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The Irony of Networks.

PhD Dissertation

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Introduction

From Bureaucracies to Networks

During the last 40 years, the public sector has passed through considerable evolution. After a hundred years of hegemony of the traditional Public Administration paradigm (Osborne 2010) and the use of hierarchies and bureaucracies for policy design, policy implementation and public service delivery, the governance structures and practices in the public sector have shifted towards new logics that direct the way the public sector is functioning. That evolution has been marked by three distinct paradigms, namely the traditional Public Administration, the New Public Management and the New Public Governance paradigm.

At the core of these distinct paradigms lie varying resource allocation mechanisms, namely hierarchies, markets and networks, which imply varying practices to organize and coordinate policy design, policy implementation and public service delivery. While the traditional Public Administration model was built on the vertical integration of units, the emphasis was placed on formal rules and written procedures, which provided the bases for resource allocation through hierarchies embodied by bureaucracies. In the ideal-typical bureaucratic model, the public sector was the sole provider of public services and responsible for the implementation of public policy. As a field of practice, the model reached its peak after World War II, when the state was expected to meet all social and economic needs of their citizens, "*from the cradle to the grave*" (Osborne 2010: 3). During the so called "welfare state" era, the traditional Public Administration model was the instrument to satisfy citizens needs and ensure equality of treatment. However, by the end of the 1970s this model reached its capabilities as public needs outstripped the resources available. Consequently, the traditional Public Administration model for policy implementation and service delivery became subject of criticism, first by academics and later by political elites. This criticism ultimately paved the way for the rise of the New Public Management paradigm (ibid.).

The spread of the New Public Management paradigm was grounded on a new discourse of policy implementation and public service delivery. That discourse claimed the superiority of private sector management techniques over those of the bureaucratic model, based on the assumption that the application of managerial techniques will automatically lead to efficiency and effectiveness gains in the public sector (ibid.). Stemming from neo-classical economics and rational choice theories, New Public Management is concerned with a disaggregated state, where the processes of policy making and implementation are disengaged. Policy implementation and service delivery is then achieved through numerous independent service units that are ideally competing with each other. Hence, markets, quasi-markets and contracts are the basis for resource allocation in a horizontally integrated public sector. Due to its focus on independent but competing service units, NPM models the implementation of policies and the production of public services as an intraorganizational process that turns inputs into outputs within a mediating environment (ibid.). Thus, the efficiency of intraorganizational processes, that need to be managed appropriately, becomes paramount to the success of public sector organizations. While the process of policy implementation and service delivery remained a black box in the traditional Public Administration model, NPM provided an understanding of the management of these subprocesses inside that black box. However, the focus on intraorganizational management processes, the neglect of the specific public sector context and the adherence to outdated private sector practices in an increasingly plural, fragmented and interorganizational environment has led to a great amount of criticism of New Public Management in the scientific community during the 1990s (Osborne 2010; Meier 1997; Rhodes 1997). Osborne (2010) has argued that both approaches, the traditional Public Administration model and New Public Management, have begun be partial theories, as both approaches fail to capture the complexity of the design, delivery and management of public services nowadays. These critiques have led to an evolution of public administration scholarship and practice towards the New Public Governance model.

Unlike previous approaches to policy design and implementation, the New Public Governance model is concerned with the institutional and external environment pressures that enable and constrain policy implementation and public service delivery in a plural and pluralist state, i.e. where multiple interdependent actors with varying value bases contribute to the implementation of policies (Osborne 2010). Originating from institutional and network theory, the focus of the New Public Governance model lies heavily on interorganizational relationships and the governance of processes, emphasizing service effectiveness that relies upon the interaction of public service organizations with their environment (ibid.). Consequently, the general resource allocation mechanisms in the NPG model is the interorganizational network. It is important to remark that such interorganizational networks are rarely cooperative systems of equals, but are rather systems with significant power asymmetries that must be taken into account for a network to function (Provan and Milward 1995; Osborne 2010). Therefore, the value base in such networks is often dispersed and contested, contrary to the traditional Public Administration and New Public Management model, where the values bases are rather uncontested and lie on the public sector ethos or on the efficacy of competition and the marketplace respectively (Osborne 2010). In this sense, Osborne attested that NPG is both "*a product and a response to the increasingly complex, plural and fragmented nature of public policy implementation and service delivery in the twenty-first century*" (Osborne 2010: 9). Thus, as public administration evolved from a hierarchical model of governing, typical for the traditional Public Administration regime, to a governance based model, where private and non-profit organizations increasingly participate in the design, formulation and implementation of public policy, hierarchies between public and private entities have been replaced with rather horizontal partnerships, in which the participants are partners in achieving effective outcomes (Mandell 1999a).

During the latest stage of that evolution, the NPG era, networks were increasingly established to solve so-called "wicked" problems in areas such as urban development, health, social care and education

(Turrini et al. 2010). Scholars have argued that in complex, plural and fragmented societies, networks ought to achieve more effective policy outcomes by using participative approaches (Agranoff 1992; Mandell 1999b; Milward and Provan 2003). Nowadays, networks are being used to take decisions and pursuit political agendas through policy networks, to find solutions for complex societal problems and value conflicts through deliberation in governance networks and finally to ensure adequate satisfaction of citizens' need through service-delivery networks. In an influential literature review on the determinants of public network performance, Turrini and colleagues have argued that: "*In the public sector, the implementation and management of public programs through networks has now become more the rule than the exception. The prevailing view among many service professionals, policy-makers, and researchers, is that, by integrating services through a network of providing agencies, clients will gain benefits of reduced fragmentation and greater coordination of services leading to a more effective system and, thus, more positive outcomes*" (Turrini et al. 2010: 528).

Hence, scholars, experts and policy-makers see public networks as an effective way of delivering services to the public and solving complex societal problems as well as value conflicts, due to reduced fragmentation and improved coordination among involved organizations. However, performance concerns draw increasing attention of scholars, as euphoria towards the formation of public networks quickly gave way to doubts about whether networks in the public sector really work. Consequently, many scholars started to assess network performance and identify its predictors, but with controversial results. In fact, the literature on public networks has been highly fragmented due to a diversity of definitions, various approaches and a variety of mostly monocausal explanations for public network performance (Turrini et al. 2010). While there have been increasing efforts by scholars to shed light on a plethora of factors that affect network performance (for a review see Turrini et al. 2010), they have rarely investigated the possibility of these factors having a combined effect on network success. Although the literature provided a broad variety of determinants affecting public network performance,

ranging from contextual, structural, functioning and managerial characteristics, it was lacking a satisfactory model that tries to unwrap the complex causality among these characteristics and their joint effects on network performance.

Considering that the NPG model emphasizes the structure of interorganizational relationships and the practices of governance among networked organizations, this represents a real gap in the literature. That gap in the literature and a certain dissatisfaction about the predominance of studies with monocausal explanations regarding the determinants of public network performance, a rather complex issue, can be seen as the starting point of the following three studies. In particular, moving on from Turrini et al. (2010) and the authors' invitation to explore whether an interaction effect among the determinants of network performance can be supposed, a first study explored the possibility of multiple and equifinal combinations of determinants positively affecting interorganizational network performance. In an exploratory case study, investigating on four service-delivery networks in Switzerland and comparing the joint effects of network governance, coordination mechanisms and the abilities of the network management, it was found that success can be achieved in networks in a shared-governance system through the simultaneous presence of formalized coordination mechanisms and a group of "*network administrators*" establishing and maintaining network rules and procedures (Cristofoli et al. 2014b).

While most studies conducted on the performance of public networks have stressed the paramount importance of network management and leadership for success of interorganizational networks in the public sector (Kickert et al. 1997; Koopenjan and Klijn 2004; Meier and O'Toole 2001; Agranoff and McGuire 2001; Sørensen and Torfing 2009, among others), the insight that network success can also be achieved using bureaucratic practices has shed new light on the joint effects of network structure and governance practices. That insight reinforced the starting hypothesis, according to which there are multiple and equifinal combinations of determinants based on the structure of the network and ultimately

on the power and control relations among network participants. It has also directed the following research towards expanding its scope and analyzing conjunctional combinations of contextual, structural, functioning and managerial characteristics and their configurational effects on network performance. Using a relatively unknown approach, the Qualitative Comparative Analysis (QCA), a second study examined the complex causality among network context, network structures, formalization and network management using 12 networks providing home and social care services to the population. The study "*How to make public networks really work? A Qualitative Comparative Analysis*" has shown that given an adequate network context (sufficient financial resources), there are multiple configurations of determinants leading to high performance of interorganizational networks in the public sector. On the one hand, when the network is governed by a central core agency, network performance seems to depend on the simultaneous presence of network management. On the other hand, when the governance of the network is shared among the participants, network success seems to depend on the simultaneous presence of formalized coordination mechanisms defining partner interaction. That is due to the varying complexity of the structure of interorganizational relationships amongst network participants. Networks integrated by a central core agency operate in a context where the governance structure provides significant power asymmetries. These power asymmetries occur either through core providers assuming a leading role in the network bolstered by their central position in the flow of clients and key resources, or through inception by legal authorities that establish a Network Administrative Organization to coordinate and sustain a network (Provan and Kenis 2008). In such situations, public networks tend to rely less on formalized mechanisms and allow the top management to steer and nurture the network with their managerial abilities. Decentralized networks with multiple centers of power, tend to be more complex with various powerful network participants sharing the task of governing the network by taking a bureaucratic approach in order to organize, coordinate, and direct network participants towards a common goal in accordance with established rules and procedures. The scope for managerial

intervention is then reduced to a minimum, while the reliance on formalized coordination mechanisms becomes a governing principle (Cristofoli and Markovic 2014).

Following the idea of multiple configurations of key determinants, which have to be combined in a meaningful manner in order to foster network performance, a third study developed and tested the notion of logically coherent organizing principles that are contingent upon the network structure in place. In the paper "*Contingencies and Organizing Principles in Public Networks*" various hypotheses regarding the configurational nature of these organizing principles were tested using Exploratory Factor Analysis and OLS Regression on 265 surveys that have been completed by members of the 523 health and social care networks in Switzerland. The obtained results confirm on large scale what has been hypothesized based on the previously conducted studies: There are multiple, logically coherent organizing principles within successful interorganizational public networks. One organizing principle, i.e. the formal definition of relationships, roles, responsibilities, boundaries and communication channels (in short the bureaucratic coordination of common efforts) has shown to have positive effects in decentralized networks settings, while another organizing principle, the use of managerial activities to organize and coordinate the activities of network participants has shown positive effects on network outcomes in a setting in which the "*power and control structure of a network*" (Provan and Milward 1995: 10) is organized around one focal organization. Furthermore, there is evidence that breaking with the inherent logics of each network might affect network performance negatively, as the excessive application of network management and leadership activities in decentralized network settings is negatively related with network performance (Cristofoli and Markovic 2015).

The three conducted studies have incrementally improved the understanding of the joint effects of network context, the structure of interorganizational relationships and the governance practices applied in order to organize and coordinate the common efforts of networked organizations. They also show that a network, despite being a distinct resource allocation mechanism, makes use of practices typical for

hierarchies and markets. Therefore, the irony of networks is constituted by the fact that networks provide a flexible governance system that allows for vertical integration, bureaucratic means of organization and managerial steering, which in turn allow networks to be successful, if coherently applied.

In the following chapters, each study conducted for this dissertation will be presented to the reader, chronologically from the first exploration of the topic to the large-scale test, which has been developed based on incrementally created insights from previous stages. Each chapter follows a similar structure, starting from a theoretical assessment of the literature and the development of hypotheses, to an introduction of the empirical setting, the method applied and the respective operationalization of variables, ending with a presentation and discussion of results. At the end, the cumulated insights will be discussed referring back to the three distinct paradigms in public administration, their hybrid features that can empirically be found and the irony of networks.

Chapter One

Governance, "management" and performance in public networks: How to be successful in shared-governance networks

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Abstract

This paper compares four cases and explores the effects on network performance of network governance, coordination mechanisms, and the abilities of the network manager. The focus is on shared-governance networks, which are in general considered to have difficulties achieving high-level performances. The cross-case comparison suggests a relationship between coordination mechanisms and the way shared-governance networks are managed: in order to be successful, they must be able to rely on formalized mechanisms and make a pool of "*network administrators*" responsible for their governance.

Introduction

Scholars only started focusing on network governance methods and exploring their relationships with network performance relatively recently. It was in 2008 that the well known article "*Modes of network governance. Structures, management and effectiveness*" by Provan and Kenis (2008) identified three different forms of network governance: Shared/Participant governance, Lead Organization governance and Network Administrative Organization (NAO) governance. In a subsequent article, the authors looked in more detail into the relationships among these governance forms and network performance, arguing that the appropriateness and success of different governance forms can vary in different circumstances (Kenis and Provan 2009). Shared-governance forms in particular are considered to have difficulties achieving high-level performances. They are only expected to work well in small, geographically concentrated networks where full, active face-to-face interaction between network members is possible (ibid.). Our paper aims to contribute to the literature on the topic. Following the lead of Kenis and Provan (2009), it will focus on shared-governance networks and examine the key factors making them successful. "How to be successful in shared-governance Networks" is the central research issue in our study.

We took the literature on service-delivery networks as our theoretical framework (Turrini et al. 2010) and identified two categories of predictors of network performance: network-coordination mechanisms and the abilities of the network manager. We then explored whether coordination mechanisms and managerial abilities, or a combination of them, can lead to success for shared-governance networks. Public homecare-assistance networks in Switzerland provided the empirical setting for our study. In keeping with the purposes of our analysis, we conducted a multiple case study based on four networks with shared governance. The results show that when many players are involved in network governance, good performances are only possible if a group of network "administrators" (as better defined later) supervises a well-defined set of rules and procedures.

