

Managers in governance networks: what to do to be effective?

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Jurian Edelenbos, Erik-Hans Klijn and Bram Steijn

Abstract

There is a lot of literature and research on network management strategies. From that research we know that managerial strategies do matter (Meier/O'Toole, 2001; Klijn, Steijn and Edelenbos, 2010), but there is not much knowledge about how network managers operate in governance networks and how specific types of managerial strategies work out. This paper explores the role of network managers in governance networks. It fits in the discussion about managerial strategies and their effects (see Meier and O'Toole, 2001, 2007; Agranoff and McGuire, 2003). It uses a large survey on respondents involved in environmental projects in The Netherlands. For this paper we use the data on network managers only, looking at some of their background characteristics, the management strategies they use and their effectiveness.

The research is based on a survey in 2006/2007 on respondents involved in environmental projects in The Netherlands (323 respondents, 111 of them being managers of the projects). They were asked questions about their background (years experience etc.), trust, about project characteristics, about network management strategies and outcome (both process and content outcome). Each of the respondents was asked to answer the questions with a specific project in mind.

Our research shows that more experienced manager achieve better outcome. Moreover, but to a lesser extent a more varied contact of the manager with actors in the network will lead to better outcome. But most important insight from this research is that network managers that employ a high number of management strategies in the management of the governance network will achieve better outcome. The number of strategies seems to matter most: a manager with a high number of strategies is effective.

Author information

Professor Dr J. Edelenbos (Department of Public Administration, Erasmus University Rotterdam, The Netherlands)

Professor Dr E.H. Klijn (Department of Public Administration, Erasmus University Rotterdam, and Visiting Professor at the School of Public Policy, University of Birmingham)

Professor Dr B. Steijn (Department of Public Administration, Erasmus University Rotterdam, The Netherlands)

Correspondence address

Erasmus University Rotterdam
Department of Public Administration
PO Box 1738
3000 DR Rotterdam
The Netherlands

E-mail: edelenbos@fsw.eur.nl; steijn@fsw.eur.nl; klijn@fsw.eur.nl;

1. Introduction: network managers

Modern societies problems are often complex and are tackled within networks of actors. Because problems require resources and cooperation and knowledge from a wide variety of actors, governance processes have become complex and have to be managed extensively. Today this is a commonly shared perspective in Public Administration.

The need for managing networks

Networks can roughly be defined as “more or less stable patterns of social relations between mutual dependent actors, which form around policy program and/or cluster of means and which are formed, maintained and changed through series of games” (Koppenjan and Klijn, 2004: 69-70). Crucial to the emergence and existence of networks are dependency relations between actors (Benson, 1982; Alter and Hage, 1993; Hanf and Scharpf, 1978). The resource dependencies require actors to interact with each other and create more intensive and longer enduring interactions (Laumann and Knoke, 1987; Alter and Hage, 1993).

The discussion about how to achieve socially relevant outcome in these networks is a prominent one in modern public administration. And it is not surprising that as a consequence there is a lot of attention to the functioning of governance networks but also to the management of governance networks mostly labelled as network management (Gage and Mandell, 1990; Kickert et al, 1997; Agranoff and McGuire, 2001). The basic argument of much of that literature is that without adequate network management strategies it is very hard or even impossible to achieve interesting outcome in these complex interaction processes. But the research to what factors contribute to a good network management and how this affects outcome has only just begun. And that is also the case for the way network managers function and influence outcome. This paper looks at network managers in environmental projects and how their behaviour relates to outcome in these networks.

This paper: exploring effects of network management

In this paper we explore the role of network managers in governance networks. We look at who they are, what network management strategies they use and under what conditions they are most effective. The research is based on a survey in 2006 that resulted in 323 questionnaires of respondents involved in environmental projects in The Netherlands. They were asked questions about trust, about project characteristics, about network management strategies and outcome (both process and content outcome). Each of the respondents was asked to answer the questions with a specific project in mind (which they also had to mention in the survey). Of these respondents 111 are reported to be the managers of these projects.

The research question of this paper is: What determines the effectiveness of managers in managing governance networks in the domain of environmental decision-making? In section 2 we deal with some basic assumptions about network management and the role of managers. We also suggest some hypotheses about when managers will be more effective based on the literature on network management. In section 3 we explain the research design. Section 4 presents some characteristics of the managers (who are they and what are their contacts) we look what determines their use of managerial strategies (experience, contacts background). In section 5 we turn our attention to which managers seem to be the most effective in reaching good outcome. We finish in section 6 with a conclusion and discussion.

2. Network management and network managers: some assumptions

As a result of the complex interactions, which by definition characterise networks, achieving

mutually agreeable outcome is not easy. During the interaction, sharp conflicts may emerge about, for instance, the distribution of the costs and benefits of a solution. But also the different perceptions of the involved actors on for instance the nature of the problems, the desired solution or the best organisational arrangements to use for cooperation can be a severe obstacle for achieving meaningful outcome that satisfy the involved actors. This makes the role of a network manager quite different from that envisaged in the standard textbook. In this section we deal with the role of the network manager, the available strategies he has and some expectations about his effectiveness that we can find in the literature. This leads us to the formulation of some hypotheses about the use of strategies and the effectiveness of a network manager.

The network manager

Since cooperation and the coordination of goals and interests do not occur on their own accord, it is necessary to steer interactions in policy games within networks. The (implicit) assumption in the literature is that a satisfactory outcome is often impossible without network management (Gage and Mandell, 1990; Agranoff and McGuire, 2001; Kickert et al., 1997). Almost all the literature on networks and inter-organizational management agree that the role of the network manager differs significantly from portrayals in standard textbooks. These present the image of an identifiable organisation, with clear hierarchy and goals and well defined management positions (Robbins, 1980).

