systems Engineering. The discipline Systems Engineering although relatively new and unrecognized, had an academic alibi in a university in the United States¹⁶⁰ which had cooperated with one of the large local companies, thus giving the discipline legitimacy. One other advantage of the concept Systems Engineering was its ambiguity: everyone in Kongsberg could say that they are working with systems; subsea systems, defense systems, automotive systems etc. In fact Systems Engineering was seen as so ambiguous that most of the engineering academics at the local university do not see it as its own discipline, but saw it as everything in engineering.

The second proposal for a Norwegian Center of Expertise in Kongsberg was successful and in 2006 the Kongsberg cluster initiative was established and the interim facilitating organization of the application process was replaced by the facilitating organization of the Kongsberg cluster initiative.

7.2.1. The Trajectory of the Genesis of the Facilitating Organization

The initiation of the Kongsberg cluster initiative can be seen as two phases. First the introduction of regional innovation system theories into Kongsberg by the government drove the local actors out on a new playing field. Since this was a change activity for local actors like municipalities and universities, these activities are underfinanced, under-mandated and under-organized. All three elements are important parts of the capabilities of a governance network. The new activities

¹⁵⁹ Kongsberg Innovation AS

¹⁶⁰ Stevens Institute of Technology, NJ, USA

had to look for and adapt to suitable programs for mandates and money. The network of new innovation actors was able to put forward a proposal to become a center of expertise. The network of the three main actors—the university, the municipality, and the innovation company—seemed to have an unclear common identity. In a meeting where they were presenting themselves one of the audience members remarked that the three do not seem to cooperate well. At the point where the first proposal of center of expertise status was delivered, the governance network of the “innovation lunch” did not have an identity and capability strong enough to act with enough force. The facilitating organization was in the uncoordinated, thinking/learning quadrant of Figure 7.4 (position 1).

The trigger of Kongsberg industry to enter the program was the refusal of the first proposal to become a center of expertise. This was a loss of face and the frustration of not being seen as “World Class” was unacceptable. The industrial leaders in Kongsberg, almost all of whom have a background from Kongsberg Våpenfabrikk, entered the process supported by people outside the industry but with legitimacy in industry and with the Kongsberg Våpenfabrikk history thus mobilizing the Kongsberg Våpenfabrikk identity. The main motivation for this collaborative effort was not being seen as a national important industrial city. The need for a national mandate was part of Kongsberg Våpenfabrikk identity from the time it had been a national strategic instrument for Norwegian industrial development. The fact that other industrial environments were given the national mandate on industrial development was an additional the motivating force. This led to the entering of the Kongsberg Våpenfabrikk identity into the governance network that tried to become a center of expertise.

With this Kongsberg Våpenfabrikk identity the people involved in the cluster initiative looked to get a national mandate the governance network got a mandate by the largest companies. This

mandate also released money and the development of a more formal organization in line with the modern industrial Kongsberg identity making it possible to develop a successful proposal for a Norwegian Center of Expertise in Kongsberg. Still today people from Kongsberg Våpenfabrikk dominate the industrial presence in the Kongsberg cluster initiative, and new industry leaders recruited outside Kongsberg seldom participate.

Figure 7.3 shows the development of the facilitating organization from the start through the rejected proposal until the Kongsberg cluster initiative was accepted as a Norwegian Center of Expertise. The development is seen in relation to the two axes from Figure 7.2 where the horizontal axis is the degree of coordination between actors and the vertical axis is the degree of action versus thinking learning orientation. From a relatively informal organization (position 1 of Figure 7.4) such as the innovation lunch network, a larger degree of organization and action orientation (position 2 of Figure 7.4) was needed to produce the first proposal for a center of expertise. The largest development came after the rejection of the first proposal when the industry, led by the old Kongsberg Våpenfabrikk identity, got involved and drove the network in the direction of more organization, clearer mandates and more action (positions 3 through 4). In the coordinated action quadrant (position 4 of Figure 7.4) the facilitating organization was established with a Kongsberg Våpenfabrikk identity and with the necessary capability to run the Kongsberg cluster initiative.

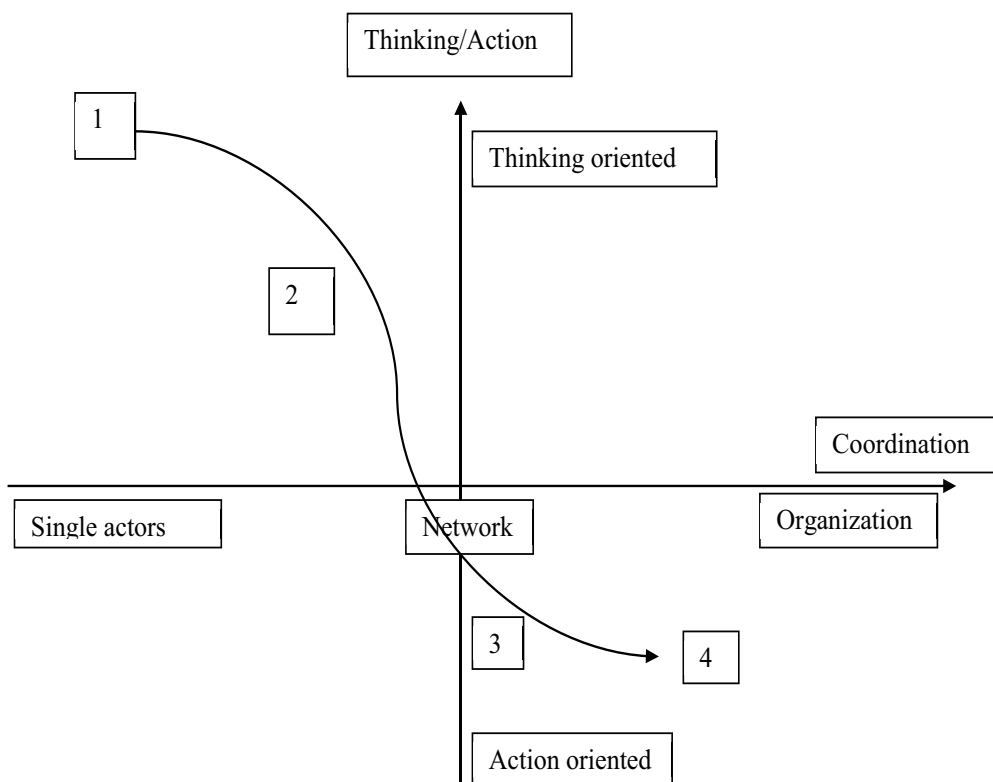


Figure 7.3: The genesis of the Kongsberg cluster initiative: Trajectory of the development of the facilitating organization.

- 1) The innovation lunch period
- 2) The development of the first unsuccessful proposal for Center of Expertise
- 3) Reorganization after the refused proposal
- 4) Facilitating organization after accepted proposal for Norwegian Center of Expertise

7.3. “The Kongsberg Story”

The second case “The Kongsberg Story” is about a project where the facilitating organization got stuck between dilemmas in their dominating identities and the lack of capabilities due to unclear mandates and few human resources. “The foundation for industrial growth” was a project in the Kongsberg cluster initiative from its beginning in 2006 and was still part of the facilitating organization’s project portfolio by the end of 2010. It was initiated as a lobby project¹⁶¹ to gain influence and resources for the Kongsberg companies from the national government. Innovation Norway, itself part of the government, found it difficult to finance political lobbying, and the project was reframed to a learning platform. The knowledge should be used to make the national government conscious in their choices of industrial politics, strengthen the companies in Kongsberg’s own strategy, and to disseminate the knowledge to education and other industrial environments in Norway.

The responsibility for this project was placed at the Chamber of Commerce mainly for two reasons. First, the Chamber of Commerce needed a position in the initiative in addition to being the formal contract partner. Second, the Chamber of Commerce was established in the aftermath of the 1987 crisis and its managers of the Chamber of Commerce in this period had strong national political connections and were able to get national political attention to Kongsberg’s challenges.¹⁶² The project had a planned period from fourth quarter 2006 until third quarter 2007. In this period the board had discussions regarding the project, but the project had difficulties and could not finish. In later board meetings in 2007, 2008, and 2009 the board got reports on progress and approved revised plans for the project. The main signals and decisions from the board have been to make the project objectives clearer. In the board meeting at the end of 2009 it

¹⁶¹ Informer B in interview

¹⁶² Informer B in interview

was decided that “The Kongsberg Story” should be communicated as part of the “Kongsberg attractiveness” project and that the scenarios should be finished in 2010, if the budget allowed it.

The explanation of Kongsberg’s industrial success was addressed in two phases. First, an independent researcher wrote a memo to the board on this issue based on existing studies on the Kongsberg industry. Second, when the board of the cluster initiative had difficulties in accepting the content of the memo a local industrialist was given the responsibility to complete the task. He chose to document eight product or company cases from the Kongsberg history to explain the mechanisms of Kongsberg’s success. “The Kongsberg Story” should be described by mapping the main reasons and the driving forces of Kongsberg’s industrial development from 1960 and should also explain Kongsberg’s historic uniqueness.

The first exercise in the project was to hire a researcher to develop a memo based on existing research on Kongsberg and its industry. The project manager did a preliminary presentation of the report for the board of the Kongsberg cluster initiative at the end of 2006. The board meeting did not accept the memo. One informant described the feedback from the board:¹⁶³

This is not correct it does not fit us! This was not how it was, you have to understand that. All the reports were wrong. There was critique: The Kongsberg industry had been very lucky through history, we had never had a demand on us to earn money. We were a political tool and got a lot of money to buy top know how and a political apparatus to gain access to American defense environments. This was some of the things written in the report that was hard to accept. Of course there was a demand to earn money.

The board’s decision in the meeting¹⁶⁴ was to ask for a revised version of the memo¹⁶⁴ for their next meeting. In the next board meeting¹⁶⁵ the author of the memo presented his findings and in its

¹⁶³ Informer C in interview

¹⁶⁴ Minutes from Kongsberg cluster initiative’s board meeting 4 December 2006

¹⁶⁵ Minutes from Kongsberg cluster initiative’s board meeting 2 February 2007

decision the board made note of the memo and asked the administration, not the author, to complete the memo and use the results inside the Kongsberg environment and in the work to influence external decision makers.

After the independent researcher's memo and the board's treatment of it the decision was to restart the project with another perspective. A local industrialist was commissioned to write "The Kongsberg Story" and to develop future scenarios for Kongsberg. The board of the Kongsberg cluster initiative emphasized the need for believable and shared understanding of the industrial history in Kongsberg. The scenarios should be based on existing work commissioned by the municipality in 2001 and the history should be based on good cases.¹⁶⁶

In "The Kongsberg Story," the commissioned industrialist doing the work developed eight cases describing Kongsberg successes. Drafts of these cases were presented and discussed in different informal arenas. Of the eight cases four started as military products. All except one were initiated by government purchases or interventions to secure industrial development in Norway. This meant that the industrial development mainly was founded in the Kongsberg industry's role in a national innovation system within the Kongsberg Våpenfabrikk. When one main purpose of developing these cases was to influence Norwegian industrial politics, it would be difficult to argue for the support of the government to develop the industry for an international competitive market when a key success element is either government procurements or legislation that makes the competition uneven. Since today's Kongsberg industry is to a large extent privately and foreign owned the government involvement in the success did not fit the self-image of the present industrialists.

¹⁶⁶ Minutes from Kongsberg cluster initiative's meetings 13 April, 22 June, and 7 September 2009

Another challenge for the project was that it should cover the history from 1960 until today, and that the crisis in 1987 would be part of the story. This crisis was not image enhancing either outside or inside Kongsberg. Maybe the project would have been easier to finish if the start of the history writing was moved from 1960 to after 1987. One informant's¹⁶⁷ opinion was that the post 1987 lessons were the most important; however another¹⁶⁸ emphasized the long-term development from 1960 as important. An additional factor was that as stated above, many of the people in the Kongsberg cluster initiative in some way were involved in and affected by the 1987 crisis. Their own roles in the crisis may have made history writing difficult.

7.3.1. The Trajectory of the Development of “The Kongsberg Story”

“The Kongsberg Story” got stuck. The idea to look in history to learn from past successes may seem like a good idea. The technical achievements and in the later years commercial successes of Kongsberg are truly impressive. “The Kongsberg Story” project deliverables have been delayed several times, with the official explanation given was understandable and normal: lack of people, lack of understanding of objectives, lack of competencies, and so on. The lack of capability in the facilitating organization thus may have been one problem; however, there are other circumstances that could give explanations as to why this project got stuck.

Figure 7.4 shows a trajectory for the development of “The Kongsberg Story” initiative. In position 1 the board of the facilitating organization was in action modus and in line with how things should be done as a Kongsberg industrialist. Research on Kongsberg success was commissioned outside Kongsberg as the tradition from the old Kongsberg Våpenfabrikk required where research was done in the national research institutes, this ensured quality and impartiality.

