The connective capacities of network managers

A comparative study of managerial styles in eight regional development projects in The Netherlands

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1. Introduction: managing complexity in governance networks

Management in complex governance networks has been a topic of much debate in literature of public administration and public management (Kickert et al, 1997; Meier & O’Toole, 2001; Sorensen & Torfing, 2007; Klijn et al, 2010a). Governance is most often used for situations where governments operate in a multi-actor situation and use horizontal ways of steering/governance (Rhodes, 1997; Pierre, 2000). A lot of attention has been paid to the functioning of governance networks as well as to the management of governance networks, and this has mostly been labeled as network management (Gage and Mandell, 1990; Kickert et all, 1997; Agranoff and McGuire, 2001). The basic argument of much of this literature is that, without adequate network management strategies, it is very difficult or even impossible to achieve interesting outcomes in these complex interaction processes. However, research on what factors contribute to good network management and how this affects outcomes has only just begun. This is also the case for the way in which network managers operate and how they manage complex interaction processes and how they influence outcomes from processes of collaboration and cooperation.

In previous articles, the authors have highlighted the importance of stakeholder involvement (Edelenbos et al, 2010), network management strategies (Klijn et al, 2010a) and trust (Klijn et al, 2010b) for achieving good outcomes, based on a large survey among respondents involved in environmental projects. The importance of network management has also been shown by Meier and O’Toole (2001, 2007). These large N data studies provide results of broad patterns found in multiple cases. Our previous
research indicated that network management is strongly related to achieving good outcomes. This also confirms the earlier findings of the case study research and the work of Meier and O'Toole (2001) as well as the work of others that stress networking (Walker et al, 2007) and embeddedness (Huang and Provan, 2007) and suggest that these are positively related to outcomes. Especially the management strategy ‘connecting’ (between government levels, actors, domains, and sectors) and the strategy exploring content turned out to be the most effective management strategies in complex governance networks (Klijn et al, 2010a; Edelenbos et al, forthcoming). But the various types of strategies also turned out to be connected. Thus, pointing at the implication that managers that use much of one type of strategy also use other types of strategies. That leads us to the assumption that we can witness managerial styles, that however cannot be traced by quantitative methods. The reasons for this are that we witness managers turnover that change the content of the style or changing contexts that ask for style changes of the same manager. Another argument for (additional) qualitative research is that we sometime see subtle differences in style that cannot be found by survey research.

In this contribution we want to explore managers styles, especially between what we call an autopoietic style that is focused applying closed boundary judgments and controlling external dynamics, versus a dissipative style that treats projects as more fluid, apply more open boundary judgments and focus on adjusting the project. We want to connect these management styles with the changes in managers that occur in projects and the project scope that is chosen. Subsequently, we want to explore the relation between these three characteristics and the project outcomes.

The structure of the remaining of this paper is the following. In section 2 we provide our theoretical framework. In this framework we go into network management and its main strategies. In section 3 we provide general background information on our eight cases, and we describe and analyze our cases in a comparative way. We describe and analyze who the managers are, what their backgrounds are, what the changes in management are and which boundary judgments managers make in terms of domain demarcations and project-context interplays. We end our paper with section 4 with main conclusions and discussion.

2. Theoretical framework and methodology

What is network management?
The concept ‘network’ is often used to describe public policy making and implementation through a web of relationships between government, business and civil society actors (Koppenjan and Klijn, 2004). Networks are associated with new systems for public policy deliberation, decision and implementation (Pierre and Peters 2000). They are based on interdependencies, but not necessarily equity, between public, private and civil society actors. A network perspective on public policy and management, does not focus on the single actions of a public actor, but on the joint actions of a network of actors. As such, it attempts to provide a tool for analyzing, but also for managing, contemporary governance processes (Scharpf, 1978; Rhodes, 1997; Mandell, 2001; Agranoff and McGuire, 2001). A number of terms have been coined to describe this management
activity, including metagovernance (Sorensen and Torfing, 2007), network governance and process management (Edelenbos and Klijn, 2006), but the most popular terminology that is in use is network management (Agranoff and McGuire, 2001; Gage and Mandell, 1990; Kickert et al, 1997; Mandell, 2001). The basic argument is usually that without adequate network management strategies, it is very difficult, or even impossible, to achieve interesting outcomes in these complex interaction processes. Interactions within the actor network may produce sharp conflicts about, for instance, the distribution of the costs and benefits of plans and projects.

The role of the manager from a network point of view is different and more equivalent to that of a mediator, a process manager or a facilitator. He or she brings people into contact with one another and is focused on enabling interactions and relationship building among actors in the network in order to develop and explore content and attempt to come to an agreement on joint content. Network management is in essence an inter-organizational activity (see Friend et al. 1974; Hanf and Scharpf 1978; Gage and Mandell 1990; Kickert et al, 1997). Network managers aim to initiate and facilitate interaction processes between actors (Friend et al., 1974), create and change network arrangements for better coordination (Rogers and Whetten, 1982; Scharpf, 1978), create new content by, for instance, exploring new ideas (Koppenjan and Klijn, 2004) and guiding interactions (Gage and Mandell, 1990).

Which management strategies do network managers employ?
A wide variety of possible network management strategies are mentioned in the literature on governance networks. In a previous publication we have developed a typology of these strategies (Klijn et al, 2010a). Four types of management strategies can be distinguished:

- content exploration strategies: network management is focused on broad exploration of actor perceptions of problems, solutions, and resources. From these explorations and collecting of information the manager tries to find possibilities for goal congruency;
- arranging strategies: network management is focused on creating (ad hoc) organizational structures and arrangements (for example boards, project group, etc.) in which actors come together;
- process agreements strategies: network management is focused on creating rules of the game and roles in the game for interaction, for example voting systems, conflict regulation, information gathering, etc.
- connecting strategies: network management is focused on developing relations between actors from different organizations through for example selective (de)activation and boundary spanning activities (connecting actors, scales, levels, domains, etc.).