Since the network manager is dependent on the resources of other actors and most of the time has at best limited authority over other organizations, he operates in a divided power structure (Bryson and Crosby 1992). Unlike standard accounts of managerial authority, the network manager simply does not have the position and authority to make unilateral decisions. This does not mean that there are no power differences or that power does not matter. From a network or inter-organizational perspective, the power of an actor depends on the range of resources available to him and the ways in which he is dependent on the resources of other actors (Scharpf 1978). The more the various actors are mutually dependent on each other's resources the more equal the power division in the network. But even powerful actors have limited authority since they have no direct authority regarding the way other actors use their resources.

Much of the literature on governance networks suggests that goal seeking constitutes a large part of decision and co-operation processes in networks (Forrester 1989, Mandell, 1990). It also often makes the goal structure of inter-organizational co-operations and decision making more like a 'menu', where different actors find interesting elements that suit their interests and capacities, rather than a unified common goal (Huxham and Vangen, 2005).

The role of the manager from a network point of view is equivalent to that of a mediator, a process manager or a facilitator. He or she brings people into contact with each other and is focused on enabling interaction and relationship building among actors in the network in developing and realizing a common goal or ambition. Network management is in essence an inter-organizational activity (see Friend et al. 1974; Hanf and Scharpf 1978; Lynn 1981; Gage and Mandell 1990; Kickert et al, 1997). Network managers aim at initiating and facilitating interaction processes between actors (Friend et al., 1974), creating and changing network arrangements for better coordination (Rogers and Whetten, 1982; Scharpf, 1978) creating new content by exploring new ideas for instance (Koppenjan and Klijn, 2004) and guiding interactions (Gage and Mandell, 1990).

Types of network management strategies and their impact

There is a wide variety of network management mentioned in the literature. If we want to look at what types of strategies have been used by managers we need a typology of these strategies.

Based on a review of the literature (see Gage and Mandell, 1990; O’Toole, 1988, Agranoff and McGuire, 2001; 2003) we distinguished earlier 4 types of network management strategies. Table 1 provides a summary (albeit a non-exhaustive one) of the types of strategies that have been identified, providing examples of each of the categories.

Table 1 Overview of process management strategies

Types of strategies	Process agreements	Exploring content	Arranging	Connecting
Main strategies mentioned in the literature	Rules for entrance into or exit from the process, conflict regulating rules, rules that specify the interests of actors or veto possibilities, rules that inform actors about the availability of information about decision-making moments, etc.	Searching for goal congruency, creating variation in solutions, influencing (and explicating) perceptions, managing and collecting information and research, creating variation through creative competition	Creating new ad hoc organisational arrangements (boards, project organisations, etc.).	Selective (de)activation of actors, resource mobilizing, initiating new series of interactions, coalition building, mediation, appointment of process managers, removing obstacles to co-operation, creating incentives for co-operation.

Connecting strategies like *the activation of actors or resources* are required in order to start the game. The network management literature stresses that the network manager has to identify the actors required for an initiative and actually create a situation in which they become interested in investing their resources. Scharpf (1978) calls this selective activation and states that the correct identification of necessary participants and the lack of opposition from other actors who possess the resources to block the initiative are crucial for inter-organisational policy-making. Sometimes, the manager has to try to deactivate actors because their involvement is not productive. The interactions within the game itself also have to be managed. This can be done by appointing a process manager, who invests time and energy in connecting the actions and strategies of actors to one another during the interactions.

Once the game has begun, strategies for exploring content are necessary *to clarify the goals and perceptions of actors* (Fisher, 2003) and to try to invest time and money in developing solutions that create opportunities for actors’ participation. However, the process is sometimes short of creative solutions to satisfy the various actors involved. In such cases, more variation is required, for instance by using different teams of experts who compete against one another to create solutions.

The managerial strategy *arranging* means setting (temporary) structures for consultation, interaction and deliberation, like project organization, communication lines, etc. (Rogers and Whetten, 1982). The transaction costs of these arrangements must be kept as low as possible (Williamson, 1996), but at the same time, the arrangements have to be acceptable to the actors involved.

Another important strategy mentioned in the literature are strategies of process agreements that draft temporary *set of rules for interaction* that structure the interactions and protect each actor’s core values (Koppenjan and Klijn, 2004). The rules can be seen as ground rules for behaviour and interaction in the network that the actors in the network (explicitly) agreed on.

Outcome in governance networks

If we want to look at which managers are more effective we need to conceptualize the notion of outcome in governance networks. There has been much discussion in the governance literature on how to measure outcome of complex decision-making processes in networks. The main conclusion is that measuring outcome is a difficult task. One of the reasons for this is that actors have different goals and it is thus difficult to pick a single goal by which to

measure outcome for these processes. Measuring outcome is also problematic because decision-making processes in governance networks are lengthy and the goals of actors are likely to change overtime. Goal displacement is the negative term for this phenomenon while learning is the positive term (see Koppenjan and Klijn, 2004).