¹⁶⁷ Informer F in interview

¹⁶⁸ Informer K

Second it was done in a lean way, the commissioned research should be a memo based on existing research. Third the project management was placed at the Chamber of Commerce, which had played an important role as a national lobbyist for the Kongsberg industry after the 1987 crisis. So in position 1 of Figure 7.4 the board of the facilitating organization was acting in line with both their modern Kongsberg industrialist- and their Kongsberg Våpenfabrikk identities.

Then the external researcher presented his draft on the success of the Kongsberg industry to the board of the facilitating organization claiming that the most important factor of success for the Kongsberg industry was the knowledge created in Kongsberg Våpenfabrikk times. The claim that the main factor of the successes of the Kongsberg industry was the period when it was a national political tool with public money and national political support was strongly opposed by the board. This claim led to a tension between the two dominating identities of the board of the facilitating organization: the Kongsberg Våpenfabrikk- and the modern Kongsberg industrial identity. This tension brought the board of the facilitating organization from the action oriented position 1 to position 2 in Figure 7.4 where they were looking for new ways of getting good answers to the reason for their successes. In this position two decisions were made.¹⁶⁹ First the board accepted the external memo and second the board asked the project managers in the facilitating organization to develop the memo further based on the board's comments. These decisions show a separation between talk and decision, in reality the memo from the researcher was not accepted and had to be redone by the project managers. This mismatch between the talk and decision and the tension between the two dominating identities in the facilitating organization confused the project management and lead to a situation where the capabilities were impaired.

¹⁶⁹ Minutes from the Kongsberg cluster initiative's board meeting 2 February 2007

The capabilities depend on mandates, resources, people, and organizational capacity. The real mandates were confusing.¹⁷⁰ As one informer stated, “I was not sure I understood the task. Who are we to tell the world how industry is developed?”

The lack of ownership to the deliverables in the initiative was noticeable.¹⁷¹ The board of the Kongsberg cluster initiative seemed to be equally confused; in several board decisions clarifications were demanded. The confusion on how to use the stories of success in lobbying and image building was surprising. The board members were managers of large companies, the mayor, and the rector of the local university. They were all used to make important and strategic decisions based on unclear information. The political connection between the Kongsberg managers and central people in the national government with a history from the times where the Kongsberg industry was a political tool for the government is still present today. The reason for the lacking ability allocating the necessary capability to this initiative must have deeper roots that do not easily meet the eye.

How would it be possible to find people with the dual knowledge of industrial development and specifically, industrial development in Kongsberg? The need for impartiality was replaced with the need for local knowledge and one person with industrial legitimacy from Kongsberg and with a history in Kongsberg Våpenfabrikk was chosen to finish “The Kongsberg Story.” No formal supporting organization was set up around this one person, and for “The Kongsberg Story” the facilitating organization ended up in position 3 in the uncoordinated thinking quadrant of Figure 7.4 where one single person was commissioned to look for answers that could be legitimate both towards the Kongsberg Våpenfabrikk and the modern industrial Kongsberg identities.

¹⁷⁰ Informer C in interview

¹⁷¹ Informer B in interview

These answers had to be legitimate among as many as possible of the main stakeholders in Kongsberg. “The Kongsberg Story” was tested out on several stakeholders and then developed further. These testing stakeholders have been people from the present companies in Kongsberg, people from the facilitating organization, and people from the industrial network of managers in Kongsberg. It has not been tested out was in the formal parts of the facilitating organization such as the board or the project manager team. Position 4 with half coordinated networks in Figure 7.4 marks these legitimizing test areas for “The Kongsberg Story” and it seems to be difficult to reach a consensus on a legitimate industrial success story for the Kongsberg industry. The board of the facilitating organization was not very active in following up the initiative, only on a couple of occasions the lack of progress was noted and new plans were made. When a new board in the facilitating organization had a strategy meeting the autumn of 2010 “The Kongsberg Story” was not a part of the discussions. So “The Kongsberg Story” got stuck in a legitimizing loop between positions 3 and 4 in Figure 7.4. This eliminated the possibility to create a common ground for using experience-based learning, one of Brunsson’s (2002) four intelligences in the further development of the Kongsberg cluster initiative.

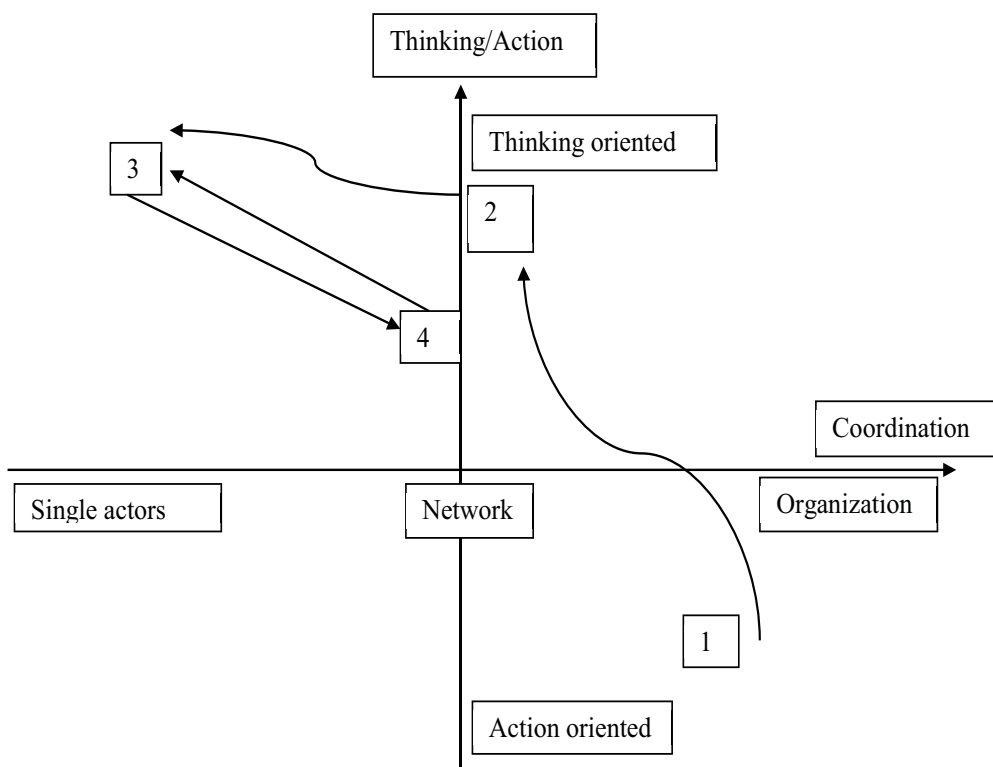


Figure 7.4: “The Kongsberg story” and Kongsberg future scenarios. Trajectory of the development of the facilitating organization.

- 1) The commission of the memo from the independent researcher
- 2) The response on the memo from the facilitating organization’s board
- 3) Case and scenario development by the local industrialist
- 4) The networks testing the output from the case and scenario development.

7.4. The Knowledge Development Projects' Different Paths

The industrial cluster at Kongsberg defines itself as a knowledge cluster and claims to be “World Class” in developing advanced systems for demanding environments. Systems Engineering in many documents of the Kongsberg cluster initiative claimed to be the knowledge glue of the knowledge cluster. In the proposal for establishing the Kongsberg cluster initiative one of the five main objectives was, “To establish world class education and research within the field of Systems Engineering”

In this section of the dissertation I examine two knowledge development initiatives within the field of Systems Engineering: The master program in Systems Engineering which was seen as a success, and the slow started local research institute which as of autumn 2010 had not gotten a good start, or as one informant¹⁷² with a background in industrial Kongsberg stated, “You will never get this research thing started!”

Historically Kongsberg’s industrial role has been to industrialize the research based results from national industrial research actors.¹⁷³ In the first unsuccessful proposal for a center of expertise the focus was on cooperation with research establishments like these. In this proposal Kongsberg had the “industrial capital”, Kongsberg claimed to be able to industrialize research, while the large national institutions had the “research capital” (Bjørnson, 2004). The headline of the proposed cluster in the first, unsuccessful proposal was “Industrial Innovation.”

In the second proposal it was necessary to define the core of the knowledge cluster and the term Systems Engineering¹⁷⁴ was chosen after “a meeting of the minds.”¹⁷⁵ A master program in the

¹⁷² Informer P in meeting

¹⁷³ Like for example Norwegian Defense Research Establishment, Sintef, and Norwegian University of technology and Science

¹⁷⁴ For more in depth description see <http://www.incose.org>

field had been on the drawing block of the local university for some time. When the concept of Systems Engineering became the cluster glue, it was important to develop the local knowledge further and the establishment of a master program in the field was made part of the new plans for Kongsberg cluster initiative. A long-term objective in this proposal was to develop local “World Class” research and education at university level as part of the knowledge intensive industrial cluster in Kongsberg.

7.4.1. The Master Program in Systems Engineering

The plans for a master program within Systems Engineering at the local university in Kongsberg were barely visible in the first unsuccessful proposal for a center of expertise in 2005. In the second successful proposal the discipline of Systems Engineering had a central position. The development of the local university to a “World class” provider of this knowledge was one of few focus areas for the Kongsberg cluster initiative. When the funding for the cluster initiative was approved in 2006 the university moved quickly. They secured an international university¹⁷⁶ that could deliver the master program in Kongsberg. The local university did not have the possibility to establish master programs without a lengthy accreditation process. In addition the international university was legitimized and approved by one of the large companies in Kongsberg.¹⁷⁷ A further legitimizing of the local university came with the hiring of a local renowned industrialist who, together with academics at the university, ran the program and provided the industrial contact. The first students were admitted into the program in August 2006. The program had an additional legitimizing feature in the delivery model, which was called “Industry master.” In this

¹⁷⁵ Informer K in interview

¹⁷⁶ Stevens Institute of Technology, NJ, USA

¹⁷⁷ According to informer K, the company was Kongsberg Gruppen

model the Kongsberg companies had to employ the students part-time as engineers for the duration of the master program, thus combining academia and industry in a visible way.

The local university got their accreditation for their own master program in Systems Engineering and admitted their first students in 2009. The critical part of the accreditation process was to develop a research agenda,¹⁷⁸ as at the time of accreditation there was no visible research¹⁷⁹ within the Systems Engineering discipline in Kongsberg. With the accreditation the industry, which had financed the tuition fees of the international university through the funding in the Kongsberg cluster initiative, expected the government to take over the financial burdens of the educational program. However at the same time the 2008 financial crisis hit several of the Kongsberg companies. A consequence of this was that the companies were reluctant to hire part time students for the industrial master and a crisis occurred. This crisis was solved partly by an economic upturn that made the companies more willing to hire students, and partly by the university hiring a recently retired senior manager of one of the largest Kongsberg companies. This senior executive negotiated terms and places for enough students for the program to continue.

An additional initiative helped this process; the rector of the university supported by the former senior executive established an Industrial Advisory board for Systems Engineering education and research. The advisory board was comprised of senior management from the participating companies and their objective was to give legitimacy and direction to the university's development within Systems Engineering. The Kongsberg cluster initiative has gradually

¹⁷⁸ The accrediting body of higher education in Norway (NOKUT) demands the master programs are supported with a staff of active researchers within the relevant field.

¹⁷⁹ Informer P

redrawn their financial support for the program and it has been taken on as the normal governmental operation of the local university.

Figure 7.5 shows the trajectory of the master program in Systems Engineering initiative in relation to the facilitating organization. Position 1 indicates that the university acted as a single actor in trying to develop the Systems Engineering as a discipline. In this position the cluster initiative was developed by actors that were not the primary industrial companies; the Systems Engineering initiative was just one among the other actors trying to get financing through the establishment of a cluster initiative. When the first proposal was declined and the industrial companies got involved in the process to develop a new proposal, the search for a common denominator for the knowledge cluster was important. It was important to find a concrete knowledge that could at the same time be communicated externally and have legitimacy internally in the cluster. Position 2 in Figure 7.5 indicates the time when Systems Engineering was accepted as the core knowledge of the Kongsberg cluster initiative. At this point the facilitating organization of the Kongsberg cluster initiative was established as an interim solution (Position 3 in Figure 7.5). The mandate to get a Norwegian Center of Expertise was clear, the organization was in action modus, and that led to an urgency to come up with the good name as the platform for the cluster initiative. Systems Engineering struck a note because it was warmed up as part of the university's efforts to develop the field and because of the many industrial domains and many technologies being utilized by the Kongsberg industry.¹⁸⁰ In addition the term was in line with both the Kongsberg Våpenfabrikk- and the modern Kongsberg industrial identities in that it focused on engineering. In addition ambiguity of the term was an advantage as most actors could connect to Systems Engineering because everybody worked with systems.