The literature on networks (both case studies: Mandell, 2001; Agranoff and McGuire, 2003; Agranoff 2007, and larger N studies: O'Toole et al, 2007; Meier and O’Toole, 2001, 2008;) makes clear that governance networks are complex and emphasize that it is important to maintain good contact with other actors within the network. This network contact and ‘embeddedness’ are also stressed in various studies that utilize a social network analysis (Huang and Provan, 2007). O’Toole et al (2007) have shown that
networking is common among managers both in the US and the UK (see also Walker et all, 2007). Especially wicked problems require managers to maintain a wide variety of contacts in order to be able to connect with the necessary actors and to acquire information and opinions from them. Thus, managers will have a wider variety of and more intensive contacts with actors, but will also probably use more managerial strategies to deal with the problems so as to master the complexity of the decision-making process (Klijn et al, 2010a; Edelenbos et al, forthcoming).

In previous studies we have shown that in complex governance networks it is beneficiary for network managers to employ a large number of network management strategies (Klijn et al, 2010a). The general message from our analysis is that network management strategies are highly relevant to achieving satisfactory outcomes and the use of a mixture of content exploration, process agreement, arranging and connecting strategies is good for realizing satisfactory outcomes from governance networks. This research result is supported by other research (Agranoff and McGuire, 2003; Huang and Provan, 2007; Meier and O’Toole, 2001; 2003).

We discovered in our research that it does make a difference which network management strategies are employed in facilitation and guiding interaction in the governance network. Our research indicates that connecting but also content exploration has an (significant) impact on achieving good (process and content) outcomes (Klijn et al, 2010a). It can be concluded that the management of governance networks requires the timely inclusion of actors and playing with the content to search for interesting content for the involved actors that deal with the various problems at hand. In short managers must have connecting capacity, in connecting actors and ideas (Edelenbos 2010).

Also literature on ‘boundary spanning’ indicate that ‘connecting’ is an important management activity (Williams, 2002; Leifer and Delbecq, 1978; Leifer and Huber, 1977; Tushman and Scanlan, 1981; Robbins and Coulter, 2002). Boundary-spanners are strongly linked internally and externally, so that they can both gather and transfer information from outside their sub-unit and that the combination of internal linkages (in their own unit or organization) and external linkages (with other units or other organizations) makes up their perceived competence and determines their boundary role status (Tushman and Scanlan, 1981, p.84, 94, 96). Baker (2006) argues that boundary-spanners are relationship-makers and relationship managers. His critique is that scholars focus mainly on the attributes that these persons should possess in order to achieve this relational management capacity, but few attempts have been made to examine their activities throughout the development of organizational relationships using longitudinal case study evidence.

Further exploration of 'connecting capabilities' as a network management strategy
The character of wicked problems requires managers to maintain a wide variety of contacts in order to be able to connect with the necessary actors and to acquire information and opinions from them (Wildavsky and Tenenbaum, 1981; Mason and Mitroff, 1981; Koppenjan and Klijn, 2004). So connecting is an important network management strategy in complex wicked problems. Edelenbos et al (2009) argue that complex problems concerns many actors with different frames (multi actor), who act in different organizations in different domains, such as economy, environment, etc. (multi domain) and on different levels and scales - national, regional, local (multi-level and -
Especially complex regional environmental projects have a wicked nature (Klijn et al., 2010a), because several aspects are relevant such as nature development, water safety and retention, agriculture, infrastructure, recreation, etc.

Managers of complex governance networks concerning regional environmental projects have to make constant choices which aspects and domain to assess and to take along in the process. The choices demarcate the projects with respect to substance (which aspect and domains to involve?) and process (which actors to involve and which relation in the network to activate?). In other words: management choices lead to boundary judgments of the project system: "Through co-called 'boundary judgments', actors draw boundaries between what they consider to be relevant and what they do not" (Flood, 1999: 92). Through these boundary judgments network managers influence the inclusion and exclusion of actors (public, private, societal), domains (safety, environment, infrastructure, etc.), and frames (problems, solutions, and interests) in preparation, development, implementation and evaluation of complex projects and programs (Edelenbos et al., 2009).

These boundary judgments also concern choices in the relation between the project and its environment. Complex environmental project are embedded in public, private and social spheres (Edelenbos et al., 2010). Network managers make constant choices, implicit or explicit, in what they consider elements or actors of the projects and which fall outside project definition or its core and therefore are part of the context, the surroundings, of the project (Edelenbos et al., 2009). In this perspective one can speak of two types of dynamics: one that is coming from within the project, internal dynamics, and one that is originating from the context of the project, so-called external dynamics (De Bruijn et al., 1998).

In general two types of management styles can be distinguished with respect to the project-context interplay. One style, also called project management (Edelenbos and Klijn, 2009), is oriented on drawing clear and relative closed boundaries between the project and its context. A stable distinction between project and context give opportunities for managers to handle complex situations (Morcol, 2003; Luhmann, 1990). Managers operate quickly and decisive and try to steer the context in a certain directions. This type of manager acts with an autopoietic orientation (c.f. Cilliers, 2001; 2005). They apply stable and relative closed project system boundaries from within they develop and implement in a relatively isolated way. External dynamic is resisted, controlled and used for in managers' preferred directions.