Another problem encountered while conducting our research is that it is not possible to assess the 'objective' outcome (realized dwellings, infrastructure, time of decision-making, etc) of the wide variety of projects that were mentioned by the respondents. This problem has been addressed in this paper by using perceived outcome as a proxy for outcome and by using more than one criterion to measure them. This is in keeping with the fact that goals change and that actors have different views about the outcome. A distinction has been made between content outcome (the innovative character, cost efficiency, etc) and process outcome (managerial effort, support of the stakeholders involved). Other scholars on governance networks also use this distinction where, besides 'hard performance' criteria, a wide variety of other measures are mentioned for evaluation (Skelcher, 2007), including measurements that include stakeholder involvement and democratic anchorage (Klijn and Skelcher, 2007; Sorensen and Torfing, 2007).

The content outcome is characterized by a number of aspects derived from the literature on governance networks and network management. This body of literature mentions many aspects and elements to characterize the substance of results from governance processes. The first element that is used here is the innovative character of outcome. This is the way in which the project showed innovative results (c.f. Nooteboom, 2002). The second element is the integrative aspect of the solution, i.e. the way in which the plan represents different environmental functions (housing, recreation, etc.) (c.f. De Jong and Edelenbos, 2007). The third element is the recognizable contribution made, which refers to the impact of the involvement of the stakeholders in the decision-making process (c.f. Edelenbos and Klijn, 2006). The fourth element is the problem-solving capacity of results. This is the extent to which the solutions really address the problem (c.f. Innes and Booher, 2003). A fifth element that is identified in the literature is the robustness of the results, i.e. the future robustness (time frame) of the results (c.f. Koppenjan and Klijn, 2004). The sixth element is the relationship between the costs and benefits of results from governance networks. This element ensures that the costs of the plan do not overrun the benefits of a project (c.f. Mantel, 2005).

Process outcome can also be characterized by a number of different elements that also have been mentioned in the literature on governance networks and network management. The first is the management of the governance network, which refers to the level of satisfaction of the ways in which actors are involved in the project (c.f. Meier and O'Toole, 2001). The second element is conflict resolution, i.e. the way in which conflicts have been averted and/or solved (Süsskind and Cruikshank, 1987). The third element identified in the literature is the extent to which the process has encountered stagnations or deadlocks (c.f. Van Eeten, 1999). The fourth element is the productive use of differences in perspectives. This is the way in which differences in frame and perspective have been reconciled (c.f. Koppenjan and Klijn, 2004). The fifth element is contact frequency, i.e. the frequency of interactions between actors (c.f. Meier & O'Toole, 2001). Finally, the sixth element is the support for results coming from governance networks. This refers to the extent to which stakeholders are satisfied with the results achieved (c.f. Koppenjan and Klijn, 2004).

Trust as an outcome

Trust can be considered as a specific characteristic of networks. Actually one can even say that actors engage in networks to build trust between other actors from whom they are interdependent (see Klijn, 2010). But trust can also be considered as something which should be fostered and enhanced by managerial behavior which is the way we will treat trust in this

paper. (Edelenbos and Klijn, 2007). A carefully and thoughtfully designed and implemented governance process will lead to an increase of trust among the involved actors (Parker and Vaidya, 2001). Trusting another actor means that one is willing to assume an open and vulnerable position. One expects the other actor to refrain from opportunistic behavior even if the opportunity for it arises without having any guarantee that the other party will indeed act as expected (Deakin and Michie, 1997; Deakin and Wilkinson, 1998). Thus, the actor believes and expects that the other actor will take both actors' interests into account in the interaction (Rousseau et al., 1998; Nooteboom, 2002). When the manager succeeds in keeping opportunistic behavior out of the collaboration process this will stimulate the development of trust in each other. The manager makes the different interests and perceptions of stakeholders visible and transparent throughout the process and in this seduces the stakeholders to not only take their own interests into account, but also that of other actors in the governance network.

Issue complexity, actor contacts and management strategies

The crucial question, of course, is how managerial strategies influence policy decisions and outcome in governance networks and, more specific for this paper, what determines the effectiveness of managers in their management of the governance network? Although a lot of research on governance networks has been done thus far, this question has not really been addressed extensively until now. Especially studies that use larger data sets (mostly surveys) are scarce (but not completely absent; see, for example, Meier and O'Toole, 2001, 2007).

One thing is clear from an observation of the large amount of, and ever growing, literature on networks (both case studies and larger N studies) – that governance networks are complex and include many different actors. Most of the literature on governance networks, whether case studies (see Mandell, 2001; Agranoff and McGuire, 2003; Agranoff 2007) or larger N studies (see for instance O'Toole et al, 2007; Meier and O'Toole, 2001, 2007), tend to emphasize that it is important to have good contacts with other actors within the network. This network contact and 'embeddedness' are also stressed by various studies that utilize a social network analysis. They show that this embeddedness is important for achieving outcome (see, for instance, Huang and Provan, 2007; Kenis and Oerlemans, 2008) or achieving innovation (see Considine et al, 2008). O'Toole et al (2007) have shown that networking is common among managers both in the US and on the European continent, if the UK, where the sample was taken from, can be taken to be representative of the entire European continent (see also Walker et al, 2007). This suggests also that is important for managers to have a wide variety and a large intensity of contacts. This facilitates their knowledge.