¹⁸⁰ Informer B in interview

In the implementation phase (going from positions 2 to 3 in Figure 7.5) instead of running a normal academic development process to address Systems Engineering, the University played up to industry and thereby the facilitating organization's industrial identities, i.e. Kongsberg Våpenfabrikk- and the modern Kongsberg industrial. The university addressed the industrial identities on four fronts. First the university employed well known Kongsberg industrialists to run the master program. Second it developed a model called industrial master where the students get their education both in industry and in the university. Third the university sped up the process and was able to admit students in less than six months after the Kongsberg cluster initiative received the go ahead. Fourth it partnered up with what the Kongsberg industrial environment saw as a "World Class" university within the Systems Engineering field. This quick and industrial-based move to position 4 in Figure 7.5 was popular with the board of the facilitating organization and was seen as the largest success in the first period of the cluster initiative, because the local university played directly up to the two dominating industrial identities in the facilitating organization. This alignment with the industrial Kongsberg created the necessary legitimacy to be seen as a success.

The move from position 4 to 5 in Figure 7.5 came when the university got their own accreditation to run the master program on its own while the facilitating organization gradually withdrew its financial support. At the same time the industrial participation within the university was diluted as some of the industrialists central to the start-up and implementation disappeared. The industrial partners of the university withdrew some of their support and were more reluctant to make workplaces available to the students. One reason may have been the temporary consequences of the financial crisis for some of the companies, but when the university again strengthened its position by hiring a well-known top manager from the Kongsberg industry the

industrial Kongsberg reconnected with the program. In a process between the university and the company managers an industrial advisory board was established for the Systems Engineering efforts at the university. The industrial advisory board is not equal to the facilitating organization, but there are personal connections between the two organizations. With the establishment of the advisory board the master program again moved from the political discussion position 5 to the action-oriented position 6 in Figure 7.5 supported by the network of industrial managers.

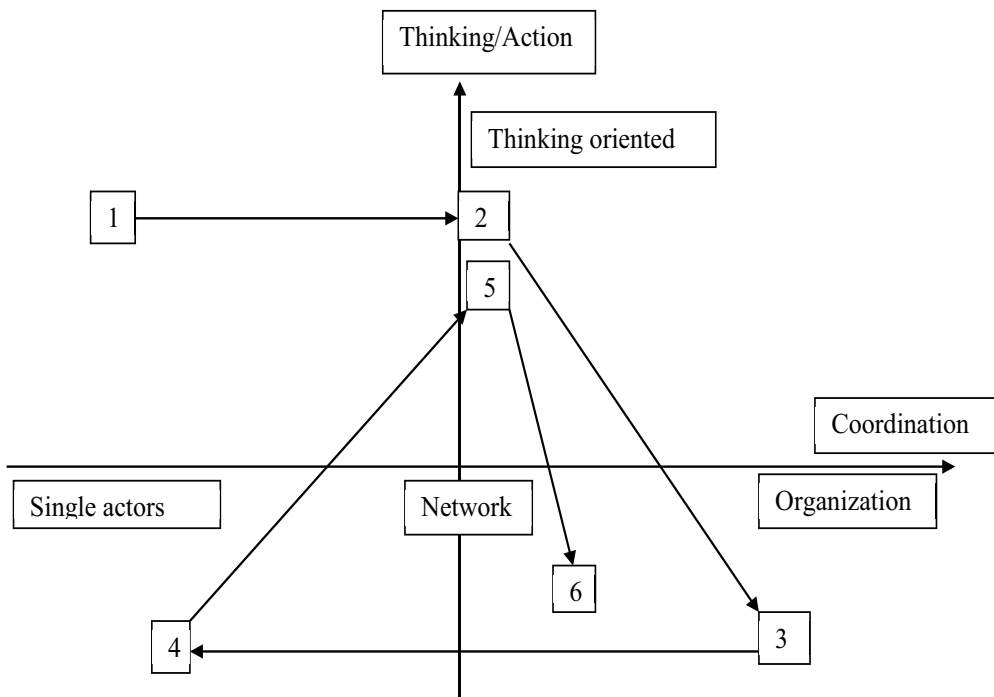


Figure 7.5: The master in Systems Engineering. Trajectory of the initiative's development of the facilitating organization.

- 1) Initiative from the university for the establishment of a master program
- 2) Development of the successful proposal of a cluster initiative
- 3) Establishment of the master program at the university
- 4) Transformation to normal operation at the university
- 5) Establishment of Industrial Advisory Board
- 6) Operation with Industrial Advisory Board

In order for the university to be successful with its master program it was important to connect closely with the industrial identities. One advantage for the master program was that it connected to both the Kongsberg Våpenfabrikk- and the modern Kongsberg industrial identities, thus avoiding getting caught in the tension between the two. Difficulties soon arose when as a result of gaining its own accreditation and funding from outside the facilitating organization, the university took over the operation of the master. To be able to overcome these difficulties it was necessary to reconnect with the facilitating organization through the industrial identities of the organization and by that reestablish the legitimacy within the industry.

7.4.2. The Establishment of the Research Institute

Already around 1990 a local research institute was established in Kongsberg and there were plans to expand it. However it was quickly dismantled due to difficulties in establishing a technical research environment outside the industrial companies because of the competition within this area.¹⁸¹ The establishment of research within Systems Engineering was one of the requirements to be met by the local university to acquire accreditation for a master program. There was no public research within this discipline in Kongsberg at that time and a research agenda was created from scratch. The initiation of the work to establish a research institute was triggered from the national Norwegian Centers of Expertise program with their feedback on the Kongsberg cluster initiative's yearly report from 2007. In the facilitating organization project-team meeting¹⁸² the national program owners recommended that more research projects should be initiated.

As a result of this meta-governance input the program manager of the facilitating organization organized a meeting series with some of the main industrialists in Kongsberg. This process was

¹⁸¹ Informer K. in interview

¹⁸² Minutes from Kongsberg cluster initiative project manager meeting 27-28. March 2008

further strengthened when another meta-governance too—an evaluation report on the six first Norwegian Centers of Expertise—pointed out that research activity was one of two main challenges for these cluster initiatives (ECON Poyry, 2009, p. 31 and 50). A process to establish a local research institute was initiated and a large, national research institute, SINTEF, was invited into the process together with the industrial partners and the local university. A small work group ran this process with members from the facilitating organization and SINTEF, and their work was reported to the board of the facilitating organization.¹⁸³ So the work was done mostly outside the facilitating organization, but with the organization as an applauding spectator. The process with the companies was held in a positive tone, but it seemed very difficult for both the national research institute and the companies to be concrete in their expectations of the new research institute. The research agenda developed with the companies as part of the master program was a minor part of the discussion with the companies. Some difficult issues occurred in the meetings between SINTEF and the companies due to earlier experiences; intellectual property issues were important to the companies and in addition some of the foreign owned companies signaled that ownership in a local research institute would be difficult as it had to be decided by the mother company abroad. Even though the companies were positive to the establishment of the research institute they had difficulties in giving concrete input on what kind of research they wanted the institute to do. In addition their signals on the amount of capital they wanted to invest in the institute were about one fifth of what was needed.

In the end a sequence of three decisions delayed and changed the process. First, a small Kongsberg company¹⁸⁴ doing development for the larger companies entered the discussion and

¹⁸³ In the board meetings of the Kongsberg cluster initiative 16 June, 8 September, 18 November in 2008 and 27 January, 29 February and 16 June in 2009

¹⁸⁴ Kongsberg Devotek AS

was worried that the cluster initiative would establish a competing actor because the borderlines between research and development were not clear. The company influenced the contents of working documents used in the process. Second, after the date of the meeting to establish the research institute was set, one of the major Kongsberg companies¹⁸⁵ pulled out and thus the process stopped. A threefold reason was given: first, the company would not subsidize the national research institute and be forced to use SINTEF at Kongsberg, and they felt that the institute should invest and establish themselves in Kongsberg. Second, they felt that the small development company had had too much influence in developing the concept of the research institute, and third since not all of the major companies could or would not put resources in the institute, it was difficult for the remaining companies to do this since it should be a joint effort. The board of the cluster initiative regretted but accepted the companies' decision but did not have the power to overturn it, nor to convince the other companies to participate in the ownership of the research institute.¹⁸⁶

The third setback in the process came when the national research institute withdrew from the process. Their observation was¹⁸⁷ that there seemed to be an interest in establishing industrial research in Kongsberg, both from their side and from the industrial side. But also, according to one informer, "A new co-owned research company in Kongsberg is neither the optimum nor the necessary instrument for this." Two reasons were given: the research institution would be too small and the Kongsberg companies were not willing to invest and involve themselves in the building of the research infrastructure.

¹⁸⁵ Kongsberg Group

¹⁸⁶ Minutes from board meeting in the Kongsberg cluster initiative 29 April 2009

¹⁸⁷ In email from informer Q

The university decided to continue alone and during the spring of 2009 established a project to begin the Norwegian Institute of Systems Engineering. They developed a business plan in cooperation with the companies and the university. This document¹⁸⁸ stated that the main aim was to support the education at the university and make it relevant for the industry. The industrial companies were willing to participate with their competencies and experience within the research institute, but “to secure independence” the companies would not be owners. The business plan for the institute called for the application of external research funding to establish activity in the institute and in the autumn of 2010 several research proposals were submitted from the university and other parties connected to the Kongsberg cluster initiative.

The idea of a research institute entered the Kongsberg cluster initiative from the local university and through the meta-governance tools of feedback on the cluster initiative’s annual report and an external evaluation report on the cluster initiative program. The idea was picked up by a network of managers and others connected to the industrial companies and / or the facilitating organization. Thus the research institute initiative started out in position 1 in Figure 7.6, which is the thinking and debating network position. This network used two of Brunsson’s (2002) intelligence mechanisms: imitation and experience-based learning. Imitation because the further strategy was inspired from another Norwegian Center of Expertise which had established a research institute together with a national research actor.¹⁸⁹ An established and known actor within the field of Systems Engineering was brought in to kick start the master program. In the research institute an ownership model similar to the research institute at the other Norwegian Center of Expertise and the largest technical research institute was invited to participate in the establishment process at Kongsberg. A working group with representatives from the national

¹⁸⁸ Informer B

¹⁸⁹ NCE Raufoss and Sintef Raufoss Manufacturing AS

research institute, the university, and the industry were established with a mandate from the board of the Kongsberg cluster initiative,¹⁹⁰ which moved the facilitating organizations into position 2 in Figure 7.6. In position 2 the work is organized and action oriented on a mandate from the facilitating organization developed from the broader network described from position 1. The facilitating organization was after a discussion in the broader industrial network in Kongsberg able to give this mandate.

The group working to establish the research institute started the process of addressing the industrial companies in order to get them to sign on as owners and users of the planned institute. Two main problems occurred: it was difficult for the companies to give concrete feedback on what kind of research the institute should engage in and the companies' willingness to put capital was very limited with a total aim of 1 Million Norwegian kroner. One explanation for the lack of money may have been that this process happened during the financial crisis; however, the companies in the cluster claim to be knowledge intensive and they also claim to use 1 Billion Norwegian kroner each year on research and development. This means that there were other reasons for not investing 0.4% of the yearly research spending which the work group aimed for and instead only aiming at 0.1% of the research spending. The answers given were centered on the fact that the consensus on Systems Engineering as the common cluster knowledge was rooted in ambiguity. Everyone could relate to it, but on their own terms and these terms differed from company to company. When asked to be concrete about their needs for research within Systems Engineering; the companies had difficulties in providing answers.

In addition, the idea of doing research in Kongsberg was contradictory to the Kongsberg Våpenfabrikk identity, which was the industrial part of a national value chain while the national

¹⁹⁰ Minutes from board meeting in the Kongsberg cluster initiative 8 September 2008

institute did the research. The local research also clashed with the modern Kongsberg industrial identity, which saw research results as a commodity that should be bought when needed from the best research partners possible. To invest in a strategic build up of research in Kongsberg together with other companies would then be wasted money.

The crash with the modern Kongsberg industrial identity is demonstrated through an email dialogue between industry and the university.¹⁹¹ According to two sources, the industry claimed, “...The way you present your ideas makes it absolutely clear to me that you are not on the page where I am: An Institute that defines its markets and make success based on meeting the different segments needs.”

From the academic side two dilemmas were stated: First the academic researchers’ possibility and willingness to work in a way that could deliver results to industry quickly enough. Secondly the nature of the field itself, “Systems Engineering is always an indirect contributor to industry results. Making the value of research visible and selling Systems Engineering research is difficult.”¹⁹² This dialogue demonstrates the industrial need for good and correct research results as demanded by modern industrial development, while the academic side stressed the long-term strategic build up of competencies. The dialogue also demonstrates the Kongsberg industrial need to meet the concrete demands in the different industrial fields of the Kongsberg industry while the Systems Engineering field itself is a support process for all companies and thus not the core of the industrial activities. The industrial part of the dialogue also demonstrates another point regarding the industrial view on research, the industry purchases the research results they need, and the research actors thus should invest in Kongsberg and sell themselves as subcontractors to the industrial companies.