The second type of management, also called process management (Edelenbos and Klijn, 2009), approach boundaries between project and its context as dynamic, fluid and permeable. From this open system view the manager is focused on using developments and dynamics from the context to positively influence the development and implementation of their projects (Teisman, 2005). The manager is alert for signals from the context and is focused on a co-evolutionary development between project and its context. In short, this type of managers acts with a dissipative orientation (c.f. Cilliers, 2001; 2005). The network manager is responsive to context dynamics, is not resisting it but he is adjusting to it and tries to make it productive for the development, implementation and evaluation of his project.
Research design and methodology

This paper is the result of a large comparative study conducted in the period 2007 till 2010 of eight regional development projects in The Netherlands. This study resulted in a book, written in Dutch, and published in 2010 (Van Buuren, Edelenbos & Klijn, 2010). In this research different topics were addressed: 1) stakeholder participation, 2) public private partnership, 3) multi-level government, 4) knowledge, 5) management, and 6) political legitimacy.

This paper reports on topic 5 of the study. Multiple case study analysis was the main research method. In total eight cases were researched in the field of regional development with a relation to water management (water safety, water retention). We conducted research on these projects for three years (from 2007 till 2010).

Empirical material was obtained by document analysis (historical analysis and reconstruction of the process) and face-to-face interviews with actors from different background, i.e. network managers, representatives of private companies, representatives of local, regional and national governments, citizens and residents, representatives of societal and issue groups, and environmental organizations and other types of NGOs.

3. Water management, managers and project scope: a comparison

As we have said in the introduction we have analyzed 8 complex decision-making processes about water management. In this section we start with a short empirical overview of the eight cases. Then we analyze which managers were involved in the eight cases from the start of the project till 2010 when we finished our research. We also look at the organizational background of these managers (local, regional, national government or private sector, for example consultancy organization). After that we describe and analyze the scope demarcations in the eight projects. Because we researched regional environmental projects we analyzed which domains were (not) involved in the project, such as water management, recreation, housing, etc.

However, before we start describing and comparing the eight cases, we first provide an overview of our eight cases in the table below. In this table we give general information and main characteristics of the eight cases.

Table 1: general information and main characteristics of the eight cases

<table>
<thead>
<tr>
<th>Project name</th>
<th>Location</th>
<th>Main objective(s)</th>
<th>Initiative</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent</td>
<td>Province of Gelderland</td>
<td>Water safety and landscape quality</td>
<td>National government (Rijkswaterstaat)</td>
<td>Policy preparation and decision-making</td>
</tr>
<tr>
<td>Bypass Kampen</td>
<td>Province of Overijssel</td>
<td>Water safety and landscape quality</td>
<td>Province</td>
<td>Policy preparation</td>
</tr>
<tr>
<td>New Water Line</td>
<td>Provinces of Utrecht, Gelderland, North-Holland, South-Holland and North-Brabant</td>
<td>Water retention, cultural-historical renovation</td>
<td>National governments (ministries of Agriculture and Education)</td>
<td>Policy preparation, decision-making and implementation</td>
</tr>
<tr>
<td>Noordwaard</td>
<td>North-Brabant</td>
<td>Water safety,</td>
<td>National</td>
<td>Policy preparation</td>
</tr>
</tbody>
</table>
The eight selected cases are intentionally spread over seven regions/provinces in The Netherlands, which consists of in total 12 provinces. These provinces are most active in water management and regional development activities because big rivers (Meuse, Rhine and IJssel) run through these regions. The table shows that all of these cases concerns an issue of water management (water safety, water retention), some in combination with other ambitions (such as economic development, urban expansion and landscape quality). Different actors take the initiative in these projects, national, local or regional governments, but the initiative is always in the hands of public organizations as in most water management projects in The Netherlands. Most of the projects involve more than one layer of government; in fact in many cases all three layers in The Netherlands (National, Province and Municipalities) are involved. The projects have been in different phases during our research. Most of the projects were in the phases of policy preparation and decision-making, some only in the preparation phase and one in the implementation phase. Most of the projects are currently (2010) in the implementation stage. The eight selected cases can be seen exemplary for the regional water development projects conducted in The Netherlands (Van Buuren, Edelenbos & Klijn, 2010). Most projects are large in scale, and have therefore a regional character. One project, New Water Line even runs through five different Dutch provinces.

**The operative managers**

Our first step is our comparative case study research is to describe the operative managers in different stages of the eight cases and to describe their organizational backgrounds. Table 4 gives an overview of the appointed managers in the eight projects.

<table>
<thead>
<tr>
<th>Projects</th>
<th>Managers and organizational backgrounds per time frame per project</th>
</tr>
</thead>
</table>
| Lent              | - 2001 till 2006: Van de Graaf and Beekmans (internal, Rijkswaterstaat)  
                    - 2006 till 2009: Koridon (internal, municipality Nijmegen)                                                                                                                                 |
| Bypass Kampen     | - 2003 till 2005: Pierik (external, consultancy bureau)  
                    - 2005 till 2009: Buskens (internal, province Overijssel)                                                                                                                                 |
| New Water Line    | - 2002 till 2006: Kalk (external, consultancy bureau) and Luteijn (internal, municipality)  
                    - 2007 till 2009: project bureau with several project managers (internal, national government Ministry of Agriculture) |
Table 2 shows that most projects have had different managers during different time frames of the projects. In a relative short period of time several managers succeed. Project Lake Wieringen scores highest in this respect: there have been even 4 project managers in a period of seven years. It seems difficult to survive as a manager in complex projects. A complex project is dealing with wicked problems of which different actors in the governance network have different perspectives, interests and values. These dynamics are not easily to manage and demand high capable managers. Project Zuidplaspolder, however, shows the opposite: during seven years the same project manager from the province is active.