Our study contributes on both, a theoretical and a managerial level. In theoretical terms, firstly it explores the relationship between network success and different governance structures. The results show that coordination mechanisms and managerial abilities do play a crucial part in the success of shared governance network, regardless of circumstances like network size and geographical concentration. Secondly, our study follows the direction suggested by Turrini et al. (2010) and sheds light on the effects of interaction among the predictors of network performance. The results allow us to suppose that interaction between coordination mechanisms and managerial abilities leads to network success. Thirdly, our study complements the existing studies on the roles and abilities of the network manager. The results reveal that in some circumstances, network success may not be reliant on a network manager, or perhaps a different role and managerial abilities more similar to those of an impartial administrator might be preferable. Fourthly, our paper casts new light on the management-bureaucracy dichotomy in public networks.

The results seem to suggest that as network governance becomes more complex and the degree of sharing among multiple players increases, it becomes more and more preferable to comply with existing rules and procedures administered by impartial institutional bodies. From a managerial point of view, the results of our study seem, thus, to suggest that administering shared-governance networks in a bureaucratic way is one of the keys to making them successful.

The paper is divided into four sections. The first section provides an overview of network governance modes and discusses the peculiarities of shared-governance networks. The second section reviews the concepts of coordination mechanisms and managerial abilities and presents the theoretical framework of the paper. The third section describes the method and presents the empirical setting. The last section describes and discusses the results of the study.

Modes of Network Governance

In two articles published in 2008 and 2009, Provan and Kenis (2008) and Kenis and Provan (2009) began to shift their focus from the structural characteristics of public networks (Provan and Milward 1995; Provan and Sebastian 1998; Provan et al. 2005) towards the distribution of governance power within network structures, while showing that different network governance forms can lead to varying results in terms of network performance.

The simplest governance form that a network can take is joint governance by the participants. These shared-governance networks (or participant-governed networks) consist of multiple organizations that work collectively as a network (without any distinct governance entity), take all decisions mutually and manage network activities together. The strength of these networks lies in the involvement of all network partners and in their flexibility and responsiveness to the needs of the network participants. However, a structure of this kind has a negative impact on network efficiency (Kenis and Provan 2009). Accordingly, it is more appropriate in small, geographically concentrated networks where full, active face-to-face interaction between network members is possible.

The second network form, the Lead Organization-governed network, is based on the coordination of activities and key decisions by a so-called Lead Organization. This organization provides administration for the network and facilitates the work of partner organizations as they seek to achieve network goals (ibid.). The advantages of this model lie in increased efficiency through easier coordination of network activities and greater legitimacy provided by the Lead Organization (ibid.). The weakness is that the Lead Organizations often have their own agenda. This can create tensions between the Lead Organization and network partners due to their different organizational interests (ibid.). This model is common in vertical relationships between buyers and suppliers or between funders and recipients. It can also occur in horizontal multilateral networks, most often when one key organization has sufficient resources and legitimacy to play a leading role.

The third network form is the NAO model. It is based on the idea of a separate administrative entity, which manages and coordinates the network and its activities just like a Lead Organization, but without being a network partner. Instead, it provides its services to the network participants. This structure allows network organizations to interact and work together while the main activities and key decisions are coordinated by a separate, independent entity (Kenis and Provan 2009). The NAO, which can be a government entity or a non-profit organization, is often being established with the purpose to govern the network. These organizations may have relatively informal structures revolving around single individuals who act as network facilitators or brokers, or they may be more formalized and complex organizations with a board and a management team. According to Kenis and Provan (2009), the second, more formalized approach is very likely to be used when the NAO is seeking official recognition to boost its legitimacy among internal and external stakeholders (ibid.). The strengths of this governance model are its greater legitimacy, sustainability and efficiency, while its weakness lies in its bureaucratic decision-making process (ibid.). NAO governance forms tend to be more suitable for large, highly complex networks.

The abovementioned considerations make it seem apparent that shared-governance networks are the simplest governance form, but they appear to have more difficulties achieving high-level performances. "*How to be successful in shared-governance networks*" is the research issue that we will try to address.

Theoretical Framework

The existing literature provides us with a number of predictors of network performance, ranging from the mechanisms for the coordination of the network partners, to the abilities that the network manager must have in order to run the network successfully. According to some authors (see Turrini et al. 2010), it seems likely that these factors can have a joint effect on network performance. In the following section, we will review the existing studies on coordination mechanisms and the abilities of

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network managers in successful networks, while also presenting the theoretical framework for our study (Figure 1).

Figure 1. *Theoretical Framework*
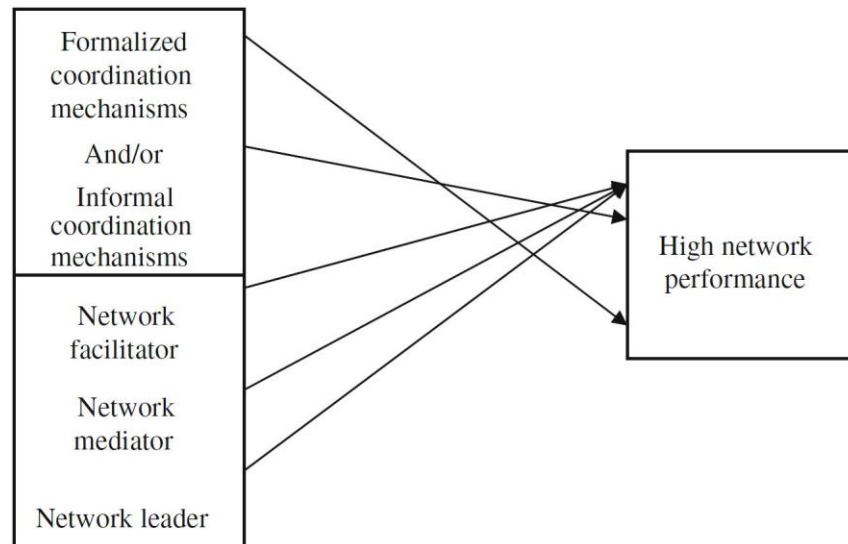
Coordination Mechanisms in Successful Networks. Many studies have shown that network performance can be boosted by formalized coordination mechanisms such as: joint information and communication systems; shared marketing, planning or implementation structures; joint staff activities; integrated service capacities (e.g. a one-stop entity at the service of network clients); organization of meetings; definition of the network agenda; the establishment of rules and laying down rules for decision-making (Gray 1989; Kljin 1996; Jennings and Ewalt 1998; Provan and Sebastian 1998; Shortell et al. 2002; Conrad et al. 2003; Bazzoli et al. 2003). In public networks in the area of health and social services, some of the specific coordination mechanisms that have been successfully introduced include case management, project management systems for ongoing care, peer review systems and continuous quality improvement systems. Personal and informal contact between network partners based on long-lasting relationships and a high degree of trust has also been shown to have a positive impact on network

performance. Many scholars mention the degree of trust as a crucial factor that influences relationships within a network and therefore the network performance, including Ferlie and Pettigrew (1996), and Provan and Kenis (2008).

Abilities of the Network Manager in Successful Networks. As public network literature gradually developed, scholars left the focus on network structure and mechanisms behind and started to concentrate on the abilities of the network manager as predictors of network performance, in the belief that managerial skills have an impact on network performance (Kickert et al. 1997; Agranoff and McGuire 2001; Mandell 2001; Huang and Provan 2007; Meier and O'Toole 2001) and that in some cases they play an even bigger part than the network structure and mechanisms (Kort and Klijn 2011). Generally speaking, network management abilities can be split into two broad categories: nurturing the network and steering it. Abilities of the former kind are typical of network "facilitators" and "mediators", while those of the latter kind are associated with network "leaders" (Agranoff and McGuire 2001, 2003; McGuire 2002). In order to nurture the network, the network facilitator/mediator is expected to be able to foster an environment for good partner interaction (by creating an institutional structure and by establishing working rules to govern partner participation), promote information exchanges between network partners, maintain harmony and develop ways to cope with strategic and operational complexity (Kickert et al. 1997; Agranoff and McGuire 2001; O'Toole and Meier 2004). Moreover, the facilitator/mediator must be able to ease tension among network members in order to strengthen their partnerships. This can be done by seeking formal arrangements through bargaining and negotiations, by reorganizing the network's structural processes and by creating governance mechanisms, which align the interests of the partner organizations (Kickert et al. 1997). Ultimately, the network facilitator/mediator is expected to be able to build commitment to the mission and to the goals of the network not only among network members but also among external stakeholders (Agranoff and McGuire 2001). When it comes

to steering the network, the network leader is expected to be able to perform three different tasks: action planning, activating and re-planning. Action planning consists of establishing clear missions and developing focused strategies and measures for the network and for the organization in which the leader works (Agranoff and McGuire 1998; Mitchell et al. 2002). Activating consists of selecting the appropriate players and resources for the network (Mitchell and Shortell 2000; Agranoff and McGuire 2001, 2003), tapping the skills, knowledge and resources of others, gaining trust and building consensus (Agranoff and McGuire 2001). ''Re-planning'' consists of altering and repositioning the network objectives when important changes occur in the network environment (Shortell et al. 2002).

Method

Based on the theoretical framework detailed above, our paper tries to explore whether good performances in shared-governance networks are a result of coordination mechanisms, the abilities of the network manager, or a specific combination of coordination mechanisms and managerial abilities. Due to the exploratory nature of the project, we conducted a multiple case study (Yin 1984).

Empirical setting. Public homecare service networks in Switzerland provided the empirical setting for our study. We chose Switzerland because it is an information-rich case as far as the collaboration between public, private and non-profit organizations is concerned (Steiner 2000; 2003). Due to the small size of the Swiss municipalities (only ten of the 2,516 municipalities have more than 50,000 inhabitants), collaboration for the delivery of public services is in fact a popular approach in the country: more than 60 % of the Swiss municipalities are involved in networks for the joint provision of public services (ibid.). We chose, then, homecare networks, as collaboration is most widespread in the health and social field, with 69 % of the Swiss municipalities involved in networks of this kind (Steiner 2000; 2003).

In early 2000, a federal law (which was followed by a series of cantonal laws) was issued to induce Swiss municipalities to collaborate when providing ambulant health and social care services for the elderly, young families, single parents, disabled persons or other groups that struggle to cope with their everyday routines. As a result, "Spitex organizations" were formed (in the form of consortia, foundations or associations promoted by Swiss cantons and/or municipalities) to provide services and support to citizens who need medical aid, care, supervision, monitoring or advice to increase their capacity for living at home.

Spitex organizations tend to provide some services themselves and activate other non-profit organizations to provide ancillary services (such as the transportation of disabled clients, meal services for those who are unable to cook, night-time care, oncological care and psychological support), thus creating a network of organizations that jointly cater to patients' needs (hereinafter we will refer to them as Spitex networks). The idea behind Spitex networks is that patients should be treated, supported and advised by special trained nurses in a familiar environment, in order to increase their comfort, autonomy and self-determination. Furthermore, providing these services in the patient's home is considered to be less cost-intensive than treatment in stationary facilities like hospitals or nursing homes. These advantages make the homecare services provided to an essential part of the Swiss health and social care system.

According to the Swiss Federal Statistical Office (FSO), there are around 575 publicly entrusted Spitex organizations in Switzerland. 540 of them are in 19 German-speaking cantons with 1,585 municipalities and 5.5 million inhabitants. A further 1,024 municipalities and 2.4 million inhabitants are covered by 30 organizations in six French-speaking cantons and six in the Italian speaking canton (Swiss Federal Statistical Office 2010). In 2009, Spitex networks served 214,000 patients. 147,000 of them were female (69 %) and the vast majority (75 %) of patients were older than 64 years (ibid.). The total number of patients amounted to 2.8 % of the Swiss population (Swiss Federal Statistical Office 2010). Spitex

networks were able to provide for this 2.8 % of the Swiss population who need social and health care assistance with services in their homes, meaning that it was not necessary for them to be treated in stationary facilities like hospitals or nursing homes.

Finally, Spitex networks tend to have a variety of structures and forms of governance, as our previous paper shows (Cristofoli et al. 2014a). In addition to networks with a Lead Organization that either provides homecare services or activates and coordinates the network partners, there are networks in which the governance is shared among all or most of the network partners. This makes Switzerland an interesting empirical setting for a focus on shared-governance networks and exploration of the factors in their success.

Case Selection

In order to conduct our analysis, we selected four cases using the following criteria (Table 1): (1) four shared-governance networks; (2) two successful and two unsuccessful networks; (3) two larger and two smaller networks; (4) two networks operating in concentrated geographical areas and two networks operating in more widespread areas. This research design allowed us to investigate the impact of coordination mechanisms and managerial abilities on network performance by cross-checking them with the network size and geographical concentration, which are key factors behind the success of shared-governance networks according to the existing literature (Kenis and Provan 2009). Moreover, all networks are mandated and have existed for around ten years. This meant that there was no variation in "*exogenous factors*", which according to Provan and Kenis (2008) and Kenis and Provan (2009) can affect network performance. In order to guarantee the anonymity of the selected networks, we will label them as Spitex-Blue, Spitex-Indigo, Spitex-Violet and Spitex-Grey. There will be a shorter description of Spitex-Indigo, as it has already been described in a previous paper (Cristofoli et al. 2014a).