¹⁹¹ Informers R and S

¹⁹² Informer R

The result of this threefold clash between research and the industrial identities is that the industrial companies left the research institute process and left it to the research actors themselves: the national research institute and the local university. The activity moved to position 3 in figure 7.6 where individual actors were trying to find out what to do. The facilitating organization withdrew from the initiative and was waiting for the delivery of a research institute. The national research institute withdrew from the initiative with the observation that the local industrial companies were unwilling to invest in long-term strategic research and the local research playing field was left to the university. The university quickly moved into action mode on its own and moved the research institute initiative to position 4 with the formal establishment of “The Norwegian Institute of Systems Engineering” as a project within the university itself. The initiative stayed within position four and the university and other local actors started to produce research proposals to get funding for their research. Position 4 with several uncoordinated actors acting and the facilitating organization waiting for the research institute was as of autumn 2010 still in the position of the research institute initiative.

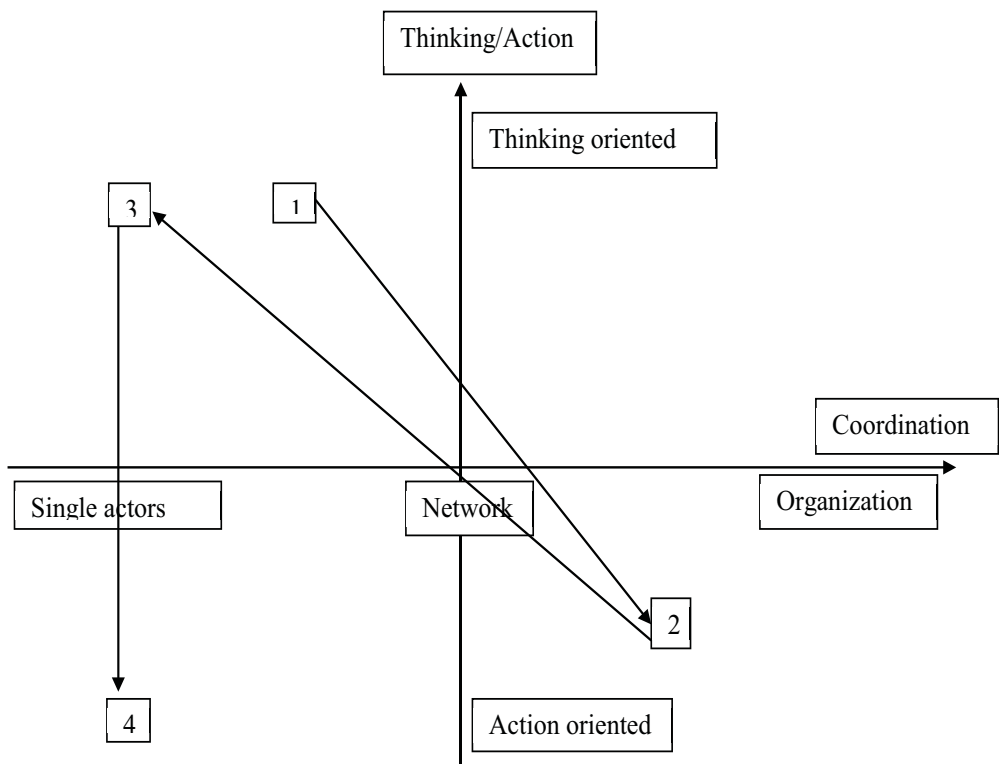


Figure 7.6: The establishment of the local research institute. Trajectory of the development of the facilitating organization.

- 1) The industrial network takes on the issue
- 2) The establishment process together with the national research institute
- 3) The local university's attempt to establish the research institute
- 4) Several individual actors initiating research activities

7.4.3. Comparing the Two Academic Initiatives

The pragmatism of Systems Engineering being the glue of the knowledge cluster was possible to sustain until an agenda and plan for a research institute with company ownership had to be developed. Systems Engineering talk had until now, survived in other parts of the Kongsberg cluster initiative both in relation to the national governing bodies of the Norwegian Centers of Expertise program and the other activities locally in the cluster initiative. Why did this Systems Engineering dilemma between consensus and usefulness hit the research institute first?

The first meeting was the development and implementation of the master program in Systems Engineering, and this was seen as a success. One reason was that it was mainly paid for by public money through the Norwegian Centers of Expertise program and thus in line with both the Kongsberg Våpenfabrikk- and the modern Kongsberg industrial identities expecting public financing of strategic activities for the cluster. An additional point was that the initiative was to a large degree pre-planned and could move quickly from the political phase to the organized implementation phase. It also addressed an urgent need for the industrial companies because it was supposed to produce fresh new engineers, which were in short supply. With this swift move the contact with Systems Engineering discipline was kept to a small group of specialists in industry, as well as students and the academics at the university. This made the pragmatism between the Systems Engineering talk and the action possible to handle.

However when the ambitions to develop a research institute with local industrial ownership were lifted, the realities of Systems Engineering research and its value to the companies had to be sold through a focused business plan for the research institute. In this case pragmatism between talk and action was not able to keep the action flowing. Research activity was also unknown as a strategic collaborative activity to the dominating identity of the facilitating organization. The

Kongsberg Våpenfabrikk identity was connected to the time when strategic research was government financed and done by national research institutes. It was also hit by the modern Kongsberg identity, which saw research as a commodity which should be “World Class” and sold to them in competition with others to the industrial companies. The facilitating organization thus left the research activities to individual and institutional actors for further development. The story of research in Kongsberg seems to demonstrate that the historical developed mandate of industrialization is stronger than the talk of research required by the Norwegian Center of Expertise-program. This left the facilitating organization powerless when it tried to establish a research institute.

7.5.The Development of New Companies and Workplaces

In the proposal for the establishment of the Kongsberg cluster initiative two of the five main objectives were related to the creation of new technology based companies. One or two large new companies with a potential to become new driving forces in the Kongsberg cluster and an undergrowth of several smaller technology based companies should be developed. During the development of the cluster initiative another focus area for job creation came up: the development of workplaces for non-technological people and partners of the engineers in the technology-based companies. This initiative worked to establish an incubator for non-technological private companies and should also work to get public workplaces into or near to Kongsberg. I do not have the inside access to the process of developing new large commercial companies since there was a legitimate need to keep secret the concrete processes and business plans for new companies. However this section show that the Kongsberg Våpenfabrikk identity governed much of the main choices in the facilitating organization for developing new large companies and was also dominating when the tool for establishing smaller companies was

removed from the cluster initiative. To develop new companies based on Kongsberg Våpenfabrikk thinking has been slow and seems difficult because the context and financial opportunities were different from the possibilities Kongsberg Våpenfabrikk had when it was a national instrument for industry development. The efforts to create non technological workplaces were able to show some results in the creation of a business house for knowledge intensive service companies because they addressed companies and workplaces not competing with the technological core of the facilitating organization's identity.

At the start of the Kongsberg cluster initiative two development companies participated: one owned by the industry¹⁹³ and one established by the university.¹⁹⁴ Both were very active in the development of the proposals for a cluster initiative in the first and second phases of the application process. The industrial owned innovation company was established by several of the largest industrial companies in Kongsberg. The stories about and motivation for establishing the innovation company are confusing and differ from person to person. One informant¹⁹⁵ stated, "We established the innovation company, and it has the same owners as the chamber of commerce and Kongsberg International School because our minds are tied together. My thoughts at that time were to create a strong innovation environment." He continued, "The purpose for our interest of the innovation company and the industry's focus on innovation was to establish Kongsberg as an interesting place for engineers to work."

¹⁹³ Kongsberg Innovation AS

¹⁹⁴¹⁹⁴ DRIV incubator. See http://www.pi-as.no/index.php?option=com_content&task=view&id=29&Itemid=27

¹⁹⁵ Informer F in interview

The innovation company is a place for the large technological ideas. On its web page¹⁹⁶ it states, “Our ambition is to contribute to new profitable growth companies which have a yearly turnover of 1 Billion NOK by 2012.”

This innovation company is for the very ambitious technological entrepreneurs who aim to match the present industrial companies in Kongsberg. However there are indications¹⁹⁷ also in Kongsberg that this is maybe too high of a threshold to enter and there are questions of this innovation company’s success in relation to the Kongsberg industry. However the ambition of this development company matches the objective of the Kongsberg cluster initiative to create one or two new large industrial companies.

The other innovation company¹⁹⁸ was established by the local university college, a local technological institute, and a consultancy establishment offering services to entrepreneurs. This innovation company’s focus group is the small and even tiny entrepreneurs. An internal memo to the rector of the local university states, “The innovation company should have a significant role for incubator companies and SMEs ‘outside the fence.’”

‘Outside the fence’ refers literally to being outside the fences of the old Kongsberg Våpenfabrikk factory area. In a project managers’ meeting discussing the innovation company’s contribution to the Kongsberg cluster initiative one main contribution was suggested to establish a world-class incubator and initiate entrepreneurship into the salary collecting society of Kongsberg.¹⁹⁹ The main objective of this innovation company was in line with the cluster initiative’s aim to create an undergrowth of smaller companies in the cluster.

¹⁹⁶ <http://www.k-i.no/om%20oss.aspx> downloaded 4 November 2010 at 10.54

¹⁹⁷ Informers A and F in interviews

¹⁹⁸ DRIV

¹⁹⁹ Minutes from Kongsberg cluster initiative’s project manager meeting 9 October 2006

Even though the two innovation companies seemed to have different target groups and toolboxes there was tension between them. The reason may be the competition for resources and also a strong disagreement in the thinking on entrepreneurship. Kongsberg industrialists feel they have a national mandate and they are world class, investments in small entrepreneurs are therefore a waste of time. This thinking dominates the facilitating organization. In a meeting where the different innovation helpers in Kongsberg presented themselves to potential entrepreneurs this tension seems to have surfaced. In the team meeting after the arrangement the minutes²⁰⁰ state, “It is still important to strengthen the concord and the division of work (avoid rivalry) between the different innovation environments in Kongsberg, The actors address different markets.”

The board of the facilitating organization worked to develop plans for the innovation activities and one focus area was that the cluster initiative’s money should not be used for the ordinary operation of the innovation companies. The plans from the industrial-owned innovation company were approved, but the plans for the other company were not, and after a board decision on 13 April 2007 this innovation company left the Kongsberg cluster initiative. The reasons for this are disputed; some think the small entrepreneur innovation company did not want to adapt to the board of the facilitating organization’s policy; others saw it as a relatively brutal process to push this innovation company out of the initiative.²⁰¹

The efforts to establish non-technological workplaces for the partners of the much-needed engineers were less controversial. These efforts were placed in a project named “Attractiveness” and were only a small part of this project. The main objective was to increase the attractiveness of Kongsberg through developing the public and private services offered and thus increase the number of non-industrial workplaces. The project’s focus on new workplaces soon turned to

²⁰⁰ Minutes from Kongsberg cluster initiative’s project manager meeting 12 February 2007

²⁰¹ Informers C, N, O, and T in interviews

establishing what was called a business garden²⁰² for small service providing companies. The project now called “Kongstanken” was successful and was open by the chairman of the Kongsberg cluster initiative in 2009. Today it reports²⁰³ to have fourteen small companies and a business incubator.

The three actors working to establish new workplaces in Kongsberg have very different relations to the cluster initiative. The industrial-owned innovation company has their own part project and gets a large part of the cluster initiative’s annual budget, while the innovation Company and incubator for small businesses have no connections with the cluster initiative. However the non-technological initiative for new workplaces was a small part of a part project with an equally small part of the cluster project’s resources, but has succeeded in establishing what seem to be new relevant workplaces in Kongsberg. The discussion on these issues is divided into two main parts: first, why do the non-technological initiatives for workplaces succeed within the cluster initiative, while the innovation company for small businesses and entrepreneurs does not? Secondly, why does the industrial owned innovation company until now have the limited success in establishing new workplaces as a result of the cluster initiative?

The decision by the board of the facilitating organization to remove the innovation company for small businesses out of the project was taken in the spring of 2007. The minutes from the board- and team-meeting are very short and business like and there is little data in these to tell what really happened. The discussion in the board focuses on the how the innovation companies involved should be financed so that the ordinary operation of these companies was not financed by the cluster initiative. In the end the industrial owned company was given the responsibility for

²⁰² Business garden is a term used by The industrial development cooperation of Norway and they describe it as: “Business garden aims to enhance entrepreneurship and new business development in remote areas without colleges or universities in Norway.”

²⁰³ See <http://www.kongstanken.no/sider/tekst.asp?side=58> downloaded 6 November 2010

the project to develop new companies while the innovation company was told to cooperate with the industrial one. After this decision the university owned innovation company disappeared from the cluster initiative. Some of my informants tell me that this was a tough process for many of the involved, so there seems to be something else behind this decision. Actors outside the facilitating organization also saw this. Both innovation companies had the objective to create new companies and the objectives of the cluster initiative were to create both small and large companies. The task of separating ordinary company creation from cluster initiative company creation must have been difficult. In 2008 one of the national development agencies²⁰⁴ questioned the industrial owned innovation company's activities after an application for money. In the minutes of a project meeting in June 2008 the reason was interpreted as, "In the fashion the motivation is given it seems that Innovation Norway does not accept cluster initiative's project 'New companies' since it is a part of the innovation company's ordinary operation." This means that the board's argument for choosing the industrial-owned innovation company was not easily accepted by external parties and that there may have been other factors involved.