Domain demarcations
How are these project demarcated? We considered project to have a broad demarcation if elements from different domains (water safety, infrastructure, housing, nature developments, economic revitalization etc.) were included and small if only one or two domains were included. We treat system demarcation as a result of interplay between many actors in the network. An overview of the domain demarcations in the eight cases is shown in table 3.

Table 3: domain demarcations in the eight projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Domain demarcations: demarcation degree (very small, small, average, broad, very broad domain demarcation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent</td>
<td>Very small domain demarcation: project is mainly focused on water safety (later also on housing)</td>
</tr>
<tr>
<td>Bypass Kampen</td>
<td>Very broad domain demarcation: project starts with focus on water safety, but soon evolves to other domains as nature development, agriculture, recreation, housing and infrastructure (road and rail)</td>
</tr>
<tr>
<td>New Water Line</td>
<td>Broad domain demarcation: the total project is focused on integral regional development (water, cultural-historic restoration, recreation, housing); several implementation projects, however, have small domain orientation due to the specific ambitions of local project implementers</td>
</tr>
<tr>
<td>Noordwaard</td>
<td>Broad domain demarcation: after initial small domain orientation on water safety, other domains are quickly involved in the project: agriculture, housing, nature development, recreation</td>
</tr>
<tr>
<td>Perkpolder</td>
<td>Broad domain demarcation: economic revitalization is combined with nature</td>
</tr>
</tbody>
</table>
development, recreation, housing and infrastructure

<table>
<thead>
<tr>
<th>Project</th>
<th>Domain Demarcation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waalblok</td>
<td>Small domain demarcation: project is focused on restructuring of business areas combined with water retention</td>
</tr>
<tr>
<td>Lake Wieringen</td>
<td>Broad domain demarcation: the focus is from the start on multifunctional area development: water, recreation, nature development, housing</td>
</tr>
<tr>
<td>Zuidplaspolder</td>
<td>Very broad domain demarcation: the project is integrally focused on restructuring of business areas, water retention, housing, nature development, and infrastructure</td>
</tr>
</tbody>
</table>

- very small domain demarcation: focus on one domain;
- small domain demarcation: focus on two domains;
- average domain demarcation: focus on three domains;
- broad demarcation: focus on four domains;
- Very broad demarcation: focus on five or more domains.

When we take a closer look at the eight projects we see that only one case (Lent) has a very small domain orientation (focus on water safety). One case (Waalblok) can be typified as small domain demarcation, because two domains were involved. Four cases can be characterized as 'broad demarcation' (Lake Wieringen, Perkpolder, Noordwaard and New Water Line). Two cases (Zuidplaspolder and Bypass Kampen) have a broad domain demarcation, because five or more domains were integrated. In general the water management projects have reasonable broad domain demarcations which mean that water is taken along with a number of other domains.

4. Managerial style in the projects

Which managerial styles do the managers in each of the projects chose. In other words how do they draw the boundaries if it comes to involved actors (is the project characterized by a large or a small network) how open are the processes for new actors and new ideas. We scored these dimensions for each project where 1 means that tight boundaries are chosen in the project and 5 broad boundaries are chosen. Thus 1 stands for what we called an autopoietic style, while 5 stands for what we called a dissipative style. With the scores we looked at the material of the cases, but the scores are also relative scores between the cases. Table 4 provides an overview of the managerial styles in the projects.

Table 4 Managerial styles (autopoietic or dissipative) in 8 projects

<table>
<thead>
<tr>
<th>Case</th>
<th>Number of involved actors in network</th>
<th>Openness to new actors</th>
<th>Openness to new ideas</th>
<th>Overall qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent</td>
<td>Small network if actors of mainly governmental parties (1)</td>
<td>Other actors are allowed entrance but limited possibilities to participate (2)</td>
<td>Very limited, other ideas were allowed (in the procedure) but did not receive the same amount of attention in the process assessment and decision making (2)</td>
<td>Predominantly autopoietic style of management (2)</td>
</tr>
<tr>
<td>Bypass Kampen</td>
<td>Initial small network later wide network when formal decision are taken network is becoming smaller again (3)</td>
<td>In phases very open to new actors but beginning and end more closed (3)</td>
<td>Relatively open to new ideas (beginning various scenarios, that were later adapted to include a scenario developed by citizens) (4)</td>
<td>Alternating between dissipative and autopoietic (3)</td>
</tr>
<tr>
<td>New Waterline</td>
<td>Number of actors for national master plan</td>
<td>Local organizing tend to be a bit restrictive while</td>
<td>Much attention for ideas in beginning, project</td>
<td>Alternating between</td>
</tr>
<tr>
<td></td>
<td>Large, attempts to do this also in separate projects (4)</td>
<td>The national program organization tends to be inclusive (3)</td>
<td>Group also tries to look for new ideas and connecting perceptions in local project, local organizers less open for ideas (3-4)</td>
<td>Autopoietic and dissipative (3-4)</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Noordwaard</td>
<td>Number of involved actors in beginning large, later bit smaller (4)</td>
<td>Beginning very open to new actors, later more closed (4)</td>
<td>Searching for new ideas and solution to realize water storage with as much as possible other functions (4)</td>
<td>Predominantly dissipative (4)</td>
</tr>
<tr>
<td>Perkpolder</td>
<td>Relatively limited number of actors, later on more open network (3-4)</td>
<td>Not very open for new actors during the process, societal stakeholders are involved later on but do not receive a prominent place (3)</td>
<td>Mixed: on the one hand there is focus on looking for new ideas to optimize the plan scope and the available budgets, but conditions are rather binding. (3-4)</td>
<td>Predominantly dissipative (3-4)</td>
</tr>
<tr>
<td>Waalblok</td>
<td>Fixed number of actors at the beginning, small network (2)</td>
<td>Not accessible for new actors (1)</td>
<td>Searching for innovative (mainly technical) ideas, within known range (3)</td>
<td>Predominantly autopoietic (2)</td>
</tr>
<tr>
<td>Lake Wieringen</td>
<td>Limited number of actors (public actors and private consortium) (1)</td>
<td>Relative closed to outside world (apart from a short period in the beginning) (2)</td>
<td>Relatively closed for new ideas. Emphasis on the original plan and attempts to realize as much of those ideas (1)</td>
<td>Strong autopoietic style of management (1-2)</td>
</tr>
<tr>
<td>Zuidplaspolder</td>
<td>From beginning large amount of actors, later still involved but slightly more in periphery (5)</td>
<td>Relatively open to new actors (4)</td>
<td>Relatively open to new ideas but less in the later phase (4)</td>
<td>Dissipative (4-5)</td>
</tr>
</tbody>
</table>