Table 1. *Case Selection*

	Geographical concentration	Geographical dispersion
Larger networks	Spitex-Blue (23)	**Spitex-Indigo (70)**
Smaller networks	**Spitex-Violet (13)**	Spitex-Grey (16)

Bold for successful network; Number of network participants in brackets

The Spitex-Blue network is built around a non-profit association, which was set up to deliver home and social care services to the people of one municipality (geographical concentration). It is entrusted with the responsibility of providing homecare assistance by the municipality and when necessary it activates non-profit organizations to provide complementary services. The resulting network is made up of approximately 23 partners (network size = 23 partners). The most important partners, including the municipality, the Spitex organization, and major non-profit organizations, have established an inner circle, which governs the network through mutual strategic decision-making. The relationships between the players within this inner circle feature flat hierarchies and a balance of power. There is no single governing entity within the Spitex-Blue network. Instead, it is governed by a subgroup of its participants (shared governance).

The Spitex-Indigo network contains approximately 70 organizations (network size = 70 partners) and was created as a result of a merger between two inter-municipal consortia that provided services to different geographical areas (geographical dispersion). As shown in a previous paper (Cristofoli et al. 2014a), Spitex-Indigo is governed by two subgroups, which are responsible for providing Spitex services in two different areas. Therefore, it has a fragmented and horizontal structure. There is a balance of power between the players within these two subgroups, which mutually define the strategy of the network and the operational activities (shared governance).

The next network analyzed in this study is the Spitex-Violet network. Homecare assistance in the city of Violet was originally provided by more than 40 organizations operating on a district level (geographical concentration). However, during the 1990s the Violet municipality issued a law that forced the organizations to merge. In the end, only two non-profit associations and one foundation remained. These Spitex organizations provide homecare assistance in different districts of the city of Violet and operate in a highly integrated way under the direction and control of Violet city council. They work together to make joint strategic decisions, define operating procedures for service provision and manage joint units offering specific services (e.g. night-time services, preventive counselling and palliative care services) for the local community. This approach allows major network partners (i.e. the city, the two associations and the foundation) to build a strong and cohesive subgroup with overlapping links. The responsibility for governing the network is shared equally among the partners (shared governance). Moreover, the two non-profit associations and the foundation can get other non-profit organizations to provide complementary services whenever it is necessary, thus resulting in a relatively small network with approximately 13 partners (network size: 13 partners).

Finally, the Spitex-Grey network is built around a non-profit association, which provides health and social care services to four municipalities from two cantons. These cantons gave the municipalities the responsibility to organize the provision of health and social care services at home. Consequently, the municipalities turned to a number of organizations to provide the services. Spitex-Grey evolved through mergers between five different Spitex organizations operating in four municipalities (geographical dispersion). Nowadays, the network has approximately 16 network partners (network size = 16 partners). The most central network partners mutually coordinate activities on a strategic level by deliberating and coordinating the interests of the network members (shared governance).

Network Performance

We used a network's ability to achieve its expected goals as a measure of network performance (Provan and Milward 2001). Based on the public assignment of Spitex networks, the Federal Spitex Association formulated guiding principles for every Spitex network in Switzerland. Spitex networks are asked to treat as many patients as possible, for as long as is medically possible, in familiar surroundings in order to support and preserve their autonomy and self-determination by inducing self-help (Spitex Association 2011).

Building on this, we will take the ratio between the patients served in the year 2010 and the population in the specific Spitex network area during the same year as a performance indicator. The higher the ratio is, the greater the ability of the network will be to achieve its expected results. The more patients are served, in fact, the fewer people will be treated in nursing homes, hospitals and other stationary facilities, which is directly related to the abovementioned guiding principles and objectives.

The data about the patients served in 2010 were taken from the annual reports of each Spitex organization, while the data about the population in each community in 2010 were based on the information about the residential population in Swiss municipalities provided by the Swiss Federal Statistical Office. Table 2 shows the performance of each case selected for analysis.

Table 2. *Spitex Network Performance*

Case	Performance
Spitex-Blue	1.2 %
Spitex-Indigo	3.4 %
Spitex-Grey	2.2 %
Spitex-Violet	2.9 %
Swiss average	2.8 %

As revealed by Table 2, the performance varies significantly from network to network. It reaches from 1.2 % in the case of the Blue network to 3.4 % for the Indigo network. As mentioned above, the Swiss average is 2.8 %, (Swiss Federal Statistical Office 2010), so we can say that two of the networks perform below average, while two perform above average. While Spitex-Blue (1.2 %) and Spitex-Grey (2.2 %) displayed a below-average performance, the Spitex-Violet (2.9 %) and Spitex-Indigo networks (3.4 %) outstripped the average performance in Switzerland.

Data collection and analysis

To ensure that the qualitative analysis was reliable (Denzin 1978; Denzin and Lincoln 1994), different data source and data collection mechanisms were triangulated. Firstly, we collected data through official documents that were provided by the government. Secondly, after getting a broad insight into each case, a questionnaire was distributed either to the CEO or, if this person was not available, to a person working in the management team of the involved organizations. The aim of the questionnaire was to collect information about the actors involved, their methods, quality and intensity of collaboration, the functioning procedures within the networks and the network management. Thirdly, semi-structured interviews with the key players in the Spitex networks were conducted. They were developed through the knowledge already acquired based on analyzed documents and the questionnaire. The interviews allowed further investigation of aspects emerging from the first two steps and made it possible to gain in-depth knowledge of every single network. The interviews were conducted either directly at the Spitex organization or by telephone and they were transcribed no more than 24 h after each conversation. In total, 25 interviews with key actors were conducted. The data were analyzed following three steps of data description, analysis and interpretation (Miles and Huberman 1994). At the end of the process, relationships showing the joint impact of the network coordination mechanisms and the abilities of the network manager on network performance were explored.

Findings

Table 3 shows the results of the case study analysis. As far as coordination mechanisms are concerned, the networks analyzed share some similarities, while also presenting important differences. There was no remark regarding informal relationships between people to be found, while the reliance of the four networks on formalized coordination mechanisms differed significantly.

Table 3. *Results of the Case Study Analysis*

	Spitex-Blue	Spitex-Indigo	Spitex-Grey	Spitex-Violet
Governance form	Shared	Shared	Shared	Shared
Network size	Larger	Larger	Smaller	Smaller
Geographical concentration	Concentration	Dispersion	Dispersion	Concentration
Presence of formalized coordination mechanisms	Yes	Yes	Yes	Yes
Reliance on the existing coordination mechanisms	No	Yes	Yes	Yes
Presence of a distinct network management	No	No	No	No
Presence of network administrators	Yes	Yes	No	Yes
Network performance	**LOWER**	**HIGHER**	**LOWER**	**HIGHER**

In the case of Spitex-Blue, the network partners do not rely on formalized rules to increase the liability for any decisions that are made. According to the CEO, "*the task group mentioned is responsible for defining the network's goals and the operational activities used to achieve these goals. However, so far we have worked without any formal agreements.*" In addition, she mentioned that the

reliance on formalized rules and mechanisms is very low due to the fact that network meetings were only introduced recently and formalized network rules had yet to be established, but the most important players are working on institutionalizing and formalizing network relationships.

The coordination systems in the other three networks seem to place more emphasis on formalized network rules, contractual agreements and well-organized network meetings.

The Spitex-Indigo network relies on formalization to a great extent. Decisions are always made during the general meeting or by the executive committee, "*as required by law and established in the statute*" (as quoted in Cristofoli et al. 2014a). Therefore, the decision-making process is strictly based on formalized rules. Furthermore, meetings at all levels of the network are scheduled and well planned. Meanwhile, the relationships between the different network partners are defined by contractual agreements. Accordingly, the relationships between the two subgroups are regulated by a contract, which defines their links and their managerial autonomy.

Similarly, the Spitex-Violet network relies on formalized mechanisms between the most important network partners in order to be able to guarantee a common ground and unity in certain aspects. The governance of the network by the city council and the two most important Spitex organizations is based on regular network meetings (six to seven a year), joint decision-making, and contracts defining joint strategic and operative activities, as well as the contribution of every player in the governing subgroup. The CEO of one of the Spitex organizations mentioned "*monthly meetings with the other non-profit Spitex and regular meetings with the city council and the foundation, as well as regular meetings with our partners, hospitals and health insurance firms. Doodle is used to set the dates of the meetings*". There are also formal contracts with partner organizations that provide complementary services, and the various players rely on them a great deal. According to the CEO of one partner organization, "*the collaboration is based on a contract known as "performance agreement" and there are meetings two or three times a year*".

Similarly, the Grey network relies on formalization and contractual agreements between key actors to a great extent. The CEO of the Spitex organization stated, "*contracts are very important for the collaboration between the Spitex, the municipalities, the cantons and other non-profit organizations which provide complementary services*". These contracts shape the responsibilities and activities of each member, as well as the relationships between different members. "*We have contracts which lay down our competences and responsibilities. These contracts outline our responsibilities and those of partner XY, and we have to comply with them*" (Spitex-Grey CEO). Furthermore, the meetings for joint decision-making by partner organizations are well planned and take place on a regular basis (five times a year). During these meetings, the contents of agreements are being discussed and altered if necessary: ''*they* [the contracts] *have to be adjusted once in a while*'' (Spitex-Grey CEO). Therefore, we conclude that there is a high degree of formalization within the network and that formalized network rules are important for network activities on a strategic level.

Apart from coordination mechanisms, we were also able to find some important similarities and differences in the four cases in terms of the abilities of the network manager.

The most notable feature of the Spitex-Blue network in this respect is that the management is left to a widespread group of representatives from different organizations forming an institutional body, which currently maintains the existing rules and procedures, ensure that the players comply with them and therefore facilitate interaction between partners. "*It is a responsibility of the official bodies of the network partners to discuss strategic goals and increase commitment*" (Spitex-Blue CEO).

The situation in Spitex-Indigo is quite similar. Any disputes among partners are usually resolved by the governing bodies (the executive committee or general meeting), without input from the director's office. As the director said, ''*there was some tension among network partners about the possibility of providing services to children and poor people as well, but that was a matter for politicians rather than an issue for the director*'' (as quoted in Cristofoli et al. 2014a). Furthermore, there is no specific actor

that is able to facilitate interaction between partners, unify interests or build up the commitment of network members. Everything is coordinated and discussed in the general and executive committee meetings. Therefore, no clear network manager could be identified. However, many interviewees identified the general director, the president and the vice-president of the committee as the main characters involved in the "*administration*" of the network.

Just as the responsibility for governing the network is shared equally among three major network partners in the Spitex-Violet network, three key members seek to promote interaction between the partners and ensure the smooth running of the network (the city council and the governing bodies of the two Spitex organizations). These players, which at the same time constitute the core of the governing subgroups, endeavor to unify interests, ease tensions, and facilitate collaboration among network partners. Conflicts are solved by political decisions and interests are only unified when they are in line with organizational interests. Furthermore, the city council strives to facilitate collaboration within the inner circle of major partner organizations, but the success of this mission is dependent on the willingness of each organization. Consequently, there is no unified network management structure in the Spitex-Violet network. The following statement by the CEO of one Spitex organization sums up the situation among the major network members very well: "*The two governing bodies and the city council form the core strategic decision-making group in the network. At this level, every partner has a certain influence and can bring up its own ideas about future strategic development*". Similarly, according to a worker at a partner organization: "*The CEO and the board can work together to define and redefine the objectives and strategic goals for homecare provision*".

Spitex-Grey seems to be the only case in which there is neither a person managing the network, nor an institutional body ensuring the compliance with the existing rules and formal agreements. "*There is no member of the network that coordinates or manages the activities of the different organizations*", stated the CEO. "*Everything is managed on a strictly contractual basis*" (Spitex-Grey CEO).

Discussion and Conclusion

The cross-case analysis allows us to give some answers regarding the central research issue: "How to be successful in shared-governance networks?"

Despite their size and geographical concentration, we were able to identify a pattern of factors behind the high performance levels achieved by the two successful public networks, namely Spitex-Indigo (3.4 %) and Spitex-Violet (2.9 %). These shared-governance networks both rely on a well-defined and formalized package of coordination mechanisms and the simultaneous presence of a group of institutional to administer them (network administrators). In contrast, the Spitex-Blue (1.2 %) and Spitex-Grey (2.2 %) networks lack either the reliance on formalized coordination mechanisms or network administrators who can govern the interaction between the partners in accordance with the existing rules and procedures. Based on that, it seems possible to argue that the success of shared-governance networks is ensured by the combination of reliance on formalized coordination mechanisms and the presence of network administrators (Figure 2).

Figure 2. *How to be Successful in Shared-Governance Networks*
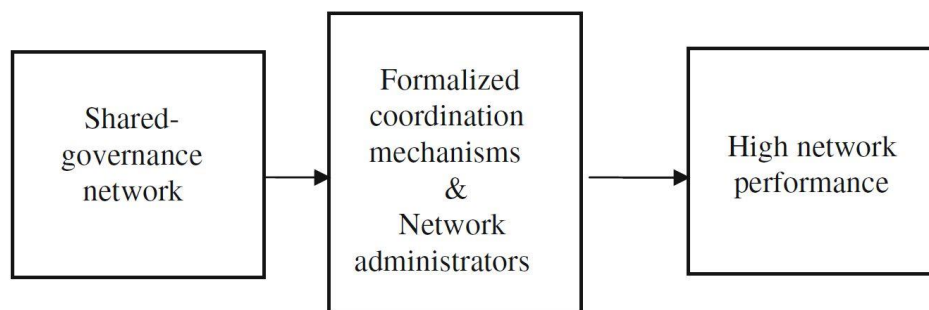
In this context, we can make the proposition that in order to be successful, the more decentralized a network is, and the more stakeholders there are in the decision-making process, the more the network should rely on a well-defined and formalized package of coordination mechanisms that are implemented by a group of network administrators.

Thus, we are enabled to contribute to the literature on public networks in the following ways. First, the results of our study follow the direction suggested by Kenis and Provan (2009) concerning the exploration of network success in relation to different governance structures. In particular, by focusing on shared-governance networks, our work complements the existing studies and shows that network success is not only affected by the size and geographical concentration of the network. Management seems to matter also in shared-governance networks – however, not in the traditional way. Instead, the reliance on mechanisms to coordinate partner interaction and the presence of institutional bodies to guarantee compliance with the existing rules and procedures seems to lead to success.