In the literature it is often also stressed that networks are about wicked problems, e.g. problems that are more complex because many actors are involved who have different views of the problem (Wildavsky and Tenenbaum, 1981; Mason and Mitroff, 1981; Koppenjan and Klijn, 2004). The character of wicked problems probably requires managers to a wide variety of contacts to connect with the necessary actors and acquire information and opinions of them. Thus, when the policy problems that are at stake are more difficult managers, will have wider and intensive contacts but also probably use more managerial strategies to deal with the problems to master the complexity of the decision-making process and achieve interesting outcome. This leads us to a first hypothesis, which consists of three elements):

Hypothesis 1: If the problem dealt with in the network is more complex,

- a) network managers will have more contacts with a variety of actors (variety of contacts)*

- b) *network managers will have more intensive contacts with actors in the network (intensity)*
- c) *network managers will employ more network management strategies.*

Variety and intensity of contacts and outcome

But the variety and intensity of managerial contacts will probably also have effect on outcome. Agranoff and McGuire (2003: 123) conclude in their study on how city officials work with other layers of government and organizations to develop their city economics: “From the perspective of the city government, there is not one cluster of linkages to manage but several clusters- some horizontal some vertical, and some that include both within a context of a single project or program”. This statement is very much in line with the scarce large N studies on network management and outcome of governance networks. Huang and Provan (2007) have shown that network involvement, or network embeddedness, is positively related to social outcome. Meier and O’Toole (2001), in their well-known studies on educational districts in Texas, have shown that networking by district managers is positively correlated with the performance of the district. This leads us to hypothesis 2 and 3:

- *Hypothesis 2: managers with a larger variety of contacts achieve better results than managers with a smaller variety of contacts*
- *Hypothesis 3: network managers with more intensive contacts with other actors in the network will achieve better results than network managers with less intensive contacts*

The experience of managers and outcome

Network management is a difficult job that requires a lot of effort, interaction and commitment. It also requires the manager to know his network. Authors mention a wide variety of skills that managers have to master (Gage and Mandell, 1990; Kickert et al, 1997; Agranoff and McGuire, 2001; Mandell, 2001) like:

- First of all, a network manager needs *analytical skills* so that he can comprehend and fathom a complex network of actors with different sorts of relations, perceptions of problems, solutions, etc (Koppenjan and Klijn, 2004).
- Second, he must have some *substantive knowledge* of the issues dealt with in the network and knows his way around in the network. This involves being able to ask the right questions without personally having to come up with the right answer and understands the way the network is structured (Forrester, 1989; De Bruijn *et al*, 1998).
- Third, a network manager must have *the ability to make a workable and authoritative design* for network interactions. He must be able to use the network analysis to construct a design (with process agreements) for the network interactions (Koppenjan and Klijn, 2004).
- Fourth, he must have the *skills to estimate, choose and implement the right network strategies* (Kickert et al, 1997; Agranoff and McGuire, 2001).

Experienced network managers probably better suited to perform this task. We would expect experienced managers to do better in terms of outcome. Other authors already showed that personnel stability is good for outcomes (see O Toole and Meier, 2003). This leads us to our fourth hypothesis:

- *Hypothesis 4: experienced managers achieve better results than less experienced managers*

Management activity and outcome

Managers with a high management activity will employ more network management strategies, like arranging, exploring, connecting and making process agreements. In table 1 different management strategies and activities are shown. A manager who is very active in the governance network in his management put more effort in bringing actors together, exploring perceptions and connecting interests and perceptions together. It is likely to assume that a manager with a high number of employed strategies in the governance network will achieve better outcome. Therefore we formulate our final hypothesis as follows:

- *Hypothesis 5: managers with a high number of employed strategies will generate better outcome*

3. Research design: survey on outcome and management strategies

The analysis in this article is based on an Internet survey held in 2006-2007 among respondents involved in environmental projects in the Netherlands. The problem with surveying a population like this is that a list of all environmental projects in the Netherlands obviously does not exist – let alone a list of all the respondents involved in these projects and the networks surrounding them. In order to acquire the addresses of people involved in environmental projects, the database of a large knowledge organisation in The Netherlands called ‘Habiforum’ was therefore utilized. This is a knowledge network in which professionals from the environmental domain participate. It was established in 1999 and incorporates practitioners (from the government, NGOs, water boards, project developers and builders, etc), scientists and consultants (most of who are actually involved in environmental projects).

These environmental projects that are part of the survey are projects where environmental issues are handled, like realising or restructuring build environment (restructuring neighbourhoods, realising new dwellings), water management, business areas, green projects or projects where combinations of these issues are dealt with. More information on the population and survey can be found in the appendix.

Environmental projects as governance networks

There is also the question of whether these environmental projects match the characteristics of governance networks that have been mentioned in the literature (many actors, frequent interaction between the actors, a certain stability (networks have existed for some time), complex decision-making and wicket issues). As has already been indicated in the introduction, there is much evidence that they can be regarded as governance networks:

- *Many actors and frequent contact* (see Gage and Mandell, 1990; Agranoff and McGuire, 2001; Koppenjan and Klijn, 2004); the average number of actors whom respondents have contact with is 12,69. The standard deviation is 4.73, which is considerably high. This is mainly due to the fact that there are a few respondents with very few contacts. However, 90% of the respondents do have regular contact with at least 6 or more actors and 55% with at least 12 or more actors. The frequency of contact is also fairly high. On average one has about once in two months contact with each actor in the network, with however a considerable standard deviation (2.35). There is a statistically significant negative correlation between variation of contacts and intensity of contacts ($r = -.22$), which implies that managers with more contacts spend less time on each contact in their network.
- *Existence and stability over time* (Kickert et al, 1997; Agranoff and McGuire, 2003; Meier and O ‘Toole, 2001, 2007); the average amount of time taken to complete the project is more than 10 years. Most respondents filled this in as a projection, however,

and it is widely known that projects often take longer to complete than estimated. This means that there are enduring networks here;

- *Complex issues* (Koppenjan and Klijn, 2004; Sorensen and Torfing, 2007); Most of the projects involve various environmental functions, which make the decision-making process complex.