Scale: 1-5: 1=autopoietic and 5=dissipative

Table 4 shows that three projects (Noordwaard, Perkpolder, Zuidplaspolder) have a (predominantly) dissipative management orientation: the projects are being developed and implemented in close harmony and interplay with direct surroundings: the included set of actors is wide and managerial attitude towards new actors and ideas is open. Zuidplaspolder is the most clear example of this while Perkpolder is the least clear example of the dissipative strategy of the three. Three projects (Lent, Waalblok, Lake Wieringen) can be characterized as (predominantly) autopoietic: the projects block input and pressure from the context and develop the course relatively isolated from surroundings. Here Lake Wieringen is probably the clearest example despite the openness in the start of the process, and Waalblok the least clear of the three since there has been actively searched for new solutions. Two cases have a mixed picture (New Water Line, Bypass Kampen): dissipative orientation is alternated with autopoietic orientation of management.

When we compare table 3 and 4 we see a strong relationship between on the one hand domain demarcations of the projects and on the other hand the management approach in the eight projects. There are two projects with a (very) small domain demarcation (Lent and Waalblok), and these two projects have also an autopoietic management approach. We can derive from this that when managers keep the boundaries between their projects and the environment stable and relatively closed and the projects this approach leads to narrowing domain orientation. Fewer domains become involved in the development and implementation of the project, leading in the end to mono-
functional solutions for regional area development. The case Lake Wieringen does not fit into this picture. Management focus can be characterized as (predominantly) autopoietic, however domain demarcation can be called broad. This can be explained. Different from the other two cases, project Lake Wieringen is developed and implemented as a public private partnership. The private consortium, Lago Wierense, head for a multifunctional development of the region from the beginning. In their relative closed partnership a relative broad domain demarcation evolves.

A comparison between tables 3 and 4 also indicates the reversed pattern. Three projects (Noordwaard, Perkpolder, Zuidplaspolder) have a dissipative management approach and at the same time (very) broad domain demarcations. As the boundaries between project and environment are fluid and permeable, the projects are developed broadly where water safety and retention is coupled to different other spatial functions in the areas.

Two projects (Bypass Kampen and New Water Line), have mixed results with regard to management focus (dissipative and autopoietic). However the same pattern can be witnessed as in the three dissipative projects. We see in these projects that when open and fluid boundaries between project (organization) and environment are present in some phases of the projects, more domains get involved in the projects and broader demarcations around the projects are drawn. For example, in the project Bypass Kampen, at the beginning the projects starts with a more autopoietic focus, as the solutions are designed within the project group of civil servants (from the municipality and the province), and at that time the focus lies on housing nearby water sites. After resistance from the environment, from residents, NGOs and farmers, the project opens up, giving stakeholders more room to give input, the alternatives for regional development evolve in other directions and other interests come into play leading to a broader domain demarcation in which nature development, agriculture, infrastructure, etc. get a position.

Thus, we can conclude that the management approach seems to have strong relation with system demarcations of projects and on the integrality orientation in the projects.

5. Change in management and the impact on project-context interplay

A subsequent step in our case comparative analysis is to specify our previous research results by looking at the changes in management during the time frame of the eight cases. Does a discontinuity in management lead to changes in management approach? In table 5 we give an overview of the relationships between (dis)continuity of management and the used management approaches in the eight projects.

Table 5: the relationship between (dis)continuity in managers and project-context interplay