Second, the results of the study have examined in greater depth and enriched the existing literature on the roles and abilities of network managers. The function of making partner interaction work, which involves institutional bodies, cannot be subsumed under the network manager approaches described in the literature review. It seems that besides the already well-defined managerial approaches of "facilitator", "mediator" and "leader" (Agranoff and McGuire 2001; 2003; McGuire 2002), there is another approach that is often necessary when running public networks. We label it "*the network administrator(s)*". In particular, the network administrator(s) can be defined as a group of representatives from various organizations. They form interorganizational bodies and maintain well-defined and formalized coordination mechanisms as a basis for a procedural decision-making and operating processes. These network administrators normally follow impersonal, legislated decision-making procedures in order to preserve a balance of power between the major network partners and thus give guaranteed stability, accountability and goal attainment in environments characterized by the presence of various important network partners.

Third, the results of our study follow the directions suggested by Turrini et al. (2010), with exploration of the interdependence of predictors of network performance. Coordination mechanisms and the abilities of network administrators seem to have a joint impact with the network structure on network

performance. In particular, coordination mechanisms seem to mediate the relations between shared governance and network performance. Regardless of the network size and geographical concentration, the key to network success seems to be a combination of reliance on formalized coordination mechanisms and the presence of network administrators.

Fourth, successful shared-governance networks tend to take a more bureaucratic approach in order to ensure power sharing and govern the network according to established rules and procedures. Thereby, the scope for unilateral managerial intervention is reduced to a minimum, while the reliance on well-defined and formalized coordination instruments and mechanisms (such as formalized network rules, contractual agreements, or well-organized network meetings) becomes a governing principle. The establishment and maintenance of these coordination instruments and mechanisms and the establishment of power-sharing within the network are the main purposes of the network administrators.

Finally, the results of our study raised the never-ending issue of the bureaucratization of public networks. As described by Bardach (1998), in order to work effectively, shared-governance networks seem to need a number of features normally associated with hierarchical organizations. Among them is formalization. From a managerial point of view, the results of our study seem to provide those involved in shared-governance networks with some suggestions about how to make them work: the greater the complexity and involvement of multiple players in network governance, the more preferable it is to comply with the existing rules and procedures for partner interaction.

This study is a preliminary step in a wider research project that aims at exploring the joint effects among the predictors of network performance on network success. It provides us with helpful insights, but it requires further development. First of all, a quantitative study employing statistical techniques could be a useful way of testing the developed proposition. This is the aim of our wider research project. Secondly, the concept of network performance may need further work and it might be appropriate to create a composite index that considers its multidimensionality. In particular, in mandatory networks

involving public and non-profit organizations that are labor-,skill- and knowledge-intensive, it may be useful to examine client well-being as compared to measurements such as QALY (quality-adjusted life years) or quality of daily living. Thirdly, further insights could come from treating the networks for the provision of health and social services as professional networks. In this case, coordination mechanisms, project management systems and managerial mechanisms need to be customized in accordance with the specific demands of labor- and skill-intensive organizations.

Chapter Two

How to make public networks really work.

A Qualitative Comparative Analysis

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Abstract

Many studies have strived to understand which factors affect the performance of public networks. However, very few studies in the field of public management investigate the joint effects of different determinants on network performance. This paper uses the relatively new method of Qualitative Comparative Analysis (QCA) to investigate the complex causality of determinants and network performance. It examines the combination of resource munificence, centrally governed network structures, formalized coordination mechanisms, network management, and their joint effects on network performance. An analysis of 12 Swiss networks providing home and social care services shows that there are two possible paths towards network success. Various combinations of the abovementioned factors can in fact lead to high network performance. These paths provide insight into how to make public networks really work.

Introduction

Ever since Provan and Milward (1995) published their seminal paper on four public mental health care networks in the US, scholars in the field of public management have tried to assess whether public networks really work and which determinants affect their performance. There have been increasing efforts by scholars to shed light on a plethora of factors that affect network performance (for a review see Turrini et al. 2010), but they have rarely investigated the possibility of these factors having a combined effect on network success (Turrini et al. 2010).

Exploring this aspect is the aim of this paper. In particular, we are interested in the way that four of the predictors of public network performance identified by previous studies (Provan and Milward 1995; Kickert et al. 1997; Agranoff and McGuire 2003; Provan and Kenis 2009) combine to enable high network performance. These predictors are resource munificence, centrally governed network structures, formalized coordination mechanisms and network management.

A configurational approach, the Qualitative Comparative Analysis, was chosen in order to conduct a systematic comparison of 12 home care networks in Switzerland along abovementioned factors and their performance, and thereby identify different paths that lead to network success.

The paper is divided into four parts. The first section reviews the relevant literature for our research and outlines the theoretical background on which the research design was based. Following that, there is a presentation of the method applied and the empirical setting, along with details of the case selection, data collection processes and the operationalization. The third section contains the actual analysis as well as its results. Since the QCA follows an iterative approach and constantly goes back and forth between empirical cases, theories, and the actual results, the findings will be interpreted in the context of relevant theories and cases towards the end of the paper. The results contribute to the existing literature by shedding new light on long-standing theories about the joint effects of certain determinants of public network performance.

This is the latest in a series of three papers exploring the joint effects of different determinants of network performance (Cristofoli et al. 2014a; 2014b). In particular, moving from Turrini et al. (2010) and the authors' invitation to explore whether an interaction effect among the determinants of network performance can be supposed, the first paper made us more confident about the existence of a relationship between network structure, mechanisms and management that jointly affects network performance (Cristofoli et al. 2014a). On that basis, the second paper focused on a specific form of network governance and showed that success can be achieved in shared-governance networks through the simultaneous presence of formalized coordination mechanisms and a group of "*network administrators*" (Cristofoli et al. 2014b). Following these ideas and expanding the scope of previous research, the current paper sheds light on various combinations of factors that also lead to network success. It thereby confirms and enriches the results of previous studies. First of all, it confirms the existence of a relationship between some characteristics of network structure, mechanisms and management. Secondly, it confirms the existence of joint dimensions among the abovementioned factors: they simultaneously affect network performance. Thirdly, it makes it possible to identify at least two different paths leading to high network performance in resource-munificent contexts: the first involves centrally governed network structures and network management (facilitating, mediating and/or leading), while the second includes shared-governance networks and formalized coordination mechanisms.

Literature Review

The success of public networks is a long-standing theme in public network literature (for example, see Mandell 1984; Agranoff 1986; Provan and Milward 1995; Ferlie and Pettigrew 1996; Kickert et al. 1997; Provan and Sebastian 1998; Mandell 2001; Provan and Milward 2001; Herranz 2009; Kenis and Provan 2009). The existing studies usually focus on determinants of network performance without

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considering the effects of varying combinations of them. The idea of analyzing joint effects of these combinations of factors is relatively new to the field (Turrini et al. 2010). In the following literature review, we will only focus on relevant studies that suggest configurational relationships among key determinants, thus leading us to suppose that there are multiple causal paths for network success and allowing us to derive a theoretical framework for the Qualitative Comparative Analysis.

In their seminal paper, Provan and Milward (1995) identified network context and network structure as key variables for network success. They argued that resource munificence is paramount for maintaining effective networks, but it is not sufficient to guarantee effective provision of services. Therefore, external factors have to be accompanied by appropriate network structures to foster high network effectiveness.

Mentioning network structure as a key determinant of network performance, Provan and Milward (1995) were also able to demonstrate a positive relationship between the degree of network integration, the degree of network centralization and network performance. They showed that centralized integration is a key determinant of network performance, as it will be significantly enhanced, if a network is integrated through a central core agency (Provan and Milward 1995). Expanding on the first paper, Provan and Sebastian (1998) identified another path towards high network performance, showing that if a network is not centrally integrated through a central core agency as proposed by Provan and Milward (1995), high network performance is still possible, if networks with widely scattered members are strongly integrated by overlapping subgroups (multi-centrally integrated networks) that share responsibility for network governance (Provan and Sebastian 1998).

However, subsequent research revealed that network context and structure alone are not enough to guarantee good performance (Raab et al. 2013, among others): the role of coordination mechanisms to sustain partner interaction is as well critical for the success of public networks (Brown et al. 1998; Jennings and Ewalt 1998; Provan and Kenis 2008; Cristofoli et al. 2014a, 2014b). It is important to note

that coordination mechanisms can either be based on well-defined and formalized mechanisms (such as formalized network rules, contractual agreements, well-organized network meetings of designated representatives, or a highly regulated decision-making process), or on more informal relationships and spontaneous agreements between network participants (Provan and Kenis 2009; Cristofoli et al. 2014a, 2014b). Some scholars have indicated that the effects of formalized network rules, contractual agreements and their importance for decision making within a network seem to vary according to the level of network integration (Brown et al. 1998; Jennings and Ewalt 1998; Provan and Kenis 2008). Therefore, just like with network context and network structure, the literature suggests that coordination mechanisms within a network do not have a solely positive nor negative effect on network performance per se. Instead, different configurations of certain network structures and varying degrees of formalization have varying effects on network performance.

The same configurational argument seems to be of importance regarding the relationship between network management and network structure. In particular, Kort and Klijn (2011) showed that some structural characteristics of urban regeneration companies (i.e. functioning at arm's length from the government, having discretionary power, and the tightness of the organization) do not have an impact on project outcomes, whereas network management does. Yet, in a previous paper we have shown that there is more than one way to manage public networks effectively. It is possible to take a number of different approaches, although their suitability depends on the network contexts and (governance) structures. In particular, there are multiple ways to manage public networks, either as a network manager (by taking the role of a facilitator, mediator or leader) (Agranoff and McGuire 2003) or within a system of network "*multiple administrators*" in the form of institutional and official bodies that run the network by ensuring that the partners' activities comply with the existing rules and procedures (Cristofoli et al. 2014b).

At the end of this summative review of existing studies, we can identify four key determinants that have been broadly claimed to have varying effects on network performance, depending on other

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determinants accompanying them: resource munificence; centrally governed network structures; formalized coordination mechanisms; and network management. Certain network (governance) structures, formalized or informal coordination mechanisms and network management systems do not have a merely positive or negative effect on public network performance. Instead, it is to be expected that adequate combinations of these factors can lead to better network performance. In other words, the literature allows us to suppose that there are varying paths to successful public networks that consist of different combinations of network governance structures, coordination mechanisms and network management. When accompanied by resource munificence, they are expected to have varying effects on network performance. In the following section, we will aim to establish which paths, i.e. which combinations of these determinants, lead to higher network performance.

Method

Based on the above made considerations and the results of previous studies (Cristofoli et al. 2014a, 2014b), we believe that there are varying paths with different combinations of factors, rather than one way best way of achieving high network performance. Therefore, our aim is to identify the effective combinations among resource munificence, network governance structures, coordination mechanisms and network management that lead to network success. Given these aims and the exploratory design of this study, we chose the Qualitative Comparative Analysis (QCA), which is able to unwrap the underlying causal complexity for network success by focusing on the configurational effects of given variables, rather than on their single effect on the outcome[1].

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[1] In the framework of Qualitative Comparative Analysis (QCA), the determinants, or in other words factors, are named "conditions" (Rihoux and Ragin 2009). For coherence with the terminology of the applied method, the term "conditions" will henceforth be used instead of "determinants". A configuration is a specific combination of conditions (or factors, stimuli, causal variables or determinants) that produces a given outcome of interest.

Criticizing the two dominant research traditions of case- and variable-oriented research strategies, Charles Ragin (1987) argued that the assumption of isolated effects of individual variables does not make sense, since social phenomena always occur in conjunction with other social phenomena. Therefore, the ceteris paribus principle does not aid the understanding of social realities. Furthermore, in-depth understanding of a particular case is not fruitful, if no conclusions for other cases can be drawn. Ergo, the search for regularities is the central task of research in the social sciences. Hence, it is necessary to find a way to combine the strengths of both approaches: identifying regularities while preserving context sensitiveness (Rihoux and Ragin 2009). "*What makes a certain feature [...] causally relevant in one setting and not in another is the fact that its causal significance is altered by the presence of other features (that is, its effect is altered by context). Similarly, apparently different features can have the same effect depending on which other features they are associated with. [...] This is a primary justification for examining cases as wholes and for trying to decipher how different causal factors fit together*" (Ragin 1987: 49). More specifically, Ragin rejects the idea of monocausal explanations. Instead, he introduced the concepts of conjunctural causation and equifinality. Conjunctural causation refers to the fact that certain outcomes are often a result of multiple combinations of conditions (probably the rule rather than an exception), while equifinality means that different paths containing multiple combinations of conditions can lead to the same outcome (Ragin 1987). Building on these propositions, in the late 1980s and early 1990s Charles Ragin developed the Qualitative Comparative Analysis in order to combine the strengths of both case- and variable-oriented research traditions and bridge the methodological gap between very small N studies, or case studies, and very large N studies, or statistical analyses.

QCA draws on the general principals of analytical induction to employ variables derived from case study evidence, but at the same time, it also addresses the primary concern of variable-oriented research to observe patterns across cases. Unlike conventional statistical analysis, QCA does not investigate the

independent effects of variables on the likelihood of an outcome. Instead, it considers varying configurations of conditions and their joint effect on a given outcome (Kitchener et al. 2002). Furthermore, when assessing the effects of different conditions on an outcome across cases using QCA, researchers are able to identify and distinguish between necessary and sufficient conditions and derive conclusions based on assessment of the sufficiency of conditions.