Thus, based on the evidence above, it can be concluded that these environmental projects and governance networks can be appropriately considered for this research.

Project and respondent characteristics

The respondents were asked questions about several topics, including trust, project characteristics, management strategies, (perceived) outcome and the involvement of stakeholders and political parties in the decision-making process. Not all the items in the questionnaire are analyzed in this article as noted above. Each respondent was asked to answer the questions with a specific environmental project in mind.

In terms of the demographics of the respondents and the projects they were involved in, they were predominantly male (87.4%), middle-aged (on average 49,5 years old) and highly educated (81.1% hold a university degree). They had, on average, 13.28 years experience with environmental projects.

Next, the conceptualisation and measurement of the main variables included in the analysis to test the hypotheses will be explored. Table 4 provides a brief overview of the measurement of the main variables. A more detailed description can be found in the appendix.

Table 2. Brief descriptions of the measurement of the main variables

Variable	Nature	Conceptualization and measurement
Outcome (divided into content and process outcome)	Dependent variable	Measured by 6 items that were added and divided by 6 to construct two scales ranging from 1 to 5.
Trust	Dependent variable	Five items, frequently used in literature on trust. Items were summed and dived by 5
Project complexity	Control variable	Number of different activities (housing, road development, etc) ranging from 0 to 6.
Number of employed management strategies	Independent variable	16 items measuring managerial activities divided into four subcategories (arranging, process agreements, connecting, exploring content). A summation of the 16 items was used as a measure of the number of strategies.
Phase of project	Control variable	Measured by several types of activities performed in the project.
Parent organization of respondent	Control variable	Organizational background of respondent
Variety of contacts	Independent variable	Number of other actors, chosen from a list of 24 possibilities by the respondent, with whom members of the organization the respondent have contact
Intensity of contacts	Independent variable	Average contact intensity per actor – based on previous variable – with members of the organization the respondent have contact with

4. Network managers and their strategies

We first direct our attention to the managers and the number and type of network management strategies they use. For that we take a closer look at the actors that employ these strategies: the network managers.

Complexity, contacts managerial strategies

We first turn to our first hypothesis:

Hypothesis 1: If the problem dealt with in the network is more complex, a) network managers will have more contacts with a variety of actors (variety of contacts) b) network managers will have more intensive contacts with actors in the network (intensity) c) network managers will employ more network management strategies,

To test these hypotheses, we conducted a regression analysis with contact variety, contact intensity and number of employed strategies as dependent variables, and project complexity and experience as main independent variables. Parent organization and project phase are also included in the analysis as control variables. Table 3 give the results of these analyses.

Table 3 Results of OLS regression analysis with contact variety (N=96), contact intensity (N=96) and number of employed strategies N=87) as dependent variables

	Contact variety	Contact intensity	Number of employes strategies
(Constant)			
parent organization of respondent (national civil servants =reference category)			
local civil servants	-.08	-.22	-,22
private sector respondents	-.25	-.26	-,44
Others	.03	-.33*	-,10
project phase (preparation phase = reference category)			
developmental phase	-.20	.18	-,06
building phase	-.05	.14	-,01
Maintenance phase	-.07	-.04	,09
Years of experience	.17	.15	.27*
Complexity of project	.21*	-.11	-.02
	R ² _{adj} = 0.04	R ² _{adj} = 0.05	R ² _{adj} = 0.06

* p < 0.05 ** p < 0.01

The information in table 3 shows us that the complex nature of a project is not correlated to contact intensity and number of employed strategies. We therefore can reject hypotheses 1b and 1c. We see, however, that if the problem dealt with in the network is more complex network managers will have more contacts with a variety of actors. Hypothesis 1a can be accepted, however we have to be very cautious with this result because the R² for variety of contacts is very low (0.04).

Another interesting research result can be seen. We see that there is significant relation between years of experience and number of employed strategies. So an experienced manager seems not to have a higher number of contacts nor more varied contacts, but learns in time to develop a higher amount of network strategies. Again the R² is very low (0.06).

In table 4 we take a closer look at the relations between the three variables number of contacts, intensity of contacts and number of employed strategies.

Table 4. Correlations between three main 'managerial variables'

	Variety of contacts	Intensity of contacts	Number of strategies
number of contacts	1		
Intensity of contact	-.22*	1	
number of strategies	0,29*	0,04 (ns)	1

* $p < 0.05$ ** $p < 0.01$

We see from table 4 that there is a negative relation between number of contacts and the intensity of contacts. So a higher variety of contacts leads to a lower intensity of contacts. The contact of the manager with the actors is more superficial and less intense. Moreover, there is a significant relationship between the variety of contacts and the number of strategies. A manager has to employ more network strategies to maintain the governance network.

5. Managers and their effectiveness?

We now turn to the testing of hypotheses 2, 3, 4 and 5, which will be done in two regression analyses with trust, process and content outcome as dependent variables, the number of contacts, intensity of contacts, number of employed strategies and experience as independent variables, and background, phase of the projects and complexity of the project as control variables. These two concluding hypotheses were the following:

- *Hypothesis 2: managers with a larger variety of contacts achieve better results than managers with a smaller variety of contacts*
- *Hypothesis 3: network managers with more intensive contacts with other actors in the network will achieve better results than network managers with less intensive contacts*
- *Hypothesis 4: experienced managers achieve better results than less experienced managers*
- *Hypothesis 5: managers with a high number of employed strategies will generate better outcome*

To test these 4 hypotheses, we conducted a regression analysis with trust, process outcome and content outcome as dependent variables, and experience, complexity of the project, variety of contacts, intensity of contacts and number of employed strategies as main independent variables. Parent organization and project phase are also included in the analysis as control variables.