<table>
<thead>
<tr>
<th>Projects</th>
<th>Change in project management and change in management approach</th>
<th>Project and context definitions and interplays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent</td>
<td>The turn from internal management (Rijkswaterstaat) toward internal project management (municipality of Nijmegen) has no (major) implications in emphasizing the public interests of municipality, region and national governments.</td>
<td>The project remains defined as the cooperation structure between local, regional and national government. Stakeholders stay at a far distance from the project.</td>
</tr>
<tr>
<td>Bypass Kampen</td>
<td>The change in management from to external</td>
<td>The project is first positioned amidst</td>
</tr>
<tr>
<td>Project Area</td>
<td>Change in Composition of Project Management</td>
<td>Change in Context Emphasis</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>New Water Line</td>
<td>Change in composition of the project management bureau leads towards a change from vision development towards a more implementation approach. There is constant interplay between program and the single implementation projects (context).</td>
<td>No different project system boundaries between project and context are being drawn, but local public managers are more focused on their own interest and have no eye for the whole program.</td>
</tr>
<tr>
<td>Noordwaard</td>
<td>The turn in management from external towards internal project management leads in 2007 to a total different management approach, from dissipative towards autopoietic orientation. The interplay between project and context becomes less active and even stagnates.</td>
<td>At first (external manager) the project has a large overlap with the context. Context is part of the project. As the internal manager comes to the fore, the project boundaries get tighter and environment is decoupled.</td>
</tr>
<tr>
<td>Perkpolder</td>
<td>The change of management from internal project management (municipality) to external project management leads to a more open approach in which different actors and organizations are being involved and coordination with other projects is being realized.</td>
<td>The change from internal to external management leads to a broadening of the project system boundaries. Other projects and initiatives in the regional area are being integrated in the project ambitions.</td>
</tr>
<tr>
<td>Waalblok</td>
<td>No big changes in project management. After initial problems in getting an external project manager, municipality and water board both assign a project manager. They experience difficulties in coordinating their own organizational goals with interests from outside the project organization.</td>
<td>The project remains tightly defined. No real changes in project system boundaries, but in the end the representatives of the greenhouses are being involved, as the feasibility of the restructuring and water retention depends on their resources.</td>
</tr>
<tr>
<td>Lake Wieringen</td>
<td>A switch in management from external towards internal (province) leads towards an orientation to the cooperation between the two municipalities and the province on the one hand and the private companies from the private consortium on the other hand. The context is no longer involved.</td>
<td>First the project boundaries are defined broadly (external manager). Internal manager ‘corrects’ this by a drawing firm boundaries between project and context. Strong public private partnership at the expense of involvement of area stakeholders.</td>
</tr>
<tr>
<td>Zuidplaspolder</td>
<td>There is continuity and stability in project management. A balance management approach is realized in which the project is developed in close interaction and interplay with the context (inhabitants, private companies, environmental organizations, etc.).</td>
<td>Regional public management is focused on connecting with context. In different phases, different stakeholders (governmental, private, and societal) are involved, leading to frequent project-context interplays.</td>
</tr>
</tbody>
</table>

In general, this table shows that there is variety and discontinuity in the position of managers. Within the same project, they are now appointed from within the public organization that initiated the project, and then succeeded by external managers, and vice versa.

From this table we can further gather that a switch from external (consultancy bureau with experience with (process) management) to internal project management or vice versa has consequences for the approach in leading and managing the project. We see differences in boundaries judgments about project system boundaries between...
external and internal managers. An external manager is more focused on a dissipative management approach in which the project is co-evolving with the ambitions, interests and concerns that live in the context of the project. An exception is the case Zuidplaspolder. The external manager is more oriented towards the involvement of stakeholders as farmers, environmental organizations, residents, etc. On the other hand, the internal - public - manager is departing more from a substance assignment and is less inclined to see the project as an indissolubly part of the context of stakeholders and is therefore less willing and open to give meaning to the wishes and interests of stakeholders in developing her or his project. Overall the management approach has a more autopoietic character. However, public managers are more focused on governmental developing and sustaining governmental relations (between regional, national, and local government levels). Public and private make different boundary judgments, leading to (over)emphasizing governmental relations (within one organization or between different organizational levels) for public managers and (over)emphasizing stakeholder relations for private managers.

To illustrate this finding in bit more in detail, we discuss one case, Noordwaard, more extensively in which the change in managers and the switch in approach is clearly visible. In this project two managers are appointed in 2003, one external manager (consultant) who has experience with interactive and stakeholder approaches, and one internal manager (from within the national government, Rijkswaterstaat). The project ‘Noordwaard’ is a so-called ‘front runner project’ in the national government program ‘Room for the River’, in which innovative solutions for water safety issues (other than only reconstructing dykes) are being explored. Therefore, the two managers get a lot of space in coming to a solution which is supported broadly by regional and local stakeholders. The managers decide to develop and implement a process approach, in which as many as possible stakeholders are involved. The managers define their project broadly. "The working group and the office manager approved the approach. But I thought that they didn’t know what this exactly meant in practice. However, we got the go, and we started our interactive approach’ (Interviewee, 2008). They approached their project and the context as one inextricable whole. The managers extensively mobilized the knowledge, information and interests of stakeholders. Many workshops were organized in which problem definitions and frames of stakeholders were explored and alternatives were developed. As a consequence the context highly defined what the project Noordwaard would become. Their open approach resulted also in giving as much information as soon as possible. ‘This sometime raised questions within in our own departmental organization: “When do you go outside?” Our department was used to internally set course for a certain result and then to involve the environment (stakeholders), but now we turned this upside down with the risk that you come up with a result that you didn’t expect and were prepared for’ (Interviewee, 2008).

However, a turnover took place in 2007. The two managers were ‘taken of the case’. During the project it become more and more clear that the managers ‘back home’ (in the department) have different opinions about the process. The two managers experience difficulties to gain support for their dissipative management approach. ‘The process managers often walk with their heads against the wall of the boards’ (Interview, 2008). The people in the home organization of the ministry prefer rather cautious action
and are afraid to give early promises to the stakeholders in the region which you cannot keep.