Three specific techniques can be subsumed under the heading of QCA: Qualitative Comparative Analysis using binary data, known as Crisp-set QCA, nominal data, known as Multi-value QCA, and continuous data, known as Fuzzy-set QCA (Rihoux and Ragin 2009). In this research, we used a Fuzzy Set QCA (fsQCA) (Ragin et al. 2006). The idea behind fuzzy sets is to permit the scaling of membership scores and thus allow partial membership in a set (Ragin 2000). While a conventional Crisp-set QCA discriminates a case in a dichotomous way, e.g. a network is either centralized or not, a Fuzzy-set QCA permits membership scores to range from 0 (full non-membership) to 1 (full membership). Membership scores close to 1 (e.g. 0.8) indicate strong but not full membership, while membership scores below 0.5 but greater than 0 (e.g. 0.2) indicate that objects or attributes are still weak members of the set. The crossover point 0.5 is the point of maximum ambiguity. Membership scores are assigned on the basis of the theoretical and substantive knowledge gained throughout the research project and they are displayed in the "Calibrated Data Table". The process of defining membership scores for each condition is called "calibration"[2]. Specific fsQCA software is then used to transform the assigned membership scores into dichotomized values using Boolean algebra and a specific table (the "Truth Table") is constructed to display them. The Truth Table can be used for logical comparison, with each case being depicted as a combination of causal and outcome conditions. The multiple causal paths to a certain outcome are thus identified (Kitchener et al. 2002). Using the fsQCA software, more general patterns are obtained through

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[2] For our research, we used the calibration tool provided by Tosmana software to calibrate membership scores (a software that is usually used for crisp sets and multi-value QCA), and fsQCA 2.0 for data analysis. The references can be found at the end of this paper.

the reduction of conditions with no effect on the outcome. The result of this Boolean minimization process is called a "minimal formula".

Empirical Setting and Case Selection

The empirical setting for our study was provided by public networks set up by Swiss municipalities and cantons to deliver homecare services in Switzerland. At the beginning of 2000, a federal law and a subsequent series of cantonal laws induced Swiss municipalities to collaborate in order to organize the provision of health and social care services for people in their homes. As a result, Swiss municipalities set up specific organizations such as consortia and foundations for this purpose (Spitex organizations). These organizations provide some services themselves and activate other non-profit organizations (such as the Swiss Red Cross, collaborating nursing homes and collaborating specialized physicians) to provide ancillary services like transportation of disabled clients, meal services for those unable to cook, night care, oncological care and psychological support. This leads to the creation of a public network involving the canton, the municipalities, the established organization (as an administrative and professional entity managing the network and providing the majority of the services) and other non-profit organizations providing complementary services, of which each has its own competences and specializations (Cristofoli et al. 2014b). These public networks are called "Spitex networks".

Spitex networks support clients of all age groups who need medical aid, care, supervision, monitoring or advice in order to live at home while receiving specific treatment or assistance. The idea behind Spitex networks is that patients are given the treatment, support and advice that they need by specially trained nurses in a familiar environment, in an attempt to increase their comfort, autonomy and self-determination. Providing these services at a patient's home is also considered to be less cost intensive than treatment in stationary facilities like hospitals or nursing homes. Home care services have thus become an essential part of the overall health and social care system in Switzerland.

Within this framework, we selected 12 cases of Spitex networks operating in Switzerland. In order to ensure their anonymity, we will label them Spitex A to Spitex L[3]. Table 1 shows the main characteristics of each case. All of them were established at the beginning of 2000 and normally provide services like care, household services, meals, nursing homes, transport, but also such services as pedicure, hairdressing, social counselling, night care and weekend care. We chose Switzerland as it is an extraordinary laboratory for our analysis. As Sager and Rielle (2013: 8f.) pointed out: "*Switzerland represents an ideal field of investigation for systematic comparative enquiries [...] due to its 26 relatively autonomous cantons, which also vary greatly in terms of their contextual features and internal administrative organization.*" As far as Spitex networks are concerned, this meant that Swiss cantons had plenty of scope when establishing the legal framework for municipalities to choose an organizational system for home care services. They could take into account the cantonal, regional, political and cultural contexts, fiscal constraints and the different traditions of public service delivery. As a result, Spitex networks were implemented with the same purposes and goals, but in varying contextual circumstances (i.e. varying degrees of resource munificence) and with varying structural characteristics (i.e. modes of network governance).

As far as contextual circumstances are concerned, the availability of financial resources in the external environment significantly varies from canton to canton. In some cantons, the municipalities are mainly in charge of the funding; in some, there are splits of varying degrees in funding responsibilities between the cantonal and the municipal level, and in others, the canton is the sole source of funds. In addition, the assigned public funds (and consequently the degree of uncertainty) vary from around 26% in the Canton of Appenzell Ausserrhoden up to 69% in the Canton of Geneva (Swiss Federal Statistical Office 2010). The remaining financing comes from the organizations' own revenues and/or through client fees paid for services received, donations and membership fees.

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[3] Six Spitex networks have already been described in previous studies (Cristofoli et al. 2014a and 2014b).

Similarly, as far as structural characteristics are concerned, the modes of network governance vary from canton to canton. In some cantons, the government directly activates the actors involved in the provision of home care (Spitex and non-profit organizations). In others, the government or various municipalities make a focal Spitex organization responsible for providing services, activating other actors when necessary, and administering and coordinating the resulting network. In other cantons still, the government makes a Spitex organization responsible for providing services, activating other actors, administering and managing the network, but the focal organization splits its organizational structure into headquarters to administer and coordinate the network, and subsidiaries to provide services and activate non-profit organizations when necessary.

In line with the QCA requirements for good analysis, 12 cases were purposefully chosen in order to ensure sufficient variation in the causal and outcome conditions (Rihoux and Ragin 2009). More specifically, three criteria were applied in the case selection process. First of all, in order to check for effects that could be attributed to economies of scale, we chose networks with a catchment area of at least 25,000 people. With this threshold, we restricted our analyses to the biggest 15%. In order to have sufficient variation in the causal conditions, we then purposefully chose cases from different cantons, with varying public funding (resource munificence) and different structural characteristics (modes of network governance). Furthermore, to have sufficient variation in the outcome condition, we chose six successful cases and six unsuccessful cases (on the basis of our definition of performance, as described in detail below).

Table 1. *Selected Cases*

	Spitex A	Spitex B	Spitex C	Spitex D	Spitex E	Spitex F
Type	Municipal network	Cantonal network	Regional network	Municipal network	Cantonal network	Cantonal network
Public Funding	23.6% Municipality 20.8% Canton	44.8% Canton	32.6% Municipalities	41.9% Municipality 9.5% Canton	26.9% Municipalities 26.9% Canton	69.2% Canton
Structure	A network built around one Spitex organization operating in the city	A cantonal network covering the whole canton and all of its municipalities	A network set up by four municipalities from two different cantons to provide services in the border region between the cantons	Three Spitex organizations at the centre of a network covering the city, within the boundaries of different districts	A cantonal network consisting of eight different regional associations/ foundations covering the whole canton and all of its municipalities	A cantonal network consisting of four regional associations covering the whole canton and all of its municipalities
Size	23 Participants	11 Participants	16 Participants	13 Participants	50 Participants	22 Participants
	Spitex G	Spitex H	Spitex I	Spitex J	Spitex K	Spitex L
Type	Regional network	Regional network	Regional network	Cantonal network	Cantonal network	Regional network
Public Funding	44.3% Municipalities 11.1% Canton	44.3% Municipalities 11.1% Canton	20.9% Municipalities 35.1% Canton	57.9% Municipalities	31.2% Municipalities	40.8% Municipalities 11.8% Canton
Structure	A regional network operating on behalf of multiple municipalities within their boundaries	A regional network operating on behalf of multiple municipalities within their boundaries	A regional network operating on behalf of the canton within the boundaries of several municipalities	A cantonal network covering the whole canton and all of its municipalities	A cantonal network covering the whole canton and all of its municipalities	A regional network operating on behalf of multiple municipalities within their boundaries
Size	50 Participants	70 Participants	36 Participants	44 Participants	10 Participants	9 Participants

The exact selection of cases was based on a two-step procedure and informed by knowledge gained throughout the research process. The first step involved a comparative summary of contextual and structural network aspects covering all cantons in Switzerland. In the next step, the results of the comparative summary were examined and the cases with sufficient variation in their contextual and structural conditions were selected. In keeping with the QCA requirements (Ragin 1987; Rihoux and Ragin 2009), we chose a number of cases, which was small enough to allow us to gain familiarity with the specific contextual, structural, functioning and managerial characteristics of each network, but large enough to provide sufficient variation among cases.

Operationalization

At the end of the literature review, we identified four determinants of network performance (resource munificence, centrally governed network structures, formalized coordination mechanisms and network management) as key conjunctural conditions. In order to perform an fsQCA and investigate their joint dimensions, extracted conditions needed to be operationalized and calibrated on the basis of theoretical and substantive knowledge gained throughout the research process. The following table summarizes the definitions, the operationalization and the calibration of the conditions (Table 2). It presents the exact definition and measurement for every condition. The definitions and operationalization were directly derived from the existing literature. The criteria for the calibration of the conditions were drawn from studies, including significant ones like Provan and Milward (1995), Provan and Sebastian (1998), Provan and Kenis (2008) and Herranz (2010), or derived from substantive knowledge gained through the research process. Due to the qualitative nature of our data, in the following section we will provide the rationale for the exact assignment of varying membership scores ranging from 0 (full non-membership) to 1 (full membership) in the following part.

Table 2. *Operationalization and Calibration of Conditions*

Condition	Definition	Measure/Items	Calibration
Resource Munificence	Availability of financial resources in the network environment (Provan/Milward 1995)	% Public funding	1 – full membership: highest % of public funding in CH (69.5%) 0.5 – crossover point: Swiss average for public funding (48.8%) 0 – full non-membership: lowest % of public funding in CH (26.2%)
Centrally Governed Network Structures	Shared or centralized network governance with or without distinct administrative entities (Provan/Kenis 2008)	The existence of a system of multiple participants that govern the network together (shared governance), or the existence of a central core agency which governs the network and at the same time engages in the provision of services (Lead Organization) or the existence of a central core agency simply providing administration (NAO)	1 – full membership: network is governed by a NAO 0.67 – network is governed by a Lead Organization 0.33 – multiple members engage in governing the network (shared governance) 0 – full non-membership: no distinct governance structures
Formalized Coordination Mechanisms	Reliance on formalized relationships, contractual agreements, well-organized network meetings and formalized procedures	Questionnaire items (2013 Spitex network survey) (1 – disagree / 7 – agree) 1. Regular meetings are normally organized to coordinate the activities of partner organizations; 2. My Spitex participates on regular meetings with the partner organizations to coordinate the homecare provision; 3. The coordination of each other's activities in the collaboration involving my Spitex and the partner organizations is based on standard operating procedures (like rules, policies, forms); Items of questionnaire (2013 Spitex network survey) (1 - informal / 7 formalized) 4. My Spitex relies on agreements that spell out relationships between partners. These agreements are… 5. My Spitex relies on communication channels when contacting partner organizations about issues related to the homecare. These are… 6. To coordinate each other's activities in the collaboration my Spitex and its partner relies on agreements. These agreements are…	1 – full membership: full reliance on all of the mechanisms mentioned 0.67 – prevalence of and reliance on most of the features mentioned 0.33 – existence of some of the features mentioned, but no reliance on formalized coordination mechanisms 0 – full non-membership: no existence of formal agreements between partners, defined procedures, regular network meetings, or formalized coordination mechanisms
Network Management	Distinct actor or set of actors actively (1) facilitating interaction between partner organizations; and/or (2) easing tensions and unifying interests between network members; and/or (3) developing visions, activating network partners & promoting identification (Agranoff/McGuire 2003)	Questionnaire items (2013 Spitex network survey) (Nobody, Institutional Bodies, Spitex) Who performs following activities? 1. Defining the operating rules to favor the partner collaboration; 2. Defining the framework of rules within which the partner collaboration can take place; 3. Facilitating the interaction among the organizations that collaborate for the homecare provision; 4. Helping the partner organizations to collaborate regardless their contrasting interests 5. Solving conflicts among the partner organizations when they occur; 6. Acting as a mediator and broker (of interests/points of view) among the partner organizations; 7. Identifying the partner organizations and lead them to participate in the collaboration; 8. Forging an agreement among the partner organizations on the role and support of the network activities; 9. Forging an agreement among the partner organizations on the mission and vision of the network; 10. Lead all the partner organizations towards a common objective	1 – full membership: clear actor(s) engaged in facilitating, mediating and leading 0.67 – clear actor(s) engaged in either facilitating and mediating or facilitating and leading or mediating and leading 0.33 – clear actor(s) engaged in facilitating interaction or mediating or leading 0 – full non-membership: no clear network management

As far as resource munificence is concerned, we took the availability of public funding as a measure: greater percentages of public funding mean greater availability of financial resources in the external environment that are certain and not reliant on collected fees or donations. Following the lead of Kitchener et al. (2002), we took the highest funding in Switzerland (69.5%) as a threshold for full-membership (fs score 1); the Swiss national average for public funding (48.8%) as a crossover point (fs score 0.5); and the lowest public funding for health and social care services in Switzerland (26.2%) as a threshold for full non-membership (fs score 0). We then transformed the percentage of public funding into the respective membership scores based on the so called "direct method" using estimates of log odds as a middle step as proposed by Charles Ragin (2008)[4].

As far as network governance structures are concerned, we followed Provan and Kenis (2008) and assigned full membership when the network is centrally governed by a Network Administrative Organization (fs score 1); we assigned strong membership (fs score 0.67) when the network is centrally governed by a Lead Organization[5]; weak membership (fs score 0.33) when network governance is shared among participants; and full non-membership when there is no distinct network governance structure (fs score 0).