If we compare the two innovation companies we see that the industrial-owned one is in line with both the Kongsberg Våpenfabrikk and the new industrial Kongsberg identities, while the university owned is not. The industrial-owned was created to develop large companies with international ambitions based on engineers and technology, thus undertaking a national innovation role. The innovation company owned by the university would work against the wage collecting culture of Kongsberg and instead encourage small companies and entrepreneurs to start businesses thus working in a modus the Kongsberg cluster had never done. The board of the

facilitating organization—dominated by the Kongsberg Våpenfabrikk and the modern Kongsberg industrial identities—selected to mandate and put resources into the industrial-owned innovation company. This however does not explain why the board mandated and financed “Kongstanken,” another initiative with the objective to create small companies, namely the creation of the business garden for knowledge intensive service providing companies.

“Kongstanken” was one of several initiatives to create workspaces for the partners of the engineers of industrial Kongsberg. The focus of the companies of this business garden was sufficiently distant from the industrial companies and their innovation company to be seen as competing. In addition, the project was owned by the municipality administration as part of the attractiveness project and thus not interfering with the industrial way of doing things. As such, “Kongstanken” was in line with the Kongsberg Våpenfabrikk identity and the municipality was in a support position where it wouldn’t interfere with industry. For the university-owned innovation company the situation was different. One objective of this was to establish industry from the activities at the university, and one of the main activities of the university in Kongsberg was educating engineers, implying that the activities of this innovation company would be industrial and technological. In addition, this innovation company addressed inventors and entrepreneurs who wanted to establish their own businesses. This placed the innovation company owned by the university within the spheres of interests of both the Kongsberg Våpenfabrikk and the modern industrial Kongsberg identities. However, within these spheres of interest it crashed with how things should be done within both identities. The focus on small companies without national industrial ambitions crashed with the Kongsberg Våpenfabrikk identity while the university ownership and lack of size and perceived professionalism clashed with the modern industrial Kongsberg identity. This made it impossible for the board of the facilitating

organization of the Kongsberg cluster initiative to give mandate and resources to the innovation company that could change the labor-oriented Kongsberg community to an entrepreneur community. The conclusion is that the facilitating organization in the Kongsberg cluster initiative does not accept activities within the engineering, technological, industry building sphere if they do not apply to the rules of how industry building is done, but accepts activities within other types of businesses if they seem to have a purpose of supporting industry without interfering in the industrial domain.

The innovation company owned by the industry got the mandate and resources from the facilitating organization to create new industrial locomotives that are large companies able to supplement the existing large companies in Kongsberg. The efforts seem to have been driven mainly by the Kongsberg Våpenfabrikk identity dominating the facilitating organization, but have had a slow start as the Kongsberg industry no longer has the national mandate to create new industry and thus does not have the former political influence to get funding for ambitious technological projects. The Kongsberg Våpenfabrikk identity was shown in several parts of the project. First by the choice of the industrial domain green energy, which is seen as an important national task to be solved, second by the focus of engineering abilities because the green energy targeted was deep geothermal energy. To be exploited Kongsberg style this energy needs to draw on existing technologies in Kongsberg. The third element was to create a joint engineering task force to address the technological challenges. The task force was put together by people from the large companies in Kongsberg, which were derived from the old Kongsberg Våpenfabrikk. The fourth element was the need for large and long-term investments in technology development to make a pilot project for a geothermal power plant.²⁰⁵ There have been efforts to get investors and

²⁰⁵ Presentation at Teknologidagene I Kongsberg at 11 November 2010

public support for this project, however this work has progressed slowly. The domination of the Kongsberg Våpenfabrikk identity in the facilitating organization also led to the removal of the innovation company owned by university from the Kongsberg cluster initiative. The focus on inventors and single entrepreneurs was not in line with and even in competition with the Kongsberg Våpenfabrikk and the modern industrial Kongsberg identities. This was not the way new technological companies should be developed in World Class Kongsberg. However when non-technological workplaces for the partners of engineers should be developed on a small scale this was sufficiently distanced from the industrial thinking that the facilitating organization could support it, but with small resources.

7.6. The Rise and Fall of the Female Initiative

On informal occasions when I have discussed Buskerud University College's role in supporting the Kongsberg industry I have stated that the best thing the university could do was to establish a large nursing school in Kongsberg. On all these occasions I have felt that this was not only understood as the joke I meant it to be, but also as a good suggestion. Earlier in the project there were thoughts on organizing a lobby effort to relocate the regional hospital as close as possible to Kongsberg. Norway has a very gender separated work-life, especially in the traditional professions, so co-locating the female nurses with the male engineers may create an attractive marriage market as an incentive to get good engineers to move to and settle in the Kongsberg industry. Partners refer to the female partners of engineers thus indicating that engineers in the companies are predominantly male and women are mostly outside the technological companies.

A demand from the national development agency²⁰⁶ responsible for the Norwegian Centers of Expertise program arrived in the middle of 2008. The local cluster initiatives should report and develop strategies for increasing the female representation in both the cluster companies and in the facilitating organization itself. This demand was not well received in the facilitating organization. A common phrase heard was, “So much for putting the industry in the front seat.”

This indicates a dual issue in the facilitating organization’s coping with this injunction for Innovation Norway. One informant²⁰⁷ has stated the Norwegian Centers of Expertise program is a bottom-up program where the clusters themselves should decide which actions they want to do to develop their cluster. The instruction from above²⁰⁸ was given on an issue regarding core identities of the industry in Kongsberg; that is the separation between the Technology and the X-Tech area. This identity and the separation also dominates the facilitating organization of the Kongsberg cluster initiative. The low percentage of women in the industry was recognized. A neighbor cluster initiative²⁰⁹ had put the issue on the agenda. In this cluster the numbers were clear: 0.3% women in top management; 1.5% women in middle management; and 15% women in the companies. In Kongsberg it was accepted that the numbers would be about the same there. The issue was discussed in the facilitating organization. The efforts of Raufoss were studied for inspiration and the decision taken was to address the issue to the cluster companies’ human resource departments. They should then report back to the board of the facilitating organization for the approval of further actions. In the kick-off meeting of the female initiative with the human resource managers the issue was introduced in a power-point slide with the heading “Why the

²⁰⁶ Innovation Norway

²⁰⁷ Informer A in interview

²⁰⁸ Innovation Norway

²⁰⁹ Norwegian Center of Expertise in Raufoss

female initiative in the Kongsberg cluster initiative?” His answers were (I have kept his quotation marks and lay out):

- A larger recruitment base.
- Increased “diversity” gives new opportunities
- More female/partner workspaces
- ...but also
 - This is an injunction from Innovation Norway

He further presented a female initiative from another cluster²¹⁰ and suggested that a working group with the human resource managers as a reference group should be established. The group should map initiatives of these kinds, develop statistical data on the amount of women in the Kongsberg industry and then develop a plan to address the issue. The plan should be presented to the board of the facilitating organization. These suggestions were accepted by the meeting, the minutes from the meeting do not leave enough information to interpret the discourse in the meeting.

The female issue was reported from the minutes of the board meetings only on two more occasions: on 6 February 2006, the project manager reported on an offer from an organization²¹¹ to establish a “girl-project” in science subjects for the primary school. The board still had not given up and decided to pursue the motivation of young people to study science and technology and to work more with initiatives to strengthen the women’s position in the companies. In the board meeting on 24 November 2009 it had faded even more away when the board was informed

²¹⁰ Norwegian Center of Expertise in Raufoss

²¹¹ First Scandinavia is a Scandinavia founding with the aim to stimulate children’s interest in science and technology

on another offer²¹² to do a project on science in primary schools. In addition the board would be asked to support the “Science Express”²¹³ a natural science laboratory for the primary schools installed in a small car. At this point it seemed the female initiative had faded away; it was not reported on in the 2008 report on the project even though it was explicitly asked for. It was however mentioned in the self-evaluation report from Kongsberg cluster initiative in the spring of 2009 that led up to the evaluation of the project and the subsequent renewal of the contract for another three years. Here it was stated that the share of women in the Kongsberg industry was not too bad (14%), and that long-term recruiting efforts are the best actions to be taken. That is the solution to increasing the female position in the Kongsberg industrial cluster would be to stimulate more 10-14 year old girls to choose science and technology as their field of study. Which may be correct but it clearly states that the facilitating organization did not see the women’s position in their cluster as an urgent problem.

7.6.1. The Development of the Female Initiative

Instead of using meta-governance instruments to develop the facilitating organization’s identity and capability to promote female participation in all parts of the Kongsberg cluster initiative the national program owners of the Norwegian Centers of Expertise treated the facilitating organization as an organization that could be instructed. This was done even though the national program owners have stated that the cluster initiatives are not ordinary organizations and as such need other governance methods than instruction. The proper governance methods are however not stated clearly. In addition the Norwegian Centers of Expertise program should be developed bottom up from the local cluster initiatives. The directive to promote female participation was seen as an injunction by the facilitating organization.

²¹² From First Scandinavia

²¹³ “Realfags-ekspressen” in Norwegian

Still the demand for a female initiative sparked debate and action by the Kongsberg cluster initiative. The outcome of these initiatives ended up addressing the public schools and young people to choose science and technology as a long-term strategy instead of directly addressing the companies in the cluster initiative and the facilitating organization itself. The lack of concrete actions and outcomes seem to have been silently approved by the national program owners as no responses on the lack of reporting have been visible. The national program owners had thus used the governance instrument of instruction but not the accountability instrument and have at least until the end of 2010 let the female initiative in the Kongsberg cluster die in silence.

How then did the facilitating organization treat the instructions to address the low female participation in the cluster initiative and in the cluster companies? In the beginning the facilitating organization turned to two of the intelligences from Figure 7.1: rule following and imitation. Rule following in the sense that it responded to the demand and did something, imitation that it turned to another cluster initiative, which had done something and gotten praises for that. The local motivation for the initiative seemed well founded as mentioned above: it would create a larger recruitment base for engineers; greater diversity in the workforce, which was seen as an advantage; and more women would create more potential partners for male engineers. However, the female initiative was eased out of the facilitating organization in two steps: first by placing the responsibility of the project to the human resource people and not as a higher-level strategic initiative. Second, by accepting an offer by an organization outside the facilitating organization to stimulate technology interests in young people. The reasons for this may be many, and if the national program owners really wanted to push the female initiative in their clusters they may have chosen another plan of attack.

But answers may also be rooted locally. During most of the life time of the Kongsberg cluster initiative the main problem has been the lack of young engineers for the industrial companies. An effort to recruit female engineers would seem natural for a cluster initiative solving at least two problems simultaneously: pleasing the national program owners and getting better recruitment. However two dominant identities exist in the Kongsberg cluster initiative and its facilitating organization: the Kongsberg Våpenfabrikk- and the modern industrial Kongsberg- identities. In both these identities the engineer identity plays an important part. In Norway most engineers are and have been historically male, and as discussed above in the “Kongstanken” case women in this context are mainly seen as partners of male engineers. For the facilitating organization with its identities women are placed in the “X-tech” position outside the fence of the technology park in Kongsberg and thus regarded mainly as “best supporting actresses.” A consequence of this is that female recruitment should not be a central part of the facilitating organization’s operation, but the organization has to obtain at least some legitimacy within the issue and to have some activities within the field. This activity is outsourced to a single actor external to the facilitating organization and the industry. If the female initiative should be taken seriously it would have to be addressed as a change project within the male dominated hi-tech world. That change process is so demanding that it would have taken at least one of the three largest companies/personalities as a frontrunner. Nobody took up the baton and the project was eased out through first the strategically less significant human resource group, then by moving the primary target-group outside the hi-tech companies to the primary schools.

7.7. Conclusions on Talk, Decisions, and Actions

The facilitating organization of the Kongsberg cluster initiative is dominated by the two main identities of industrial Kongsberg: The Kongsberg Våpenfabrikk and the modern industrial

Kongsberg identities. The previous discussions show that these two identities to a large extent govern and decide the developments of the facilitating organization's operations. Attempts to instruct the facilitating organization—as in the female initiative—do not lead to many results. When the facilitating organization talks about the necessity for research, the action stops because this is not how things should be done in Kongsberg industry. Decisions taken that are not in line with the facilitating organization's identity fade slowly away.

The examples of the facilitating organization's talk, decisions, and actions examine several aspects influencing the development of different initiatives in the Kongsberg cluster: how meta- and –governance were carried out, the role of the two dominating identities of the facilitating organization, the intelligence used in developing the initiatives, and the legitimacy of the initiatives. The main influential factor seems to be the facilitating organization's identities in this case the Kongsberg Våpenfabrikk- and the modern industrial Kongsberg-identity. For each of these two main identities there seem to be three possible statuses for initiatives in the facilitating organization: in line with; out of line with; and X-Tech. X-Tech is outside the main interest of the industrial Kongsberg. The relationship between the identities and the initiatives seems to be the determining factor for the choice to give a real mandate to the different initiatives discussed above. The main intelligence (Brunsson, 2002) used seems to be rational choices based on what these identities tell the actors to choose. Difficulties in the choices occur when the two dominating identities are in conflict with each other.