First we show the regression analysis without number of employed contacts as independent variable (table 5) and then with this variable (table 6) as a stepwise regression.

Table 5 Results of OLS regression analysis with trust (N=93), process outcome (N=85) and content outcome (N=85) as dependent variables.

	Trust	Process outcome	Content outcome
(Constant)			
parent organization of respondent (national civil servants =reference category)			
local civil servants	,580*	-,247	-,252
Private sector respondents	,371	-,301	-,310

Others	,188	-,292#	-,239
project phase (preparation phase = reference category)			
developmental phase	,063	,011	-,028
building phase	-,032	-,140	-,278*
maintenance phase	,015	,079	-,026
Years of experience	,247*	,215#	,227#
Complexity of project	-,121	-,172	-,050
Variety of contacts	,212#	,105	,199#
Intensity of contact	-,018	-,080	-,095
	$R^2_{adj} = 0.07$	$R^2_{adj} = 0.04$	$R^2_{adj} = 0.08$

$p < 0.10$ * $p < 0.05$ ** $p < 0.01$

In this first step we see managers from the local municipality have a significant relation with trust. It seems that these managers are able to develop trust in their projects. An explanation is not easy to find, or it could be that local managers are maybe more attached (or even dedicated) to the projects and therefore are able to generate more trust. But this needs further research. We also see a positive significant relation between content outcome and the project phase building phase; this is not surprising because the building phase of environmental projects leads to concrete results. In this phase the results become visible (if it is organized properly).

The years of experience of the manager seems also to matter. It has a positive relation with trust ($p < 0.05$) and with process and content outcome ($p < 0.10$). Variety of contacts has a significant relation with only trust and content outcome ($p < 0.10$). Intensity of contacts doesn't seem to matter in this analysis. We have to be cautious with the results, however, because the R^2 is very low. Weak ties matters more than strong ties between actors in the network.

When we look at the second step in the regression analysis (table 6) in which the variable the number of employed strategies have been enclosed, we see other research results evolve.

Table 6 Results of OLS regression analysis with trust (N=85), process outcome (N=82 and content outcome (N=81 as dependent variables.

	Trust	Process outcome	Content outcome
(Constant)			
parent organization of respondent (national civil servants =reference category)			
local civil servants	.674*	-.163	-.109
private sector respondents	.506#	-.163	-.177
others	.216	-.297*	-.191
project phase (preparation phase = reference category)			
developmental phase	.125	.074	.043
building phase	-.037	-.100	-.304*
maintenance phase	-.014	.043	-.070
Years of experience	.216#	.158	.243*
Complexity of project	-.131	-.178#	-.040
Variety of contacts	.069	-.105	.061
Intensity of contact	-.043	-.147	-.096
Number of employed strategies	.387*	.564*	.304*
	$R^2_{adj} = 0.22$	$R^2_{adj} = 0.33$	$R^2_{adj} = 0.17$

#p < 0.10 * p < 0.05 ** p < 0.01

Table 6 shows us that variety of contacts doesn't show any significant relationship anymore with trust or content outcome (compared to table 5). Intensity of contacts also has no relation with trust, content and process outcome. Therefore we can reject hypotheses 2 and 3.

We also see that in the experience still has some significant relationship with trust and content outcome. Therefore we still have reason to sustain hypothesis 4. The experience of the manager seems to matter for trust and content outcome, but not for process outcome.

In this regression step we can see that the number of employed strategies has a strong positive relationship with trust, process outcome and content outcome. Therefore we can accept hypothesis 5: managers with a high number of employed strategies will generate better outcome. The number of employed strategies seems to turn out the most important factor for network outcome.

6. Conclusion and discussion

What makes a network manager effective in managing governance networks? To address this question we developed a number of hypotheses in which different aspects of management were taken into account. Is it the experience of managers, is it the variety or the intensity of contacts the manager has with actors in the network? From our research we can draw the conclusion that it is the number of employed strategies of the network manager that turns out to be the most important factor in realizing outcome from governance networks. A manager who is employing many strategies in the network is most successful in realizing good outcome. It leads to trust, to substantive results (for example innovation) and to process results (for example a smooth process of cooperation). Experience of the manager also turns out to be important, as well as the variety of contacts of the manager with people in the network. However, when introducing the variable 'employed strategies' the importance of these two factors dissolves. This research provides new insights in management of governance networks with respect to earlier research (see for example O'Toole and Meier, 2001, 2007) that does find a relation between experience and effectiveness. Also the number of contacts ('intensity of contacts') seems to be of less importance, contrary to earlier research (O'Toole and Meier, 2001).

However, we have to be careful in making generalizations out of our research. First, this study has a focus on specific kind of governance networks; they are all concerning networks in the field of environmental decision-making. These results cannot automatically be assumed to also hold for other types of public projects or policy domains, such as service delivery (Meier and O'Toole, 2001). Second, the research has been conducted in The Netherlands, and the projects are all Dutch. Results may differ in other countries with different decision-making cultures. A cross-national research has to be conducted of different projects in different contexts and policy domains in order to be more decisive about the important factors in network management.

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Appendix: Conceptualising and measuring the variables

This section provides a more detailed description of the survey and conceptualization and measurement of the variables that are used in our analysis.

Population and survey

Table 2 describes the population used for the survey, and the number of respondents who have returned a usable questionnaire.