As far as formalized coordination mechanisms are concerned, we relied on the definitions provided by Brown et al. (1998) and Jennings and Ewalt (1998) and assigned full non-membership when there is no existence of formal agreements for defined procedures, regulated decision-making processes, regular network meetings, and other formalized coordination mechanisms, such as written agendas or formalized communication channels (fs score 0). We assigned weak membership when such features exist on paper, but the reliance on formalized coordination mechanisms for network interaction and governance is weak

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[4] For the exact approach used please consult Ragin (2008).
[5] We distinguished between two sorts of central core agencies and calibrated varying membership scores for NAO and Lead Organization - networks While a Network Administrative Organization is established in a top-down manner to manage and control the whole network of organizations, a Lead Organization emerges through time on without necessarily being linked to all or most of the other network partners. Therefore, the degree centrality is likely to be higher for networks managed by a NAO.

(fs score 0.33). We assigned strong membership when we identified a prevalence of and reliance on most of the features mentioned within a network (fs score 0.67), and finally, we assigned full membership when network interaction and governance relies strongly on mechanisms like formalized network rules, contractual agreements, well-organized network meetings and a regulated decision-making process (fs score 1).

As far as network management is concerned, we based our calibration on a typology of network management activities derived from Kort and Klijn (2011) and Agranoff and McGuire (2001; 2003): facilitating (promoting interaction between partner organizations), mediating (relieving tensions and unifying interests between network members) and leading (developing visions, activating network partners and promoting identification). We assigned full non-membership if we could not identify any distinct network management activity (fs score 0); we assigned weak membership if we identified at least one of mentioned management activities (facilitating or mediating or leading) (fs score 0.33); we assigned strong membership if we identified at least two of the three managerial actions (fs score 0.67); and finally we assigned full membership if we identified all three of the activities at the same time (fs score 1).

In order to assess the extent of membership in each condition, we triangulated the data collected through the questionnaire (see the items in the Appendix) with in-depth case knowledge that we gained through the interviews. See the "Data Collection" section below for more information.

Network Performance. Measuring network performance is a difficult task. Since the seminal work of Provan and Milward in 1995, tens of studies have been published about the concept and measures of network performance but a general consensus has not been reached. Some scholars have focused on network performance from an organizational perspective (Provan et al. 2005; O'Toole and Meier 2004, 2006; Kiefer and Montjoy 2006; Goerdel 2006; May and Wintera 2007; Meier and O'Toole 2003, 2010;

LeRoux et al. 2009; Akkerman and Torenvlied 2011), others have considered the entire network (Mandell 1994; Provan and Milward 1995; Provan and Sebastian 1998; Keast et al. 2004; Van Raaij 2006; Lindencrona et al. 2009; Provan et al. 2009; Herranz 2010), while others still have evaluated network performance by considering the effect on the community (Provan and Milward 1995; Provan and Sebastian 1998; Herranz 2010). Building on various levels of analysis (in organizational, network and community terms), the measures used in the field have also diverged. Some scholars have used structural measures to evaluate performance (Provan et al. 2005), some have utilized procedural measures (Mandell 1994; Keast et al. 2004; Van Raaij 2006), and others have focused on output and outcome measures (Provan and Milward 1995; Provan and Sebastian 1998; Meier and O'Toole 2003, 2010; O'Toole and Meier 2004, 2006). As Raab et al. (2013: 6) pointed out, on the basis of Kenis and Provan (2009) and Simon (1947), "*this does not come as a surprise*", as networks are multidimensional and assessment criteria are inherently normative. We are aware of this, and we acknowledge also the importance of public networks for policy making and implementation, so we believe that it is important to try to evaluate network performance and look for its determinants. Therefore, in accordance with the scope of our paper, we will follow Kenis and Provan (2009) by focusing on the performance of the network as a whole and evaluate it in terms of "*network capacity to achieve stated goals*" (Kenis and Provan 2009; Turrini et al. 2010; Raab et al. 2013).

More specifically, since Spitex networks are mandated, clear objectives can be found in their designated public assignments and established performance agreements. These documents state that patients should be treated as long as medically possible in their own household environment (Spitex Association 2011) and that according to the logic of a one-stop shop a comprehensive range of services should be offered. However, performance agreements between the canton and each Spitex clearly state the containment of costs as an important goal, as the networks receive up to 69% of their budget through public funding. Hence, in order to have a measure of network performance that reflect the Spitex

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networks' goals, we considered the ability of Spitex networks to serve as many patients as possible (1), with as many services as possible (2) and at the lowest possible cost to the community (3), and then combined them into a single measure. The ability to serve patients was measured by the percentage of patients served: the more patients are served, the fewer people are treated in nursing homes, hospitals, or other stationary facilities. This is something that is directly related to the guiding principles mentioned above. In particular, we considered the ratio between the number of patients over 64 treated by the Spitex network and the total number of people over 64 living in the respective Spitex catchment area. We considered patients over 64 as they normally constitute up to 85% of the patients treated by Spitex networks. Furthermore, we believe that controlling for the elderly population in each network environment allows us to control the varying local demands.

The ability to provide as many services as possible was measured using the figures for the number of services provided to us by the survey participants. The larger the number of services that are offered directly by the network, the smaller the number of clients will be that need to take initiative and find alternatives to meet their needs. The cost of network activities to the community was evaluated using the ratio between overall costs and hours delivered[6]. This makes it possible to account for the financial aspects of service delivery, as Spitex network activity is mainly funded by public money.

Finally, a unitary measure of network performance was created. In particular, after the calibration of each performance indicator using the "direct method" as we detailed above, the membership scores were added up and an overall network performance measure was created by calibrating new membership scores for network performance based on the totals of the single indicators. The calibration of membership scores was based on substantive grounds. After plotting the percentage of patients served, the number of services provided and the cost to the community of each case, we used the Tosmana

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[6] In order to check for variation due to clients' needs, we chose a measure that weights the cost relative to the hours delivered.

Software tool to calibrate thresholds that split the cases into clusters[7]. Table 3 summarizes the calibration of each indicator and the overall network performance assessment, while Table 4 summarizes the performance of all cases.

Table 3. N*etwork Performance Calibration*

Indicator	Full membership - 1	Crossover point – 0.5	Full non-membership – 0
% Patients served	15%	10%	8.50%
#Services	20 Services	17 Services	12 Services
Cost/H	92 CHF/H	CH average – 105.99	154 CHF/H
Overall	$\sum$ membership score > 2.19 (best performer)	$\sum$ membership score = 1.5 (3 x 0.5)	$\sum$ membership score < 0.16 (worst performer)

Table 4. *Network Performance*

Case	% patients served	# Services	Costs/ H	% patients served	# Services	Costs/H	$\sum$	Overall
Spitex A	7.50%	14	83.71	0.01	0.14	0.99	1.14	0.31
Spitex B	9.82%	15	101.71	0.41	0.23	0.57	1.21	0.34
Spitex C	9.79%	15	100.49	0.40	0.23	0.76	1.39	0.44
Spitex D	12.65%	19	106.38	0.83	0.88	0.49	2.21	0.95
Spitex E	19.77%	21	167.70	1.00	0.98	0.02	2.00	0.89
Spitex F	16.82%	21	139.87	0.98	0.98	0.11	2.07	0.92
Spitex G	9.48%	19	79.19	0.26	0.88	1.00	2.14	0.94
Spitex H	9.46%	19	71.08	0.25	0.88	1.00	2.13	0.94
Spitex I	12.61%	19	117.07	0.80	0.88	0.33	2.02	0.90
Spitex J	7.34%	10	134.33	0.00	0.01	0.15	0.17	0.05
Spitex K	9.08%	15	101.04	0.14	0.23	0.74	1.11	0.29
Spitex L	9.78%	16	121.73	0.47	0.35	0.27	1.09	0.29

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[7] We worked with several different thresholds during our analyses. All of them produced the same results after applying Boolean minimization. We selected the thresholds that split the cases into clusters in the best fashion, in accordance with the substantive case knowledge that we gained throughout the research process. In this sense, the calibration of outcome conditions that was obtained proved to be the best match for the empirical evidence.

Data Collection

The data collection for the selected conditions (resource munificence, centrally governed network structure, formalized coordination mechanisms and network management) was based on a three-step procedure. The first step was a national survey that was distributed to the directors of all focal Spitex organizations operating in Switzerland. 523 directors were contacted, with a response rate of about 50 %. The Appendix shows the questionnaire items that were used to collect data about each condition and the corresponding Cronbach's alpha. The second step was about getting an insight into each case by analyzing information provided by network members on their websites, annual reports and official information on government sites of every level. The last step of the procedure involved semi-structured interviews with the directors, other executives of each Spitex organization and the heads of public and private organizations in the networks. The interviews were based on the case knowledge that had already been acquired in the first two steps. In these interviews, specific case-related questions were asked in order to gain in-depth knowledge about every single network and the respective cases and conditions. The interviews were conducted either directly on site or over the telephone. They were recorded and transcribed no more than 24 hours after the dialogue. In total, 51 interviews were conducted for the 12 cases. During our analysis, we triangulated our collected data extensively to match assigned membership scores with empirical evidence.

The data regarding the outcome variables stem from the annual reports of each Spitex organization for the year 2010 and the returned surveys, while the data regarding the population in 2010 within each community were gathered using the details of the residential population in Swiss municipalities provided by the Swiss Federal Statistical Office.

Findings

After complementing the conditions with the outcome variables in the calibrated data table (Table 5), we used the fsQCA software to obtain a "Truth Table" (Table 6), which helps to identify sets of conditions, in other words, multiple causal paths to an outcome using a present/absent dichotomy.

Table 5. *Calibrated Data Table*

Case	Resource Munificence	Centrally Governed Network Structures	Formalized Coordination Mechanisms	Network Management	Overall Network Performance
Spitex A	0.36	0.33	0.33	0	0.31
Spitex B	0.37	1	1	0	0.34
Spitex C	0.08	0.33	1	0	0.44
Spitex D	0.59	0.33	0.67	0	0.95
Spitex E	0.67	1	1	0.67	0.89
Spitex F	0.95	1	0.67	0.67	0.92
Spitex G	0.72	0.67	0.33	1	0.94
Spitex H	0.72	0.33	1	0	0.94
Spitex I	0.74	0.67	0.67	1	0.90
Spitex J	0.79	0	0.33	0.67	0.05
Spitex K	0.09	0.33	0.67	0.33	0.29
Spitex L	0.63	0	0.33	0	0.29

Table 6. *Truth Table with Logical Remainder*

Case	Resource Munificence	Centrally Governed Network Structures	Formalized Coordination Mechanisms	Network Management	Network Performance (consistency threshold 0.75 PRI)	Network Performance Consistency PRI
F; I; E	1	1	1	1	1	1
D; H	1	0	1	0	1	.771812
G	1	1	0	1	1	1
C; K	0	0	1	0	0	.411347
A	0	0	0	0	0	.314607
B	0	1	1	0	0	.672897
L	1	0	0	0	0	.294737
J	1	0	0	1	0	.446429
0	0	0	0	1	R	
0	0	0	1	1	R	
0	0	1	0	0	R	
0	0	1	0	1	R	
0	0	1	1	1	R	
0	1	0	1	1	R	
0	1	1	0	0	R	
0	1	1	1	0	R	

In Table 6, the twelve cases are represented by eight different combinations of conditions and the outcome variables. Three configurations, involving six cases, display a consistent combination of given conditions and high performance, while five configurations display an inconsistent combination of given conditions and low network performance. The consistency threshold was set at 0.75 (PRI), in accordance with Rihoux and Ragin (2009). Configurations displaying higher consistency were coded 1, indicating a consistent combination of indicated conditions and a present outcome (high performance), while configurations displaying lower consistency were coded 0, signaling an inconsistent combination and therefore an absent outcome (low performance). Logical remainders, configurations which are theoretically possible, but which were not observed among the cases, were coded with R. By looking at the Truth Table above, the reader is already enabled to get an idea of the different paths leading to high network performance, but the configurations of conditions leading to high network performance will become more perceptible after performing the so-called Boolean minimization and the extraction of the "minimal formula". Through a series of paired comparisons between configurations that only differ in one respect – in the presence/absence of one condition, while all of the others are identical – we can derive a simpler equation or minimal formula for the conditions leading to high network performance (Table 7).

Table 7. *Results*

	Raw coverage	Unique coverage	Consistency
R*G*M	0.381543	0.369146	1.000000
R*g*F*m	0.286501	0.274105	0.859504

Frequency cut-off: 1.000000   Consistency cut-off: 0.859504   Logical Remainder: absent – Complex Solution
Solution coverage: 0.655647; Solution consistency: 0.933333
Cases with above 0.5 membership in terms R*g*F*m: D, H. Cases with above 0.5 membership in terms R*G*M: E, F, G, I

The consistency and coverage scores from our analysis revealed consistent approximations of subset relations and broad empirical relevance of found subsets. Conditions written in capitals indicate the presence of a condition, while conditions written in lower case indicate the absence of a condition. The multiplication symbol serves as the logical operator "AND" and the plus sign serves as the logical operator "OR". Based on the Boolean minimization, we derived two more parsimonious solutions for high network performance that can be expressed in the following way:

RESOURCE MUNIFICENCE (R) * CENTRALLY GOVERNED NETWORK STRUCTURE (G) * NETWORK MANAGEMENT (M) + RESOURCE MUNIFICENCE (R) * centrally governed network structures (g) * FORMALIZED COORDINATION MECHANISMS (F) * network management (m) => HIGH NETWORK PERFORMANCE

These combinations can be reformulated as follows:

(1) In a resource-munificent context, the presence of centrally governed network structures combined with the presence of network management leads to high network performance.