<i>Initiative</i>	<i>Kongsberg Våpenfabrikk identity</i>	<i>Modern industrial Kongsberg identity</i>	<i>Position in relation to Figure 7.2 and status in 2010</i>
The genesis of the Kongsberg cluster initiative	In line with	In line with	In coordinated action quadrant. Seen as successful.
“The Kongsberg Story”	Perceived out of line with by the actors	Perceived out of line with by the actors	In uncoordinated thinking quadrant. Still not finished. Conflict between the two identities.
The master program in Systems Engineering	In line with	In line with	In coordinated action quadrant. Seen as successful.
The research institute	Out of line with	Out of line with	In the uncoordinated action quadrant. Still not finished.
The establishment of new large companies	In line with	Out of line with	In coordinated action quadrant. Still not finished.
The university owned innovation company	Out of line with	Out of line with	In the uncoordinated action quadrant. Seen as irrelevant.
The business garden for knowledge intensive service providers	X-tech	X-tech	In the uncoordinated action quadrant. Seen as successful.
The female initiative	X-tech	X-tech	In the uncoordinated action quadrant. Seen as irrelevant.

Table 7.2: The discussed initiatives in the facilitating organization seen in relation to the dominating identities in the organization. With a status estimate in relation to the evaluation by the facilitating organization itself and Figure 7.2

Table 7.2 gives an overview of the discussed initiatives in relation to the identities, and the overview is given in rather rough positions. In addition, the position of these initiatives in relation to the quadrants of Figure 7.2 at the end of 2010 is stated. There are of course different degrees of position within Figure 7.2 but for simplicity they are represented by their four extremes in Table 7.2; uncoordinated thinking versus action and coordinated thinking versus action.

If an initiative is in line with both identities it has been given the capability to become and stay an activity within the facilitating organization. This means that it stays under the coordination of the facilitating organization and it is most often seen as successful. This is the case with the establishment or genesis of the Kongsberg cluster initiative itself and the establishment of the master program at the local university.

When an initiative is not in line with either of the two dominating identities it is more difficult to get legitimacy for an initiative within the facilitating organization. This was the case with the initiative to establish a local research institute and for the innovation company owned by the university to get a place within the facilitating organization. In both cases the initiatives were left to single actors outside the coordination of the facilitating organization.

When there are conflicts or discrepancies between the two main identities as in “The Kongsberg Story” and the creation of new large companies initiatives they tend to stay within some coordination by the facilitating organization but are difficult to complete.

The fourth possibility is when the initiative is seen as not as industrially important, e.g. “X-Tech,” and then the initiative is given relatively small resources or seen as mainly irrelevant for the cluster development.

Where does the strength of the facilitating organization leave the other aspects of Figure 7.1 such as meta-governance and the intelligence mechanisms? The national meta-governance actors seem to have their main power when choosing to fund the cluster initiative, but in the day to day running their influence seems to be weak. The example of the female initiative where the national actors used dictate to initiate action in the cluster initiative shows that this kind of governance is not ignored, but eased out of the facilitating organizations agenda. The meta-governance actors

seem to have little influence at least in the Kongsberg cluster initiative, to develop the facilitating organizations identities. Their main instrument is to give or remove capabilities such as resources and the national mandate. As mentioned above the Kongsberg cluster initiative and their main actors have a strong identity with a long history which may make the strength of this identity especially dominant in the development of this cluster initiative.

The legitimacy on the local levels seems to be directly connected to the industrial identities. As long as the local cluster initiative does the things we do in the industrial Kongsberg and do them the Kongsberg industrial way it maintains legitimacy. However as the example of the establishment of the research institute shows, when real support is needed to get things going it has to be done in accordance with the local identity. In the research case where the need for a joint strategic research was needed, this kind of joint research did not have a history in industrial Kongsberg. Research has been done as needed by the individual companies in their own development of their products and by national and international research partners.

Of Brunsson's (2002) four kinds of intelligence—rule following, imitation, experience based learning, and rational choice—the last one seems to be mostly in use by the facilitating organization when seen as the right choice. Imitation was used in the attempts to establish the research institute and in the female initiative. In both cases the results so far have been meager even though in the first case the facilitating organization imitated itself from the previous successful initiative to establish the master program in Systems Engineering. The same meager results seem to be the case when the facilitating organization follows the rules and recommendations both from the theoretical foundation for cluster initiatives and from the national program owners of the initiative. Increasing the women's participation, the research

activities, and establishing new companies are in line with the rules of this national program, however the results are still not impressive.

In Table 7.2 all but one of the initiatives mentioned are in an action modus, which is in the modus to make the deliveries decided. One, “The Kongsberg Story,” is in the thinking modus searching for local legitimacy for its conclusions. The experience based learning within the facilitating organization seems to be present only to a small degree. The need for action is dominant. In their evaluation and strategy debate in the autumn of 2010 the board of the facilitating organization reinforced this by concluding that the Kongsberg cluster initiative should do the same things only better. So at the level of the Kongsberg cluster initiative the dominant feature is doing what Kongsberg industrialists are supposed to do, and renewal, thinking and learning are only temporal activities done at times of crisis.

8. Conclusions

How does the facilitating organization of regional innovation system initiatives function, and why does it function this way? In the Norwegian context, regional innovation system initiatives are realized through their facilitating organizations. The facilitating organization runs the activities such as collaboration, networking, and the development of the policies in the initiative. It also attempts to implement the policies. The facilitating organization is the mediator between at least three different parts: the regional innovation system concepts; the owners of programs to initiate regional initiatives; and the regional actors who want to implement innovation system initiatives. These three parties constitute an inconsistent environment that the facilitating organization must operate within to establish sufficient legitimacy for it to survive. The facilitating organization obtains legitimacy through its output, which is how it talks, what it decides, and what gets done.

Clusters, industrial districts, learning regions, triple helix, and regional innovation systems are examples of theoretical concepts under the regional innovation system umbrella. The theoretical concepts of regional innovation systems have references to organizations that facilitate their developments and implement the policy recommendations of the concepts. These organizations have different names and functions in the concepts. Intermediate organizations, hybrid organizations, and animators are names used. The facilitating organization is an organization established to run a regional innovation system initiative. Even though the theoretical innovation system concepts implicitly and explicitly discuss the existence of facilitating organizations, the discussions of the organizations themselves are few. This dissertation argues for another theoretical approach than regional innovation theories to study the facilitating organization.

The point of departure for the discussion on the facilitating organization is the regional actors' view of their regional innovation system initiative. However, in the Norwegian context the

regional initiatives are often connected to and funded by the national government. In addition the theoretical regional innovation system concepts and their policy recommendations are used when a regional initiative is established.

Regional innovation system initiatives are socially constructed realities, they are constructed by a set of constitutive rules that actors can agree to. A constitutive rule has the general form X counts as Y in context C (Searle, 1995). But there are at least three constructors of regional innovation systems initiatives that use their own set of constitutive rules. The theoretical concepts define the regional innovation system on their terms. The national program owners of innovation systems initiatives have their view on how they think regions should develop. The regional actors have to relate to the others, but they have their own vision and knowledge of how an innovation system should be constructed in their region.

To be able to exist, a regional innovation system initiative and its facilitating organization must be legitimate to all its three constructors. The output from the facilitating organization in the form of talk, decisions, and actions is analyzed from the regional actors' view. It is their set of constitutive rules that will dominate the analysis and their characteristics that are the most important for the maneuverings of the facilitating organization to gain legitimacy.

How does the facilitating organization look from the regional actors' views? Normally it will be set up as a project organization. But the regional actors are a set of autonomous persons or organizations with their own resource bases and it will be voluntary for them to participate in the innovation initiative. The actors participating will come from different types of organizations such as industrial companies, universities, bureaucratic, and political organizations. Their cooperation is more loosely coordinated than an organization. So the facilitating organization

could also be seen as a governance network. The definition of a governance network is a self-organized network which takes part in public governance. The difference between an organization and a governance network is mainly the degree of coordination and command-lines which are less clear in the network. The degree of coordination of the actors in the facilitating organization's activities is an important variable in my analysis.

How does a facilitating organization seen as a governance network function? The regional innovation system initiative and its facilitating organization are a constructed social reality. It is the regional actors' institutions in the form of culture, rules, and norms that govern their behavior in the facilitating organization. The facilitating organization's output depends on its identities and capabilities and these have to be uncovered. The identity is who the actors think they are and what they are supposed to do. The capability is what resources, knowledge, and organizational ability the facilitating organization has.

To govern a facilitating organization seen as a governance network it is important to develop its identities and capabilities. This is called the meta-governance of the governance network.

Mechanisms used by actors who want to influence the facilitating organization are framing, storytelling, participation, and facilitation. The actors and methods of the meta-governance of the facilitating organization need to be seen in relation to the facilitating organization's existing identity and capability. Whether meta-governance is effective and involved in changing the facilitating organization depends on its existing strengths in identity and capability.

The facilitating organization of a regional innovation system initiative is examined through an analytic model where the facilitating organization's identity and capability—together with meta-governance activities—creates the output of the facilitating organization. The first two steps of

the analysis are to uncover the characteristics of the facilitating organization and its meta-governance. The third step is to analyze how the output of the organization develops. The output consists of talk, decisions, and actions. The nominal purpose of the output is to achieve regional economic innovation and development. The purpose it pursues is an output that creates legitimacy for the facilitating organization's existence and operations towards the local actors and other stakeholders. Above one important variable in the analysis of the output is described: to which degree the actors in the facilitating organization are coordinated when they produce the output. A second variable is developed from Brunsson (2002) who describes two ideal types of organizations: the action organization and the political organization. I use the term thinking organization instead of political. A real organization will be something in between the ideal action and the ideal thinking organization, and to which degree an organization is action or thinking oriented is another important variable in the analysis. The output of a facilitating organization can be studied by how concrete examples play out over time in relation to the activities that are coordinated between the actors, and if the activities are in thinking or action modus. If the activities are uncoordinated they are seen as going on outside the facilitating organization.

Brunsson (2002) introduces hypocrisy as a term when analyzing an organization's talk, decisions, and actions. The term hypocrisy is problematic to communicate without a moral value attached so I use the term pragmatism instead. Pragmatism means that an organization that wants to maintain legitimacy in an inconsistent environment may have to decouple what it says from what it does. It may at times be important to talk in one direction, decide something else, and do a third thing. This strategy is important to a facilitating organization if there are discrepancies between its three

constructors: the theoretical innovation system concepts; the national initiative program owners; and the regional actors.

This three step analysis happens by first finding the facilitating organization's characteristics, second finding the meta-governance actors and methods, and third examining examples of output in relation to coordination, action, or thinking. I used this analysis model on one case: the Kongsberg cluster initiative and its facilitating organization. The research was carried out as an inside action research project with me as the researcher working in the facilitating organization of my unit of analysis. This cluster initiative is part of a national cluster program called The Norwegian Centers of Expertise. The insider approach made it possible for me to study the developments of the facilitating organization while they developed in the period from 2007 until 2011 and as such the data collected made it possible for thick descriptions of the developments, activities, and outputs from the facilitating organization.

8.1. The Facilitating Organization of the Kongsberg Cluster Initiative

The facilitating organization of the Kongsberg cluster initiative is dominated by two identities: The Kongsberg Våpenfabrikk identity and the modern industrial Kongsberg identity. Some of the characteristics of the two identities are similar, for example the professional engineer identity and the industrial identity. The difference is mainly that the Kongsberg Våpenfabrikk identity was created when the industry in Kongsberg was a national political instrument. In the post-World War Two era the Norwegian government used the Kongsberg industry strategically to develop a modern technological industry. The tools used were to involve the Kongsberg industry in public procurement agreements especially within the defense area, and through legislation giving the Kongsberg industry advantages over international competitors as it did when the oil and gas industry in Norway was established. The modern industrial Kongsberg identity was developed

after the dismantling of Kongsberg Våpenfabrikk in 1987. The divisions and other parts of the original company were sold separately and developed through a professional and often international ownership. The companies continued to stay in Kongsberg and often with the same managers as in Kongsberg Våpenfabrikk. The modern industrial Kongsberg identity sees itself as successful, large, and competitive in a global context.

The facilitating organization of the Kongsberg cluster initiative is dominated by people with a past in Kongsberg Våpenfabrikk who have worked successfully on the modern industrial Kongsberg. It was the entrance of these industrialists with these two identities that made it possible for the facilitating organization to be awarded the status of Norwegian Center of Expertise. An earlier facilitating organization with other main actors like the local university and an industrial owned innovation company had not been able to get this status.