A new project manager, from the department of Rijkswaterstaat, is assigned in 2007 who emphasizes internal coordination and is focused on risk avoidance. First a sound internal policy line has to be developed before stakeholders (the context) can be involved. Suddenly, communication is cut off. ‘Every decision must now first be tuned to a higher administrative level. There is no room anymore for the open, interactive approach’ (Interviewee, 2008). Long periods without contact, communication or interaction appear. The more autopoietic management approach has to do with the high degree of policy uncertainty with regard to outer dike residence. The new solution causes that many residents that were first living behind the dykes are getting to live outside the primary dyke. Little is know about the consequences with respect to rules for compensation, damage, compulsory purchase, etc. Project Noordwaard is a front runner in this respect, but at the same time causes fear of becoming a precedent for other cases in The Netherlands. National government is afraid for missteps with high consequences. This anxiety results in an autopoietic management approach. The public manager is more focused on their relationship with their project team members and with line organization in the Ministry of Infrastructure and Water Management.

We can conclude from this step in our case comparative analysis that there is much dynamics in the management of complex regional developments projects. Complex processes are characterized by high dynamics and this also in general applies for management. It is more an exception that one and the same managers are leading the project through its stages from preparation to implementation. Managers come and go, and also their organizational backgrounds are changing from internal (public organization) to external (private sector, consultancy). These changes lead to change in management focus, from autopoietic to dissipative and vice versa.

6. Outcomes in the eight cases

After our analysis of the managerial styles used in the eight projects we want to look at the outcomes of the projects. Evaluating outcomes in complex decision-making processes is not easy (see Klijn et all, 2010). First of all the outcomes of most of the projects are ‘mid term reviews’ since the projects are not finished. Moreover, judgments about project outcomes vary among participants and there is no good reason to pick one of the goals (even the goals of one of the involved public actors) as yardstick for measuring outcomes. This is even more difficult since processes in governance networks take a long time and are very dynamic thus a logical expectation may be that actors change their perceptions and appreciations as result of new information, interactions with other actors and changing (external) circumstances. For this reason do not take implemented plans as outcomes (since there are only a few) or achieved goals (which goals to pick?) but satisfaction of actors with the results and the process so far (see Koppenjan and Klijn, 2004). Table 6 provides the overview of the projects.

<table>
<thead>
<tr>
<th>case</th>
<th>Outcomes realized</th>
<th>Governmental actors</th>
<th>Private/commercia</th>
<th>Societal actors/citizens</th>
<th>Overall</th>
</tr>
</thead>
</table>

Table 6. Satisfaction with outcomes of various stakeholders.
<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
<th>l actors</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent</td>
<td>Political accepted (national and local government) master plan ready for implementation (2011)</td>
<td>National and regional governments (Ministry Transport, municipality Nijmegen and province): water safety, infrastructure (bridge) and city development (+)</td>
<td>Private parties (city developers) satisfied, although they at first they had another location for residential development in mind (+)</td>
</tr>
<tr>
<td>Bypass Kam pen</td>
<td>Master plan ready additional financial support from central government achieved. Preparing for final implementation plans</td>
<td>Majority of actors (municipalities, province, national departments) satisfied (++).</td>
<td>Not involved during process.</td>
</tr>
<tr>
<td>New water Line</td>
<td>Widely accepted and master plan, financial commitment of national government and province (35 million euro each). Half the master plan required.</td>
<td>Broad support among provinces and municipalities, but less urgency in other ministries (+)</td>
<td>Only limited involvement, not much possibilities to joint since there are not much commercial possibilities (+/-)</td>
</tr>
<tr>
<td>Noord waard</td>
<td>Accepted master plan (by national government and local governmental parties), implementation plans ready</td>
<td>All involved governmental actors (national department, province, municipalities) were very satisfied (++)</td>
<td>Private actors (recreational sector) were satisfied although they would like to see more space for strengthening the local economy (+)</td>
</tr>
<tr>
<td>Perk polder</td>
<td>Politically accepted master plan, first preparations for implementation are made</td>
<td>Satisfaction with main involved actors and initiators (province, municipality) (++)</td>
<td>Private actors satisfied by outcomes, but less by duration of process (+)</td>
</tr>
<tr>
<td>Waal blok</td>
<td>After a long process smooth implementation of the large water storage</td>
<td>Satisfaction of all involved actors about result slightly less about the process (+)</td>
<td>Private actors moderately satisfied by ultimate outcome (+/-)</td>
</tr>
<tr>
<td>Lake Wieringen</td>
<td>There is an implementation plan accepted by the province, and agreements signed with private consortium.</td>
<td>Satisfaction with province and one of the involved municipalities (Wieringermeer). Though, one municipality (Wieringen) in the end opposed the plan, because the rural character of the site was threatened (+/-)</td>
<td>Private consortium (developers, investors) was involved from the start and supported the plan, although were not satisfied with the incremental character of the process (+, +/-)</td>
</tr>
<tr>
<td>Zuid plas polder</td>
<td>Widely accepted master plans and resulting implementation plans (local zoning plans).</td>
<td>Almost all actors satisfied (both municipalities as environmental groups, farmers) (++)</td>
<td>Private actors satisfied but recent implementation plan (2010) failed (+/+-)</td>
</tr>
</tbody>
</table>
As we can see from the table the projects show mixed results. Four projects, Kampen by pass, Noordwaard, Perkpolder and Zuidplaspolder show satisfactory results. One projects show disappointing results (Lake Wieringen), while three projects show reasonable satisfaction (Waalblok, Perkpolder and New Water Line). As we can see three of the projects that show good results also are the projects with a more dissipative management style (Zuidplaspolder, Perkpolder and Noordwaard). The other successful project shows alternating between autopoietic and dissipative management style. The project with dissatisfaction (Lake Wieringen) also shows clear autopoietic management style. With the other projects the image is more mixed. Lent and Waalblok have a more autopoietic style while the new Water Line has a mixed managerial strategy. But in general the trend is that a more dissipative style is related to more satisfaction with the outcomes of participants.