(2) In a resource-munificent context, the absence of centrally governed network structures combined with formalized coordination mechanisms and the absence of distinct network management also leads to high network performance.

In order to complete the Qualitative Comparative Analysis, it is necessary to analyse the causal relationships of conditions with each other and to engage in an analysis of necessity. After studying the set-theoretic relation between membership in the outcome and membership in possible necessary conditions, as proposed by Ragin (2000), we could not identify a single condition that would meet the

consistency threshold[8] of .9. However, considering the two extracted paths and the analysis of necessity together, we can interpreted resource munificence as INUS conditions. INUS means that the condition is an insufficient but necessary part of causal paths, which are themselves unnecessary but sufficient[9]. On the other hand, network governance structures, formalized coordination mechanisms and network management are neither necessary, nor sufficient conditions for the occurrence of the outcome. However, considering the extracted configurations, we can nonetheless state that centralized network governance structures/network management and decentralized governance structures/high reliance on formalized coordination mechanisms/absence of distinct network management can be considered sufficient combinations of conditions to achieve high performance in resource-munificent environments.

Discussion

After extracting two paths towards high network performance, it is necessary to discuss these paths and enrich the analysis in a qualitative manner. Therefore, we will use case evidence to reinforce the extracted solutions.

Resource munificence is a given in all successful cases. As well as confirming Provan and Milward's results from 1995, this is in keeping with the ideas developed by the researchers during the research process. Several interviewees stated that without sufficient resources, their effectiveness might be jeopardized. "*The (public) funding of services is always an issue. There is no question that the services delivered – which are deemed necessary and appreciated by the public – are cost intensive. Therefore, in order to provide these services in an adequate manner, we need suitable cantonal and municipal funding*" (CEOi).

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[8] Results of the analysis of necessity: resource munificence – consistency 0.760331; coverage 0.822653; network governance structures – consistency 0.699725; coverage 0.848080; formalization – consistency 0.811295; coverage 0.736250; network management – consistency 0.484848; coverage 0.811060.

[9] We would like to thank an anonymous reviewer for pointing us to this interpretation.

Given "adequate" resources, we can identify two different configurations of conditions that lead to high network performance. Since the network governance system is based on legal frameworks and regional traditions of public service provision, the structure of these arrangements is seen as a given. Each canton passed legislation that set the pattern for the mode of service delivery. The way networks are organized and participant interaction is structured seems to be contingent on the network governance structure in place. In this sense, the use of formalized coordination mechanisms or the active practice of network management (i.e. facilitating, mediating and/or leading) depends on the extent to which a network governance system is structured around the networks' participants.

In decentralized networks (in our analysis D and H), participants organize their collaboration jointly, in a horizontal way. Both networks rely on a governance that is shared among participants (centrally-governed network structures: 0.33). In the Spitex D network participants are mostly non-profit organizations often with an own agenda, seeking to increase their own legitimacy as independent agencies. Notable hierarchies do not exist and neither do clear actors within the networks that could take the initiative on their own (network management: 0), as each participants seeks to take a part in the governance of the network. Hence, the power and control structure of the network (Provan and Milward 1995) is complex. It is being equally shared among multiple more or less scattered actors in the network. However, at the same time, there is a need of organizing the participants' efforts towards a common and guarantee a certain level of cohesion, as CEOd pointed out: "*With some matters, it can be very difficult to find a consensual solution. Nevertheless, since we are all part of the network, we have to make sure there is uniformity and equal treatment of clients in the whole area*". In order to guarantee a common ground and common standards in certain critical aspects, Spitex D relies on formalized procedures, network rules and contractual agreements between the most important network nodes. Formal contracts exist between the municipality and the participating organizations, as well as between the participants, i.e. the focal Spitex organizations and the organizations providing complementary services. Moreover,

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the city and the two most important organizations govern the network using regular network meetings (six to seven a year), joint decision-making and contracts defining common strategic and operative activities, and the contribution of every participant in the governing subgroup. Furthermore, the use of formalized coordination mechanisms serves to create *"equal status, fairness, openness and transparency among the organizations involved",* in a *"key strategy for successful collaboration"* (CEOd). *"We do not want to enforce our views on anybody: the collaboration has to be right for everyone. It needs to be a win-win situation. Transparency and fairness are always very important for our collaboration, and obviously, reliability is as well. Beyond that, we also ensure that all participating organizations have an equal status"* (CEOd). Hence, formalized coordination mechanisms serve as means to define relationships, roles and responsibilities, and to establish a balance of power among the most important participants.

This notion was also supported by interviewees from Spitex H. Spitex H is the biggest network in the analysis with about 70 participants. It is delivering services to 48 municipalities. Despite its size, Spitex H represent a form of shared-governance network, as it is governed by two subgroups comprising most of the 70 network participants as well as representatives of the 48 municipalities. Due to that, the network has a fragmented and horizontal structure[10]. The power and control structure is very complex due to the networks' numerous participants with a stake taking an active part in the governance of the network. Similarly to Spitex D, each subgroup is in an ongoing struggle to maintain a balance of power among these two subgroups using formalized coordination mechanisms to define relationships, roles and responsibilities. *"Decisions are always made as required by the law and established in the statute"* (CEOh). As a consequence these two subgroup representing a big majority of network participants are

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[10] There are indications that Spitex H might be a mixed-type, where a subset of network participants jointly form a center of the network. We would like to thank an anonymous reviewer for pointing us to this interpretation. The issue of mixed-types between various forms of network governance structures is an interesting one. Unfortunately, within the framework of this study it is not feasible to enter an in-depth discussion of mixed-types but this issue can represent a rich ground for future investigation and research.

mutually defining the strategy of the network and the operative activities and planned meetings are seen as the best solution for mutual decision making by "*clarifying situations or sharing a strategy*" (CEOh).

In this sense, interviews from both above mentioned networks revealed that in shared-governance networks, equal status, transparency, reliability and fairness among major network participants are key factors for uniform, coherent action and ultimately for successful service delivery. In situations where network governance is complex due to fragmentation and decentralization, formalized coordination mechanisms serve as a means to organize, coordinate and direct participants' efforts towards a common goal. In the analyzed shared-governance networks several participants formed a group of "*network administrators*" (Cristofoli et al. 2014b) that established and maintained well-defined and formalized coordination mechanisms as a basis for a procedural decision-making process, in order to ensure coherence throughout the entire network and effective service provisioning.

Meanwhile, networks that are governed more centrally do not need to rely on formalized coordination mechanisms as a way to ensure collaborative action towards a common goal. This does not mean that they do not have these mechanisms at all, but they rely on them to a lesser extent[11]. Instead of relying exclusively on formalized coordination mechanisms to organize participants' efforts, these networks (in our analysis E, F, G and I) actively exert influence through the network management to create an appropriate basis for organizing and coordinating the efforts of network participants towards a common goal. Network management, which can either be exercised by one person or by a group of people, covers everything from facilitating the interaction of different network members across all levels, mediating tensions and reconnecting various issues, to developing visions and activating network partners. "*Spitex F is the key player, managing relations with the Cantonal Government and coordinating the activities of other organizations*" (MANAGEMENTf). The centralization of power and responsibility around one central core agency provides autonomy and enables the agency to steer the

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[11] Membership scores for formalized coordination mechanisms are varying between 0.33 and 1.

network in a managerial way. "*He* [the CEO] *participates in all strategic decision-making processes that involve the various members at all levels and in different commissions (…) He is always present*" (MANAGEMENTe). These central core agencies usually have sufficient resources and above all a certain legitimacy to play a leading role, organize collaborative efforts and move the network towards the achievement of network goals. Consequently, they can intervene to solve problems even if it means activating human and economic resources outside the formal channels. "*It is thanks to the director that we have a flexible and dynamic organization*" (MANAGEMENTg).

Interestingly, while the second extracted path includes only shared-governance networks (Spitex D and H), the first path includes both, networks that are governed by a Network Administrative Organization (Spitex E and F) and networks that are managed by a Lead Organization (Spitex G and I). By comparing the characteristics of these four centrally governed networks with the assistance of Table 5, it becomes evident that the four networks differ in the way they rely on network management. While in networks managed by a Lead Organization, there is a network management engaging in facilitating interaction between partner organizations, relieving tensions, unifying interests between network members and developing visions, activating network partners as well as promoting identification, NAO governed networks tend not to engage in leading the network. The explanation is straightforward. The difference lies in the networks' inception. Network Administrative Organizations are put into the most central position by cantonal and municipal legal frameworks as a separate administrative entity and are therefore equipped with enhanced legitimacy among network participants in order to specifically coordinate and sustain the network (Provan and Kenis 2008). Their founding idea is based on defining the framework of rules within which the partner collaboration can take place, facilitating the interaction among the organizations that collaborate and on acting as a mediator and broker among the partner organizations, rather than on leading all partner organizations towards the fulfilment of common goals. On the other hand, central core agencies in Lead Organization Networks often emerged as the most

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central node in the network through being the core provider agency. They assume a leading role as they are in a central position in the flow of clients and resources (Provan and Kenis 2008). "*I am responsible for the operative accomplishment of the public assignment, and therefore I also have a strategic leading role among the other partner organizations. We cannot leave everything that we see as strategic to the others. There are a lot of operations that we guide, from the definition of services to the structuration and organization of collaboration. We prepare these things and forward them for approval*" (CEOi)[12].

The key insight gained during the research process is that the organizing principles for participant interaction, whether they involve formalized coordination mechanisms or network management, are contingent on the network governance structure in place. We can identify two broader principles: bureaucratic organization and coordination of network participants on the one hand, and a rather managerial approach on the other. Networks integrated by a central core agency tend to rely less on formalized mechanisms and allow the top management to steer and nurture the network with their managerial abilities. Shared-governance networks tend to be more complex, with various powerful network participants usually sharing the task of governing the network by taking a bureaucratic approach in order to organize, coordinate and direct network participants towards a common goal in accordance with established rules and procedures. The scope for managerial intervention is thus reduced to a minimum, while the reliance on formalized coordination mechanisms becomes a governing principle.

Conclusion

This study provides insights into the joint dimensions and the conjunctural effects of four determinants of network performance. It reveals two paths towards high network performance, which differ in the way that networks are structured, how they rely on formalized coordination mechanisms and

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[12] It would be interesting distinguishing centrally-governed networks into networks governed by a Lead Organization and a NAO, and exploring which combination of factors can lead to the network success in both cases. A multi value QCA and more cases would be necessary.

the importance given to network management. In a resource-munificent context, network performance seems to depend on different combinations of network structures, formalized coordination mechanisms and network management. When the network is governed by a central core agency, network performance seems to depend on the simultaneous presence of network management. When the governance of the network is shared among the participants, network success seems to be related to the simultaneous presence of formalized coordination mechanisms defining partner interaction.

This leads to significant implications and conclusions about how to make public networks really work (recalling Provan and Milward 2001) that confirm and complement previous studies. First of all, our results partly confirm what Provan and Milward showed in 1995: network context, or rather resource munificence, is a necessary but not sufficient part of causal paths leading to network success that are themselves not necessary but sufficient. Secondly, our results show that specific structural, functioning and managerial determinants of network performance (i.e. network governance structures, formalized coordination mechanisms and network management) are neither necessary nor sufficient conditions for the success of a network. Only a meaningful combination of them can lead to high network performance. Thirdly, and consequently, our results confirm what Turrini et al. (2010) invited researchers to explore: there are joint dimension among determinants of network performance. We have found two equifinal paths towards network success:

(1) In resource-munificent contexts, the combination between the presence of centralized network governance and network management, or (2) decentralized network governance and formalized coordination mechanisms defining the ground for partner interaction, seems to lead to network success.

Thus, following propositions can thus be formulated:

Proposition 1. In resource-munificent contexts, the combination between centrally governed network structures and network management leads to network success.

Proposition 2. In resource-munificent contexts, the combination between shared network governance and formalized coordination mechanisms leads to network success.

Fourthly, our results shed additional light on the fact that there is more than one optimum way of achieving high performance in public networks. Whether it is best to apply bureaucratic or managerial tools is contingent upon the network structure in place. This has significant implications for those managing and governing a network. In particular, when the network structure is complex and the governance is shared among multiple centers of power, impartial administration of the network by establishing and maintaining formalized coordination mechanisms seems to be an appropriate way of securing effective collaboration within a network setting. In contrast, when the governance structure is centralized, there is more leeway to actively exercise influence through network management. Thus, our results are in line with the findings of Provan and Milward (1995), as centralized integration through a central core agency within a network enhances network performance significantly. They are also in keeping with the results of Provan and Sebastian (1998), who showed that if a network is not centrally integrated as proposed by Provan and Milward (1995), high network performance is still possible, if networks with widely scattered members are strongly integrated by overlapping subgroups (and probably formalized joint procedures and rules, as our results seem to suggest). In this respect, our results seem to be partially different from the Raab et al. (2013) results indicating that centralized integration trough a core agency is a necessary but insufficient condition for effective public networks. However, combining our results with the results obtained by Provan and Milward (1995), Provan and Sebastian (1998), Raab

et al. 2013 and the theoretical reasoning of Provan and Kenis (2008), Kenis and Provan (2009) respectively, it might be argued that centralized integration through a core agency is a necessary but insufficient part of a causal path leading to effective public networks that is itself unnecessary but sufficient. Yet, more research is needed in order to provide a clear answer to this hypothesis.