The capabilities of the facilitating organization of the Kongsberg cluster initiative are mixed. The capability to organize activities is strong and developed from an industrial thinking where projects are a much used organizational tool. In addition the facilitating organization is set up to mimic an industrial company with an administration, a board, and owners in the form of the founding partners of the cluster initiative. The other elements of capability are not as strong as the organizing capability. Formal mandates within the facilitating organization are clear, but it seems that the real mandates are mainly given by people with a strong connection to the larger companies in Kongsberg and with a connection to the two identities discussed above. There are so few people involved in the facilitating organization that the roles of some participants are multiple in such that the formal clear structure of the facilitating organization can be questioned by this role mixture. In addition many tasks and projects seem to be done by the same, few persons. The industrial companies have to a limited degree been willing to put money into the

facilitating organization. Mostly they contribute with man-hours even if the ambitions of the facilitating organizations have exceeded its finances the past two years. The total picture of the capabilities of the facilitating organization in Kongsberg is divided but some important factors are not in line with the organization's ambitions.

The meta-governance of the facilitating organization seems to be too fragmented to match the two strong identities of the organization and the cluster initiative. The national owners of the Norwegian Centers of Expertise program seem to treat the cluster initiative and its facilitating organization as a traditional organization with command lines, funding and accountability structures. The regional actors of meta-governance mainly use funding to control the facilitating organization. These meta-governance instruments mainly address the capabilities of the facilitating organization and are not suitable for developing its identities. The identities are reinforced rather than developed by the local meta-governors in Kongsberg outside the cluster initiative. These meta-governors live within the Kongsberg industrial eco-system and seem to share the beliefs, rules, and norms of industrialists within the facilitating organizations. Since as will be discussed below, the identities of the facilitating organization to a large extent dictate its outputs, the focus on capabilities in the meta-governance will have smaller impacts of further developments of the organization. The result is that the organization stays on its track and that few, new large developments seem to happen.

The facilitating organization's decisions are manifested through its output, which is talk, decision, and action. The output depends on the concrete case's ability to connect to, be in conflict to, or be outside the two dominating identities of the facilitating organization of the Kongsberg cluster initiative. When a case like the development of new large industrial companies and the education of new engineers are in line with both the Kongsberg Våpenfabrikk- and the

modern industrial Kongsberg- identities they stay within the coordination of the facilitating organization. However, when issues are forced on the facilitating organization and not in line with what Kongsberg industrialist think they should do they are removed from the coordination of the cluster initiative. They may go on to be financed and linked to the initiative, but they are done by single actors without the coordination from the facilitating organization. Examples of these are the female initiative, which came as a directive from the national authorities and the research institute which were initiated both from national signals and from the local university. The facilitating organization in the end placed both initiatives at single actors. The same happened to “The Kongsberg Story” the attempt to explain the successes of the Kongsberg industries over the past fifty years. Here it was impossible to get a legitimate story anchored in both dominating identities because the contexts related to the two identities—one as successful, global industrialist and the other as a national political instrument—were too difficult to combine.

A third possibility of cases is demonstrated through the small but successful project of establishing a business garden for knowledge intensive service providers. This was seen not as a technological initiative—and by that not really involving the dominating identities—but instead as useful because it could provide partners for the engineers the industry needed. Another initiative to establish an incubator for entrepreneurs could involve industry and technology but addressed industry building with smaller ambitions than was seen as suitable for the Kongsberg industry. This initiative thus was in conflict with both dominating identities and was removed from the facilitating organization of the Kongsberg cluster initiative.

A final observation on the cases from the Kongsberg cluster initiative is that many of the initiatives seem to end up and stay in the action and doing modus. One of the criteria for the success of a governance network is that it should be able to develop new thinking and strategies

to enable renewal. In the strategy discussions in the board of the Kongsberg cluster initiative the focus has been to do the same but to do it better. This thinking may be also be anchored in the dominating identities as in the industrial world it is important to deliver on time. It may also be a correct measure for the Kongsberg cluster that the facilitating organization should contribute to help the industry follow its successful recipe the past twenty years. That would however mean that the facilitating organization in Kongsberg was redundant in its networking role because it has very small resources compared to the large successful companies it should develop. Without activities in the facilitating organization to think, reflect and create new strategies for its cluster it cannot play an important role in the further development of its industrial cluster.

The question in the title of this dissertation was if the facilitating organization in cluster initiatives could promote innovation? In the Kongsberg case the answer seems to be no. The reasons can be several. The Kongsberg industry is itself successful and large and will not need a small facilitating organization to enable it for further development. However, the strong identity, culture, norms, and rules of the industrial Kongsberg society limit it from looking at new and different development paths. It is however beyond the scope of this dissertation to judge what the best path is for the Kongsberg industry's future.

However in this dissertation one primary function of the Kongsberg cluster initiative was to try out a different theoretical approach to examine regional innovation system initiatives from the regional actors' points of view. The theoretical regional innovation concepts all give policy advices to regions trying to create a better economic future for themselves, but several of them report difficulties when these recommendations meet the real regions of the world. The proposed model for studying the facilitating organization is based on a neo-institutional perspective of organizations and governance networks. This has mainly two implications. First by definition it

sees the facilitating organization as a regional actor and a part of public governance (Sørensen & Torfing, 2005). Second, when analyzing its behavior and the governance of the facilitating organization it should be treated as a network of actors and not a traditional organization.

One aim has been to shed light on the regional innovation systems initiatives from a different angle to gain new knowledge. Two assumptions are important to my arguments. First, that local actors have identities, culture, norms and rules that govern them. The second assumption is that the facilitating organization seeks legitimacy from its surroundings as the important driver for its operations. Maybe the Kongsberg case is unique because it has a clear and strong history, personal and professional network and thereby clear identities in which legitimacy can be sought. In spite of this I think that my theoretical concepts have a further potential and should be tested further on other cluster initiatives.

8.2.Recommendations for further research

I previously used Mark Bevir's critique (2003) of governance theories having a lingering positivism because of its focus on grouping actors in relation to professional and other characteristics. Bevir has called for a decentered analysis with an individual approach to the actors. In my analysis I have treated the actors as groups to test my theory that the facilitating organization can be seen as a governance network. I have argued that important groups related to the facilitating organization have strong common identities as a group and as individuals. However in my data the importance of the single person's input also contributes to the developments. A research approach more closely based on the individual contributions in the facilitating organization may give the analysis better precision.

The issue of meta-governance of a governance network needs to be developed to gain a better picture of how meta-governance is done and by whom. This dissertation argues that there are many and fragmented meta-governors and methods for meta-governance; however, in my case their function is overshadowed by strong local identities which steer the governance network in their directions. In the case of governance network created to enhance a region's economic performance the potential impacts are on the region as a whole, but the political and democratic institution's role in the meta-governance is replaced by national development agencies and industrialists. How does that influence the region? Will the facilitating organization compete with or displace existing organization like Chambers of Commerce, employer- and employee organizations?

A third element is the movement between network and organization and the boundaries between them. When is it an organization and when is it a network? I have simplified this in my dissertation and used a variable called coordination to distinguish network from organization. The formal definitions of network in relation to an organization seems clear, but can a network of independent actors become an organization when they sign a contract to cooperate through a project? Is an organization still an organization when its members act independently even though they have a formal organizational structure?

8.3. Consequences for Regional Innovation System Practices

The governance of regional innovation system initiatives seems to be a challenge for both national and regional initiators and funders of such initiatives. This dissertation has argued that the national actors' governance and meta-governance of the Kongsberg cluster initiative is fragmented. Even though the Norwegian Centers of Expertise state that the regional cluster initiatives need another form of governance than ordinary organizations they mostly treat the

initiatives as a normal organization. The focus is on regulating the capabilities of the local initiatives while the development of the local identities is seldom if ever visible. In the Kongsberg cluster initiative I have argued that the identities are dominant for the developments in the initiative. Even though the argument is related to this case the potential for a wider use of instruments and tools for addressing the facilitating organization—and especially its identity—should be considered.

The other observation in the Kongsberg case is the tendency to move the facilitating organization's activities into an action phase and seldom visit a thinking and reflection phase to develop new strategies. Different regional innovation systems initiatives may have different needs to promote their development, however if the facilitating organization is not able to fund local initiatives and to engage in collaborative learning processes it will be just another funding organization. This is not an argument for just reflection and no action, but for a conscious movement between phases of action and phases of reflection within a facilitating organization.

References

- Arntzen, A. (1989). *Kongsberg Våpenfabrikk: utredning fra et utvalg oppnevnt ved kongelig resolusjon av 18. desember 1987 : avgitt 7. mars 1989*. Oslo: Forvaltningstjenestene.
- Asheim, B. (2000). Industrial districts: the contributions of Marshall and beyond. *The Oxford handbook of economic geography*, 413–431.
- Asheim, B. (2001). Learning regions as development coalitions. Partnership as governance in European workfare states? *Concepts and Transformations*, 6(1), 73 - 101.
- Asheim, B., Cooke, P., & Martin, R. (2006). The rise of the cluster concept in regional analysis and policy: a critical assessment. In B. Asheim, P. Cooke & R. Martin (Eds.), *Clusters and regional development. Critical reflections and explorations*. (pp. 1-29). London: Routledge.
- Asheim, B., & Gertler, M. (2005). The geography of innovation. In J. Fagerberg, D. Mowery & R. Nelson (Eds.), *The Oxford Handbook of Innovation* (pp. 291-317). Oxford: Oxford University Press.
- Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28(1), 31-56.
- Berger, P. L., & Luckmann, T. (1971). *The social construction of reality a treatise in the sociology of knowledge*. Harmondsworth: Penguin.
- Bevir, M. (2003). A decentred theory of governance. *Governance as social and political communication*, 200-221.
- Bjørnson, T. (2004). *Centre of Expertise innen industriell innovasjon i den tverrfaglige høyteknologiklyngen Kongsberg*. Kongsberg.
- Bjørnstad, S. (2009). *Shipshaped: Kongsberg industry and innovations in deepwater technology, 1975-2007*. Handelshøyskolen BI, Oslo.
- Blanco, I., Lowndes, V., & Pratchett, L. (2009, November). *Re-organizing Babylon: On the meaning of policy networks and network governance and their democratic consequences*. Paper presented at the Network governance, Ringkøping, Denmark.
- Braczyk, H., Cooke, P., & Heidenreich, M. (1998). *Regional innovation systems: the role of governances in a globalized world*. London: Routledge.
- Brunsson, N. (2002). *The organization of hypocrisy: talk, decisions and actions in organizations*. Oslo: Abstrakt forl.
- Brunsson, N. (2006). *Mechanisms of hope: maintaining the dream of the rational organization*. København: Copenhagen Business School Press.
- Brunsson, N. (2007). *The consequences of decision-making*. Oxford: Oxford University Press.
- Coghlan, D., & Brannick, T. (2005). *Doing action research in your own organization* (2nd ed.). London Thousand Oaks, Calif.: SAGE.
- Cooke, P. (1998). Introduction: origins of the concept. In H. Braczyk, P. Cooke & M. Heidenreich (Eds.), *Regional innovation systems* (pp. 2–25). London: UCL Press.
- Cooke, P. (2002). *Knowledge economies: Clusters, learning and cooperative advantage*. London: Routledge.
- Cooke, P., Heidenreich, M., & Braczyk, H.-J. (2004). *Regional innovation systems the role of governance in a globalized world* (2nd ed.). London: Routledge.
- Crevoisier, O. (2004). The innovative milieus approach: toward a territorialized understanding of the economy? *Economic Geography*, 80(4), 367-379.

- DiMaggio, P., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, 48(2), 147-160.
- Dzisah, J., & Etkowitz, H. (2008). Triple helix circulation: the heart of innovation and development. *International Journal of Technology Management and Sustainable Development*, 7(2), 101-115.
- ECON Poyry. (2009). *Evaluering av seks NCE prosjekter* (No. 45). Oslo: ECON Poyry.
- Edquist, C. (1997). *Systems of innovation technologies, institutions and organizations*. London: Pinter.
- Edquist, C. (2005). Systems of innovation. In J. Fagerberg, D. Mowery & R. Nelson (Eds.), *The Oxford handbook of innovation* (pp. 181-208). Oxford: Oxford University Press.
- Finsrud, H. D. (2009). Den norske modellen og regionalisering av forskningen: Et nytt utviklingstrinn eller en styrt avvikling? *Sosiologien i dag*, 39(1), 63-91.
- Florida, R. (1995). Toward the learning region. *Futures*, 27(5), 527-536.
- Foucault, M. (1991). Governmentality. *The Foucault effect: Studies in governmentality*, 87-104.
- Greenwood, D. J., & Levin, M. (2007). *Introduction to action research social research for social change* (2nd ed.). Thousand Oaks, Calif.: Sage Publications.
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, Calif.: Sage.
- Innovasjon Norge. (2006a). Avtaledokument for NCE-prosjekt. Prosjektperiode 2006-2016. Første kontraktperiode.
- Innovasjon Norge. (2006b). *Intensjonsavtale for NCE prosjekt*.
- Innovasjon Norge. (2010). *Kontrakt for gjennomføring av NCE prosjekt. Prosjektperiode 2006-2016. Andre projektperiode*.
- Jessop, B. (1998). The rise of governance and the risk of failure: the case of economic development. *ISSJ*, 155, 29-45.
- Jessop, B. (2003). Governance and Metagovernance: On reflexivity, requisite variety, and requisite irony. In H. Bang (Ed.), *Governance as social and political communication* (pp. 101-116). Manchester: manchester University Press.
- Ketels, C. (2006). Michael Porter's competitiveness framework—recent learnings and new research priorities. *Journal of Industry, Competition and Trade*, 6(2), 115-136.
- Kickert, W. J. M., Klijn, E.-H., & Koppenjan, J. F. M. (1997). *Managing complex networks: strategies for the public sector*. London: Sage Publications.
- Kommunal- og regionaldepartementet. (2005). *Om regionalpolitikken*. [Oslo]: Departementet.
- Kongsberg Kommune. (2009, 23.06.2009). Livet i Kongsberg. Retrieved 07.07.2009, from <http://www.kongsberg.kommune.no/>
- Kongsberg Nærings- og handelskammer. (2006). *Søknad: Norwegian Centre of Expertise Kongsberg - Systems Engineering*. Kongsberg, Norway.
- Kongsberg Våpenfabrikk. (1959). *Kongsberg våpenfabrikk, Kongsberg, Norway*. Oslo: [Fabrikken].
- Kongsberg Våpenfabrikk. (1964). *Kongsberg våpenfabrikk 1814-1964*. Kongsberg.
- Kongsberg Våpenfabrikk. (1965). *En kort presentasjon av Kongsberg våpenfabrikk*. Kongsberg.
- Leydesdorff, L., & Etkowitz, H. (2000). A Triple Helix of university-industry-government relations "Mode 2" and the globalization of "national" systems of innovation. *Research Policy*, 29, 109-123.
- March, J. G., Guetzkow, H., & Simon, H. A. (1993). *Organizations*. Cambridge, Mass.: Blackwell Business.