Table 1. Population and Survey

Number of people on Habiforum List (after removing researchers)	1592
Returned questionnaires	547
Analyzed questionnaires	323
Respondents with a managerial position	111

The original list contained 1592 names (after removing university researchers, since the interest was only in practitioners). E-mail was sent in November 2006, with a (secured) link to a webpage containing the questionnaire. It was known beforehand that this list included many people with only a broad interest in spatial projects and without ‘real’ involvement in such projects. Therefore, one of the first questions in the questionnaire was about a specific project the respondents were involved in. It was meant to select only those respondents who are really involved in these projects. In total, 547 completed questionnaires were returned. Many of these, however, were incomplete.¹ In fact, 188 people did not provide any information about a project they were involved in, and quit the survey after the questions about these projects began to be asked. Many of these respondents indicated in an open question that they were in fact not involved in such a project. These respondents were therefore deleted from the database. Another 36 respondents were also removed, because they were missing on most of the variables. This left 323 respondents who answered most of the questions in the questionnaire and indicated that they themselves were involved in environmental projects.

In relation to the number of e-mails sent, the response rate can be estimated to be 21%, although in relation to the number of people who are involved in environmental projects this response can be estimated to be substantially higher. The number of 188 incomplete questionnaires is an indication of the actual population, the following rough estimation of the actual response can be made: Of the 547 returned questionnaires, 188 or 34% are missing. If this same proportion holds for the total sample, then the actual number of people involved in environmental projects is 1056 ($.66 \cdot 1600$). If this assumption is true, the actual size of the response is about 33% ($347/1056$). It is possibly even higher, as people not involved in environmental projects will probably not have bothered to take part in the survey

The above implies that care must be taken in interpreting the data, as: a) the actual population of people involved in environmental projects is unknown and b) it is therefore impossible to find out whether the response is representative of this population. However, there is reason to believe that this sample provides a reasonable overview of all environmental projects in the Netherlands (see note 2).

The survey included two questions about the position of the respondents in the project. It was asked a) whether there was a ‘formal’ manager, and if so, whether the respondent was that manager of the project, and b) which role the respondent had within the project. One of these roles was ‘managing the project’. Respondents, who indicated that they were the manager of the project or managing it, are defined in this paper as belonging to the subsample of managers. This holds for 111 of our 323 respondents.

Conceptualizing and measuring outcome: process and content outcome

Table I provides an indication of these two dimensions of outcome and the (five category Likert) items that were used to measure them.

Table 2. Measurements of outcome

Content outcome	Items
1. innovative character	Do you think that innovative ideas are developed during the project
2. integral nature of solution	Do you think that different environmental functions have been connected sufficiently?
3. involvement of actors (content)	Do you think that in general the involved actors have delivered a recognizable contribution to the development of the results?
4. effectiveness solutions	Do you think that the solutions that have been developed really deal with the problems at hand?
5. effectiveness in the future	Do you think that the developed solutions are durable solutions for the future?
6. Relation costs and benefits	Do you think that - in general - the benefits exceed the costs of the cooperation process?
Process outcome	Items
1. level of management	Do you think that the involved actors have contributed substantively to the management of the project?
2. conflict resolution	Do you think that conflicts and differences of opinion have been solved adequately during the project?
3. deadlocks	Did you witness any disturbing deadlocks during the project?
4. productive use of differences	Do you think that the involved actors have made use of the existing different perspectives and insights (among the actors) in an adequate way with regard to solutions and problems in the project?
5. contact frequency	Do you think that the involved actors had frequently contact with each other during the project?
6. support	Do you think that the results from the project can expect the support of the involved actors?

The Cronbach's alpha of the six items measuring process outcome is 0.81, so that they can be considered as forming one scale measuring the perception of process outcome. The scores on the six items were added up, and divided by six. The items were also recoded, so that a higher score on the scale indicates a more positive perception of the process outcome. The resulting scale has a mean score of 3.48 and a standard deviation of 0.61.

The Cronbach's alpha of the six items measuring content outcome was 0.80. Again, the six items were recoded, added up, and divided by six, resulting in a scale with a mean score of 4.05 and a standard deviation of 0.56. In both cases, the scores are above the theoretical mean (3), which indicates that the respondents are on average positive about the outcome. Comparing both means, it also appears that they are somewhat more positive about the content outcome compared to the process outcome.

Trust

Many authors have used trust as a concept in their research, with many of them coming from a background of business or organizational studies, not public administration. To measure trust within the network, we used five items derived from this literature. One item (benefit of the doubt) is a fairly generic item and refers to the fact that ‘giving the benefit of the doubt’ is an important characteristic of trust (see Rousseau et al, 1998; Sako 1998). The other four items are frequently mentioned in the literature. This especially holds for these three items: goodwill trust, agreement trust and absence of opportunistic behavior. Sako’s work (1998) is critical in this respect. She distinguishes between contractual trust (will the other party carry out its contractual agreements), competence trust (is the other party capable of doing what it says it will do?) and goodwill trust (will the other party make an open-ended commitment?). However, we do not consider competence trust to be a dimension of trust. Instead, we argue that competence can cause trust but is not part of trust itself. We substitute contractual trust with agreement trust, because, in many of the governance networks we studied, either few formal contractual arrangements were made or projects were in a preliminary phase where contracts had not been signed. Agreements and the way individuals abide by them is a reasonable ‘proxy’ for contractual trust. According to Sako, goodwill trust is based on the idea on fairness. Goodwill trust and contractual trust can be found as dimensions of trust in the work of many other researchers, although sometimes different terms are used (Lane and Bachman, 1998; Deakin and Michie, 1996; McEvily and Zaheer, 2006).