7. Conclusion and discussion

In our previous large N study we found that managers with connective capacities, that can activate actors, explore and develop content and connect actors, are the most effective network managers (Klijn et al, 2010a; Edelenbos et al, forthcoming). Effective network managers undertake many connecting oriented management activities; they connect actors, domains, and sectors. This is in line with other research which emphasize the networking and embedding qualities of network managers (Huang and Provan, 2006; Meier and O’Toole, 2007; Williams, 2002). We wanted to explore this finding more extensively in qualitative research in which we compared eight environmental regional cases in The Netherlands. We looked at how managers made their boundary judgments and related this to managerial style, which we called autopoietic versus dissipative, with the domain demarcations of the project, the outcomes of the projects and the changes in managerial personnel.

Table 6 provides a general overview of the results from our comparative case study analysis.

Table 7: General overview: domain demarcation, project-context interplay and (dis)continuity in the composition of managers

<table>
<thead>
<tr>
<th>Domain demarcation</th>
<th>Project-context interplay</th>
<th>(dis)continuity in organizational background of manager</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent</td>
<td>Very small domain demarcation</td>
<td>Autopoietic</td>
<td>One shift from national government to local government</td>
</tr>
<tr>
<td>Bypass Kampen</td>
<td>Very broad domain demarcation</td>
<td>Dissipative and autopoietic</td>
<td>One shift from external manager to regional public manager</td>
</tr>
<tr>
<td>New Water Line</td>
<td>Broad domain demarcation</td>
<td>Dissipative and autopoietic</td>
<td>Change in emphasis from regional public to local public managers</td>
</tr>
<tr>
<td>Noordwaard</td>
<td>Broad domain demarcation</td>
<td>Dissipative</td>
<td>One shift from external manager to national public manager</td>
</tr>
<tr>
<td>Perkpolder</td>
<td>Broad domain demarcation</td>
<td>Dissipative</td>
<td>One shift from public local manager to external manager</td>
</tr>
</tbody>
</table>
A first conclusion from our research is that in general there are many changes in the composition and appointment of managers within single projects. Only in one case, Zuidplaspolder, there is management continuity during seven years. In all other cases, there is discontinuity of managers. In the case Lake Wieringen four managers in a period of four years ‘are consumed’. Interestingly this is also the case where the outcomes are least satisfactory. Managers get deliberately removed from the case as their bosses find that they are too much or too less oriented towards stakeholders or do not have certain abilities (for example contract signing with private companies). Complex projects demand managers with multiple qualities which is not easy to find in one person, so it seems.

Second we found that many projects we examined had a (fairly or very) broad domain demarcation. Many projects evolve by interrelationships between water safety, agriculture, nature development, infrastructure (road, rail), housing, and recreation. Even in the two cases with a relatively narrow domain demarcation involve other domains (in the case Lent urban development, and in Waalblok restructuring of greenhouses). We can conclude from this that complex regional development projects are compounded of character in which different related domains have to be involved in finding solutions. This is line with previous research (Klijn et al, 2010a).

We also found that domain demarcations are closely connected to the managerial style that is employed in the project. A dissipative approach means that a project is developed and implemented in close relationship with its environment (other actors, perspectives and interests). As a result a project is strongly associated with other ongoing projects in the vicinity, such as rail and road infrastructure, nature projects and housing (for example case Bypass Kampen), horticulture, nature, infrastructure and housing (for example case Zuidplaspolder) or habitat, coastal protection and housing (for example case Perkpolder). The opposite is also true: an autopoietic management approach, i.e. an approach where the project is not related and associated with developments and prospects in the context, quickly leads to a narrow(er) domain demarcation. We clearly found an impact of management approach and the way the project is shaped and implemented with respect to domains and context. When a manager is focused on and is able to make connections between "his or her project" with other ongoing and planned projects and current interests in the area, values and perspectives in the context of the project, a more integral project is evolving.

We already concluded that there dynamics in management positions within the projects. In this dynamics in persons we see at the same time a change in management focus and approach; several cases shift from dissipative to autopoietic management approaches and vice versa. Few projects have a continuous course. They evolve erratically. Often-times managers are assigned for a proper and sound project course. Our research shows that change in management is an important cause of the erratic course.
We see also a relation between these changes in the management approach at the one hand and the variance in organizational backgrounds of the managers on the other hand. We found that managers who originated from public organizations have a more substantial bias towards certain project results. These managers operate towards a certain result, and are less inclined to letting the project co-evolving with the environment of actors with different values, interests and perspectives. They demonstrate a more autopoietic management approach. The project is aiming for certain outcomes, and is blocking input and influence attempts from the surroundings of the project. An external manager, i.e. a manager with a background from consultancy specialized in project management, is more focused on extensive interplay between the project and its surroundings. This dissipative management approach is looking for spontaneous and self-organizing forces from the project’s contexts and tries to make use of these forces and developments.

And last but not least we find a relation between managerial style and outcomes. Most of the projects that show large satisfaction with stakeholders show also a dissipative managerial style. The reverse is less clear although the project that shows least satisfaction with the stakeholders on outcomes also have to most autopoietic management style.

In general we can conclude that network management is an important factor influencing project demarcations, the course and the outcome of projects. Moreover, it is a delicate process that benefits by some form of stability in who is implementing project management. Changes in management often results in loss of actor and relation investments. Management of complex networks is time consuming and needs investment in building trustworthy relations among actors in the network that needs nurturing and consolidation.

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