- March, J. G., & Olsen, J. P. (1989). *Rediscovering institutions: the organizational basis of politics*. New York: Free Press.
- March, J. G., & Olsen, J. P. (1993). *Institutional perspectives on governance*. Bergen: LOS-senteret.
- March, J. G., & Olsen, J. P. (1995). *Democratic governance*. New York: Free Press.
- Marshall, A. (1930). *Principles of economics : an introductory volume*. London: Macmillan.
- Martin, R., & Sunley, P. (2003). Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography*, 3(1), 5-35.
- Maskell, P., & Kebir, L. (2005). What qualifies as a cluster theory? *DRUID working paper*, 05-09, 1-19.
- Mayntz, R. (1993). Modernization and the logic of interorganizational networks. *Knowledge, Technology & Policy*, 6(1), 3-16.
- Moene, K. (2007). *Den nordiske modellen*: Working paper. Aug. 29. Oslo: ESOP.
- Morgan, K. (1997). The learning region: Institutions, Innovation and Regional Renewal. *Regional Studies*, 31.5, 491-503.
- NCE Systems Engineering. (2009). *Egenevalueringsrapport for perioden 1.7.2006 - 21.12.2008 fra NCE Systems Engineering Kongsberg*. Kongsberg: NCE-SE.
- Njølstad, O. (2008). *Jens Chr. Hauge: fullt og helt*. Oslo: Aschehoug.
- Norge, I. (2005). *Norwegian Centres of Expertise. NCE-programmet. Programbeskrivelse*.
- Nowotny, H., Scott, P., & Gibbons, M. (2001). *Re-thinking science knowledge and the public in an age of uncertainty*. Cambridge: Polity Press.
- Nowotny, H., Scott, P., & Gibbons, M. (2003). Introduction: Mode 2'Revisited: The New Production of Knowledge. *Minerva*, 41(3), 179-194.
- Nærings- og handelsdepartementet. (2003). *Fra idé til verdi : Regjeringens plan for en helhetlig innovasjonspolitik*. Oslo: NHD.
- Onsager, K. (2005). *Teknologibyene omstillinger, innovasjon og utfordringer elektronisk ressurs*. Oslo: Norsk institutt for by- og regionforskning.
- Peck, F., & Lloyd, C. (2008). Cluster policies and cluster strategies. In C. Karlsson (Ed.), *Handbook of research on innovation and clusters: cases and policies* (pp. XXII, 461 s.). Northampton: Edward Elgar.
- Popperud, E. (1981). *Streiftog gjennom Kongsberg Våpenfabrikks historie 1814-1975*. Drammen: Bladselskapet Fremtiden.
- Porter, M. (1990). *The competitive advantage of nations*. London: Macmillan.
- Porter, M. (1998). *On competition*. Boston: Harvard Business School Press.
- Rhodes, R. A. W. (1997). *Understanding governance: policy networks, governance, reflexivity, and accountability*. Buckingham: Open University Press.
- Rutten, R., & Boekema, F. (2007). *The Learning region foundations, state of the art, future*. Cheltenham: Edward Elgar.
- Schiørn, H. C. O. (1968). *Kartlegging av opplæringsbehov for tekniske funksjonærer i Kongsberg Våpenfabrikk*. Bergen: H.C.O. Schiørn.
- Scott, W. R. (2008). *Institutions and organizations: ideas and interests*. Thousand Oaks, Calif.: Sage Publications.
- Searle, J. R. (1995). *The construction of social reality*. London: Allen Lane.
- Searle, J. R. (2010). *Making the social world: the structure of human civilization*. Oxford: Oxford University Press.
- Slagstad, R. (1998). *De nasjonale strateger*. Oslo: Pax.
- Spilling, O. R. (2007). *Kunnskap, næringsutvikling og innovasjonspolitik*. Bergen: Fagbokforl.

- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, Calif.: Sage.
- Statistics Norway. (2009, 2009). Tall om Kongsberg Kommune. *Kommunefakta* Retrieved 07.07, 2009, from <http://www.ssb.no/kommuner/0604>
- Sölvell, Ö., Lindqvist, G., & Ketels, C. (2003). *The cluster initiative greenbook*. Gothenborg: Ivory Tower.
- Sørensen, E. (2006). Metagovernance: The changing role of politicians in processes of democratic governance. *The American Review of Public Administration*, 36(1), 98-114.
- Sørensen, E., & Torfing, J. (2005). *Netværksstyring fra government til governance*. Frederiksberg: Roskilde Universitetsforl.
- Sørensen, E., & Triantafyllou, P. (2009). *The Politics of self-governance*. Farnham: Ashgate.
- Torbert, W. R. (1991). *The power of balance: transforming self, society, and scientific inquiry*. Newbury Park, Calif.: Sage.
- Torfing, J., & Sørensen, E. (2007). *Theories of democratic network governance*. Basingstoke: Palgrave Macmillian.
- Utdannings- og forskningsdepartementet. (2005). *Vilje til forskning: St.meld. nr 20 (2004-2005)*. Oslo.
- Wicken, O. (1992). *Forskningsdrevet industripolitikk i Norge 1945-1970*. Oslo: Norges teknisk-naturvitenskapelige forskningsråd.

Interview guide first round

1. Their Kongsberg experience
 - a. Work positions and other relevant commissions (?) in Kongsberg.
 - b. Main contributions to Kongsberg industry (and more).
2. Contact and activities in NCE-SE
 - a. Motivation and history for NCE-SE and their part in it.
 - b. How do they see NCE-SE's main objectives?
 - c. How do they describe their role, what are their aims and objectives for their organizations and themselves?
 - d. What do they see as the most important activities in NCE-SE today and in 5 years?
 - e. How do they evaluate the set-up of NCE-SE? How does this affect the performance and development of the organization?
3. The NCE-SE organization is a cluster facilitator. How do they see the cluster today and future development of it?
 - a. How do they respond to the description of Kongsberg in Arne Isaksens memo?
 - b. "Kongsberg is characterized by the lack of both cooperation and competition. This means that important cluster mechanisms do not function." Comments?
 - c. How and where do they see new industrial enterprises with potential in Kongsberg? How can NCE promote this?
 - d. What is the NCE-SE's role towards SME's? Which role can they play in the development in Kongsberg?
 - e. Diversity in Kongsberg?
 - f. Can NCE-SE act against any of its partners if the organization sees this as important for further development in the cluster?
 - i. BUC?
 - ii. The people in Kongsberg?
 - iii. SME's?
 - iv. The larger industrial enterprises?
 - v. Kongsberg Innovation, Kongsberg Chamber of Commerce and Industry, Major property developers in Kongsberg?
4. NCE-SE versus Kongsberg?
 - a. How can and should NCE-SE affect the Kongsberg (+) community?
 - b. Kongsberg is an engineer-city. What about diversity (non-industrial workspaces, gender issues, other industries)?
 - c. Is or should NCE-SE limit its scope to industrial development?
5. Who else should I talk to learn more?
 - a. Persons?
 - b. Institutions?
6. What would you like to be the results of my project as you see it?

Appendix 2: Nodes and cases

Name	Description	Folder Location
HiBu	HiBu direkte issues	Nodes\\Cases
Initiation of NCE	Case for første teorikapittel	Nodes\\Cases
KI AS	Saker som refererer til Kongsberg Innovasjon direkte	Nodes\\Cases
Kongberg kommune	Saker som referere til Kongsberg kommune spesielt	Nodes\\Cases
Kongsberg Stories	Grunnlag for industriell medvirkning	Nodes\\Cases
Kvinnesatsingen		Nodes\\Cases
MSE + NISE		Nodes\\Cases
New companies		Nodes\\Cases
VRI Buskerud	Samarbeid / referanser til VRI Buskerud	Nodes\\Cases
Agenda-setting and policy development		Nodes\\Free Nodes
Cheeky and impertinent	Identities	Nodes\\Free Nodes
Eventuelt saker		Nodes\\Free Nodes
Exclusion		Nodes\\Free Nodes
Fasilitator organisasjonen	Oppgaver sammensetning etc for fasilitator organisasjonen	Nodes\\Free Nodes
Gender-related		Nodes\\Free Nodes
governance networks		Nodes\\Free Nodes
KV-identity	Identity	Nodes\\Free Nodes
Lock-in effect in the region		Nodes\\Free Nodes
MSE og NISE		Nodes\\Free Nodes
National mandate	Identity	Nodes\\Free Nodes
Organisasjoner	Organisasjoner involvert i prosjektet	Nodes\\Free Nodes
Persons	Personer i NCE Kongsberg	Nodes\\Free Nodes
Prosjektoppgaver	Aksjoner i prosjektet	Nodes\\Free Nodes
relation to national policy		Nodes\\Free Nodes
RIS	Identity	Nodes\\Free Nodes
Size	Size used as description of the cluster/companies	Nodes\\Free Nodes
Success criteria	Kongberg satte suksess kriterier	Nodes\\Free Nodes
Taylorism		Nodes\\Free Nodes
The Engineering identity	Identities	Nodes\\Free Nodes
The Kongsberg patriot	Identity	Nodes\\Free Nodes

Name	Description	Folder Location
urban regime		Nodes\\Free Nodes
Accountability		Nodes\\Tree Nodes
Actions		Nodes\\Tree Nodes
Actors		Nodes\\Tree Nodes
Capability		Nodes\\Tree Nodes
Decissions	Decissions made	Nodes\\Tree Nodes
Directives		Nodes\\Tree Nodes
Experience based learning	Brunsson	Nodes\\Tree Nodes
Facilitating organization	The mother of all nodes	Nodes\\Tree Nodes
Failure	Actions that are seen as unsuccessful	Nodes\\Tree Nodes
Final diecissions without follow up or evaluation		Nodes\\Tree Nodes
Framing		Nodes\\Tree Nodes
Identity		Nodes\\Tree Nodes
Imitation	From other NCE's and others	Nodes\\Tree Nodes
Intelligence		Nodes\\Tree Nodes
Local initiative owner	Like partnership actors	Nodes\\Tree Nodes
Mandates		Nodes\\Tree Nodes
Meta-governance	Metagovernance mechanisms from model in theory chapter	Nodes\\Tree Nodes
Mother organization	Of the actors in the facilitating organization	Nodes\\Tree Nodes
National initiative owners	Like ND, KD, KR, IN, NFR, SIVA	Nodes\\Tree Nodes
Non actions	Deliberate decissions not to act	Nodes\\Tree Nodes
Norms		Nodes\\Tree Nodes
Ongoing	Actions still going on, planned or unplanned	Nodes\\Tree Nodes
Participation		Nodes\\Tree Nodes
Peer comparission	Peers infuence on meta-gov.	Nodes\\Tree Nodes
People		Nodes\\Tree Nodes
Policy	Policy directions after discursion in facilitating organization	Nodes\\Tree Nodes
Rationality		Nodes\\Tree Nodes
Resources		Nodes\\Tree Nodes
Rituals and symbols		Nodes\\Tree Nodes
Rule following		Nodes\\Tree Nodes

Name	Description	Folder Location
Standard		Nodes\\Tree Nodes
Storytelling		Nodes\\Tree Nodes
Successful	Actions that are seen as successes	Nodes\\Tree Nodes
Support		Nodes\\Tree Nodes
Talk	Issues discussed in and around the network	Nodes\\Tree Nodes
Talk and Action	The Brunsson circle	Nodes\\Tree Nodes

Appendix 3: Analysis model based on NVivo tree nodes