Sako also notes that the absence of opportunistic behavior is a requirement for the development of trust. Others have also made this point. Nootboom (2002), for instance, calls this trust in loyalty and sees it as a dimension of trust. Other authors argue that trust means that actors do not exploit other actors’ vulnerability (Rousseau et al, 1998; Nootboom, 2002; Deakin and Wilkinson, 1998). Thus, it seems logical to use these three dimensions: goodwill, agreement, and an absence of opportunistic behavior.

To these three, we added the notion of reliability, which McEvily and Zaheer (2006:88) called “the degree of consistency in intended behavior and the expectation that an exchange partner can be relied on to fulfill obligations”. Trust may be defined as confidence in the reliability of a person or system, regarding a given set of outcome or events. Five items were chosen to measure trust, as shown in Table 3.

Table 3: Measurement of trust

Measurement	Item
1. Agreement trust	The parties in this project generally live up to the agreements made with each other
2. Benefit of the doubt	The parties in this project give one another the benefit of the doubt
3. Reliability	The parties in this project keep in mind the intentions of the other parties
4. Absence of opportunistic behavior	Parties do not use the contributions of other actors for their own advantage
5. Goodwill trust	Parties in this project can assume that the intentions of the other parties are good in principle

The Cronbach’s alpha of the five items measuring process outcome is 0.71, so that they can be considered as forming one scale measuring the perception of process outcome. The scores on the five items were added up, and divided by five. The items were also recoded, so that a higher score on the scale indicates more trust. The resulting scale has a mean score of 3.47 and a standard deviation of 0.55.

Project complexity

In the second hypothesis, project complexity figures as a control variable. An environmental project was considered to be more complex when it dealt with more activities. Six different activities were identified: the building of houses, industry development, commercial development, environmental development, road development and water management (compare with Table 2). Based on the responses, we measured for each project whether one or more of these activities were performed. This resulted in a complexity scale ranging from 0 to 6. According to the mean score, the projects involved 3.09 activities on average, with a broad diversity given a standard deviation of 1.53.

Variety of contact

We gave the respondents a list with 24 possible actors with whom members of the organization of the respondent with respect to the project could be in contact. They were asked whether the contact frequency with each of these possible contacts was a) never; b) at least once a month; c) at least once in a three month period; d) at least once in a 6 month period; e) at least once in a year. The answers of the respondents were dichotomized, and we counted for this variable the number of actors with whom the respondent indicated contacts existed.

Intensity of contacts

Based on the previous variable, we first recoded the contact frequency, counting 'at least once a month' as 12, 'at least once in a three month period' as 4, 'at least once in a 6 month period' as 2, and 'at least as once in a year' as 1.² Next, we calculated the average contact frequency per existing contact.

Number of strategies employed

As indicated in Section 2, four types of activities were identified based on the available literature:

- arranging; this includes strategies to organize the interactions in governance networks in temporary organizational structures
- exploring content; exploring different views of actors and possible new solutions, and connecting the ideas of different actors
- connecting; securing contacts between actors, improving relations, etc
- process agreements; agreements about process rules and methods of interaction between the actors

Four items were created for each of these strategy types. A factor analysis of these 16 items showed that these 16 items were fairly strongly correlated with one dimension dominating the solution (for more information please contact the researchers). We therefore concluded that 'good' management involves the use of all available strategies. In fact, if a reliability analysis is performed on all sixteen items measuring the network strategies, a Cronbach's alpha of 0.91 is obtained, indicating a strong correlation between management strategies employed.

To measure the number of strategies employed, the sixteen items measuring the strategies were first dichotomized³, and then the number of strategies that were actually used in the project were counted. The resulting variable ranges from 1 (1% of the respondents) to 16 (8%), with a mean of 10.21 strategies used (standard deviation 3.75).

Project and respondent characteristics as control variables

The above variables measure the main concepts included in the hypotheses. In the analysis, also some control variables were included, with respect to both characteristics of the respondent as well as to relevant project characteristics.

Phase of the project

The projects the respondents discussed were not all in the same phase. This obviously influences perception on outcome. For instance, almost by definition there will be fewer outcome in the first phases of an environmental project. The respondents were not directly asked which phase they were in, but a number of activities were listed (from initiating ideas to implementation of actual maintenance activities) and the phase was deduced based on the level of activities respondents indicated they were involved in. Four different phases were discerned: 1) preparation phase (20%); 2) developmental phase (41%); 3) building phase (12%); 4) maintenance phase (27%).

Parent organization of the respondent

The respondents come from different backgrounds. As it is possible that this background influences the perception of democratic anchorage and/or the outcome perception, this is controlled for in the analysis. Four different background types can be discerned: 1) national civil servants (7%); 2) local civil servants (including counties and water board) (32%); 3) private sector respondents (51%); 4) 'others' (9%). The last group mostly included respondents from stakeholder organizations like environmental groups. In order to incorporate this variable into the analysis, three dummies were included. National civil servants serve as the reference category.

Endnotes

¹ This is a normal situation with internet surveys since a number of people only glance through the questionnaire as they would have done if it was a paper version, and then decide that the survey is not relevant to them, or decide that they do not want to answer it. In this case, the fact that they had to answer the questionnaire for a specific project probably inflated the number of people who only filled in a very limited number of questions

² We also tried other recoding procedures in the analysis, but that didn't make any difference.

³ The scores 1 and 2 (indicating that the strategy was (certainly) used) were scored as 1, while the other three categories were scored as 0.