Finally, our analysis is the first study that challenges the assumption of Provan and Kenis (2008) that shared-governance network are most effective in situations with few participants that are informally organized. While that assumption still might be valid, we have found evidence that successful shared governance networks might as well (a) consist out of relatively many network participants (Spitex H) and (b) rely on bureaucratic means to organize and coordinate the efforts of participants towards a common goal. What is crucial for network success rather than the network's size, is that the complexity of power relations among network participants is addressed adequately. In highly complex governance structures involving multiple centers of power (Spitex D and H), bureaucratic means fulfil their typical functions of ensuring coherence, reliability, transparency and uniformity by defining relationships, roles and responsibilities of otherwise scattered and fragmented network participants. Hence, we believe that it is crucial to interpret a network governance structure in front of its specific history and the prevailing power relations among the participants in order to understand the underlying social processes within public networks.

Although we believe that our configurational approach and results provide a better understanding of the joint dimensions among key determinants of public network performance and show various paths towards high network performance, it is also clear that our research has its limitations and requires further elaboration. One limitation is related to the resource munificence measure. Due to the lack of available data, we were not able to measure resource munificence by including all financial resources, the presence of technical support agencies, or the support from the broader community. We

operationalized resource munificence as the availability of public funding in the network environment, thus focusing above all on the stability of public finance.

Another limitation is the rather low number of conditions. In order to conduct a Qualitative Comparative Analysis, it was necessary to focus the analysis on a small number of core conditions, since the amount of possible configurations increases exponentially with the number of conditions. Especially when the number of cases is at the lower end of the possible spectrum, it is necessary to limit the number of conditions. Therefore, other predictors mentioned by the literature were not integrated in the model. We believe that this fact also contributes to the overall solution coverage of 66 percent. The solution coverage is comparable to the R^2 used in statistical analyses. With this coverage rate we can account for 2/3 of the cases we analyzed. Adding other determinants of public network performance might have enhanced the analysis and obtained results. Consequently, we can conclude that there are likely other configurational paths that lead to high network performance. Investigating more comprehensively the effects among various predictors mentioned in the literature was not feasible in such a study, but it will be the focus of our future research. We are convinced that these paths can be a fruitful basis for future and more complex investigation into the determinants of public network performance.

Chapter Three

Contingencies and Organizing Principles in Public Networks

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Abstract

How to make public networks really work? Many scholars have recently answered this question by emphasizing the importance of network management over other aspects, while few have stressed the trust between network members or the effects of an appropriate structure. Yet, studies that investigate the interactive effects of varying determinants on network performance are almost non-existent. Unsatisfied with the level of integration within the literature, this paper develops and tests the idea of logically coherent organizing principles by building on studies emphasizing the importance of distinct and partly competing factors, such as network management, formalization, network structure and trust, for public network performance. Based on Exploratory Factor Analysis and OLS Regression on 265 surveys that have been completed by members of the 523 health and social care networks in Switzerland, the obtained results confirm what has been hypothesized based on the previously conducted studies: there are multiple, logically coherent organizing principles within successful inter-organizational service delivery networks. However, only a meaningful combination of structure and practices has positive effects on public network performance.

Introduction

The discourse on the abilities of a new type of bureaucrat, the public manager, roots back to the rise of the New Public Management paradigm in the late 1980's and 1990's. Following a notion of almighty public managers, enthusiasts have often called for more discretionary powers to be given to top-level bureaucrats. Christopher Pollitt re-framed that claim as following: a " [...] *seldom tested assumption that better management will prove an effective solvent for a wide range of economic and social ills*" (Pollitt 1990: 1). The idea that effective management can make a difference has spread also into the literature on public networks. Many scholars, especially within the "European tradition" have emphasized the importance of network management over other aspects. Even though the concept of management has been developed from a personified network manager to a more functional idea of network management, the shared believe among a considerable amount of scholars investigating on public networks is that network management, personified or not, is paramount to the success of public networks. In this sense, there are several contributions that attribute high importance to the activities of guiding network processes, facilitating members' interaction and coordination as well as framing of the institutional environment - in general the activities subsumed under the concept of network management (Kickert et al. 1997; Koopenjan and Klijn 2004; Meier and O'Toole 2001; Agranoff and McGuire 2001; Sørensen and Torfing 2009 among others). Even though some of the contributions mentioned deal with varying types of networks, typically governance networks vis-à-vis service delivery networks, a majority of scholars researching on public networks seems to agree that good network management is the key to success in network settings. We believe that this particular stream of research within the field has done great empirical work and advanced the knowledge about the effects and importance of network management. However, at the same time we feel some discontent regarding the recent overemphasis of effective network management and the neglect of other organizing principles such as trust (Edelenbros and Klijn 2007; Klijn et al. 2010b: Nolte and Boenigk 2011; Provan and Kenis 2008), or bureaucratic

formalization (Brown 1998; Jennings and Ewalt 1998), as well as structural characteristics of the network itself (Provan and Milward 1995; Provan and Sebastian 1998; Provan and Kenis 2008; Huang and Provan 2007), a concept that has been a key characteristic in understanding public networks and their performances but that recently has been paid less attention to by the broader community. In this respect, this paper proposes an integration of trust, bureaucratic formalization and network management as distinct principles governing within a network and its structure into one framework and seeks to unwrap the distinct interactive effects among them.

Following first evidence, this paper aims at investigating how different network structures require varying organizing principles in order to set the path for successful public networks. Organizing principles are practices that have been developed in order to foster the coordination of participants' interaction. In detail, we hypothesize that the effect of different organizing principles, such as formalization, network management or trust, is contingent upon the degree of network centralization. While more decentralized networks are in the need of formal coordination mechanisms to direct interdependence aspects by facilitating members' interaction and coordination, centrally organized networks profit from rather managerial approaches, usually subsumed under the label network management, when organizing and coordinating collaborative efforts within network settings. However, since public networks consist always of various participants, they also rely on interpersonal relations to manage interdependence aspects. Thus, we hypothesize that trust among participants is beneficial for network outcomes.

In order to investigate the stated relationship between network structure and the distinct organizing principles, we will analyze service-delivery networks for the provision of health and social care services in Switzerland. Those networks involve different public and private actors jointly organizing and providing services to the public. These actors are represented by cantonal government, municipalities, a focal organization aiming at providing administration, coordination and/or services and a broad array of

other non-profit organizations providing complementary services. Data were collected through a survey involving the directors of the organization that is delivering the services to the general public. We contacted 575 networks, 523 directors initially agreed to participate in our survey and we obtained a response rate of about 50%.

The paper is structured as following: after reviewing the relevant literature on public networks, we will derive hypotheses reflecting the state of art in the field and our expectations. After presenting the derived hypotheses, the empirical setting, as well as the data collection and analysis will be introduced to the reader. Towards the end of this paper, results will be presented and discussed.

Theory and Hypotheses

The success of public network is a long-standing theme in public network literature (e.g. Mandell 1984; Agranoff 1986; Provan and Milward 1995; Ferlie and Pettigrew 1996; Kickert et. 1997; Provan and Sebastian 1998; Mandell 2001; Provan and Milward 2001; Herranz 2009; Kenis and Provan 2009). Many studies have focused on understanding which determinants effect public network performance. In their increasing efforts, various schools of thought from both sides of the Atlantic have pursued a variety of ideas of possible determinants of public network performance. In fact, the list of tested determinants is long (for comparison consider Turrini et al. 2010). Hence, instead of engaging in a full scale review of determinants of public network performance, we will focus on our research goal, the discovery of contingencies between structural characteristics and organizing principles, and review the literature on structural, functioning and managerial determinants that are plausible contributors to our theory.

Structural Characteristics. Regarding network structural characteristics, the publication of Provan and Milward (1995) along with Provan and Sebastian (1998) set the pathway for considerations regarding the structure of public networks. The most important structural characteristics that were put

forward in those publications were the arguments of centralization and integration. In a qualitative study comparing four mental health networks Provan and Milward demonstrated how centralized networks in conjunction with direct and unfragmented control and mediated by resource munificence and system stability directly affect network performance. In this way Provan and Milward showed that differences in network effectiveness can be explained primarily by aspects of network structure (centralization) and secondly by the network context (external control, system stability and resource munificence). In this way, Provan and Milward have developed the first theoretical framework for understanding the effects of determinants on public network performance. It seems important to note that contrary to the current trend within the field, the first influential framework was based on arguments of structural characteristics. This framework was successively expanded by Provan and Sebastian in 1998. Based on a similar approach to appreciate effects of network structural characteristics on network effectiveness, the authors argued that integration among a subset of agencies in decentralized networks was positively related to network performance, hence showing that centralized integration through a central core agency, which is organizing, coordinating and monitoring activities of involved participants, is not the only path towards successful public networks, but that a high degree of integration among a subset of participants in decentralized network settings with widely scattered members can also enable the network to perform (Provan and Sebsatian 1998). Hence, we derive following two hypotheses:

H1: Centralization positively affects network outcomes

H2: In decentralized networks, higher degrees of integration among network participants are positively affecting network outcomes

Formalization. The importance of formalized rules and written contracts for organizing and coordinating complex systems is known since Max Weber's "Economy and Society" published in 1922. Weber defined formalized rules, contractual agreements and regulated decision-making processes as mechanisms to ensure reliability, impartiality, and fairness, as well as uniform service-delivery to the public. Own research has shown that the function of such coordination mechanisms did not change ever since. Several qualitative analyses have revealed that decentralized networks successfully used formalized coordination mechanisms to define the relationships among network participants and specify and assign tasks as well as responsibilities to certain agencies in order to coordinate joint efforts towards a common goal. In this sense, formalization is used to ensure reliable and uniform service-delivery to the public in network settings that through a widely scattered structure of participants had problems coordinating otherwise. Furthermore, such contractual agreements and formalized network rules are often used as a basis to divide decision-making competences horizontally and equally among a broader set of network participants. Interestingly enough, formalized coordination mechanisms do not play an important role for the coordination of common efforts in centralized network settings, where organization and coordination of joint efforts was performed by a central core agency (Cristofoli et al. 2014a; Cristofoli et al. 2014b; Cristofoli and Markovic 2014).

Apart from own research, there is also evidence in the literature that formalized network rules, written agendas, well-organized network meetings and contractual agreements can improve public network performance by facilitating coordination processes within the network, binding decision alternatives and assist planning through greater levels of reliability (Brown et al. 1998; Jennings and Ewalt 1998). Furthermore, Provan and Kenis (2008) suggest that certain decentralized or centralized network governance structures can rely either on well-defined and formalized coordination mechanisms, or on more informal relations and spontaneous agreements between network participants in order to

facilitate coordination of joint activities towards the realization of common goals. Combining evidence from own research with the state of art within the field we derive our third hypothesis:

H3: In decentralized networks, higher degrees of formalization are positively affecting network outcomes

Network Management. Network management is most probably the best studied concept within the literature on public networks. As mentioned above, the idea that effective network management can help to organize and coordinate common efforts and therefore positively affect network outcomes is widespread (Kickert et al 1997; Agranoff and McGuire 2001; Meier and O'Toole 2001). Consequently, many scholars have emphasized the importance of effective network management over other aspects. The general discourse on network management is quite diverse and comprises discussions of managerial roles, network management activities and managerial strategies, even though the analytical distinction between activities and strategies can sometimes become unclear. The concept itself has evolved from a very personified understanding of a network manager who nurtures and/or steers the network towards the accomplishment of goals, to a more functional concept of network management where the employed activities, strategies respectively, are expected to impact positively on network outcomes, regardless of whether they were applied by a single person in charge, the almighty network manager, or a variety of persons that commonly or interchangeably take responsibility of network management. The simplest definition of network management has been provided by Klijn and colleagues, which define it as: "*The deliberate attempt to govern processes in networks* […]" (Klijn et al. 2010a: 1065). While many different managerial activities have been discussed in the literature that fit this simple definition of network management, we can synthesize them into three broader categories: facilitation, mediation and leadership (Agranoff and McGuire 2001; Agranoff and McGuire 2003; Shortell et al. 2002). These three

broader patterns of managerial action include the guidance of network processes, as well as the framing of the institutional environment, which has been also labelled as "*meta-governance*" (Sørensen and Torfing 2009), and can be seen as a promising abstract resemblance of what is being discussed under the term network management.

First, facilitating refers to the creation of an institutional environment that favors partner interaction by implementing and possibly readapting operating rules within which collaboration can effectively take place and by changing prevalent values and norms, as well as the perceptions within the network if necessary (Kickert et al. 1997; Agranoff and McGuire 2001; Koopenjan and Klijn 2004). Second, mediating refers to easing tensions among network participants and building up commitment among network members in order to strengthen partnerships between them by seeking formal adjustments through bargaining and negotiations, by rearranging network structural processes and by building governance mechanisms, which align the interests of partner organizations (Kickert et al. 1997; Agranoff and McGuire 2001). Finally, leadership refers to developing a vision, selecting and activating appropriate actors and resources for the network, mobilizing network members and pushing them towards the achievement of developed visions and goals by being impartial, gaining trust and building consensus and commitment for the cause (Klijn 1996; Agranoff and McGuire 2001; Brown et al. 1998; Shortell et al. 2002).

The overall positive effect of managerial activities on network outcomes is well shown through plenty of studies (e.g. Meier and O'Toole 2001; Klijn et al. 2010a; Kort and Klijn 2011; Steijn et al. 2011). While this general effect is not contested, those studies have not tried to understand how network management affects network outcomes in different network structures. In this respect, own research has revealed that while network management is of major importance for the organization and coordination of joint efforts in centralized network settings, it is of less significance in decentralized network settings, which rather rely on formalized coordination mechanisms due to specific contingencies those networks

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have to meet (Cristofoli and Markovic 2014). Such evidence has been also supported by theoretical reasoning brought forward by Provan and Kenis (2008) arguing that if the task requires significant interdependencies among network members different governance forms (decentralized or centralized) require different network-level coordination competencies. In that case decentralized shared governance systems will likely underperform "*since demands will be placed on individual network members for skills they may not possess*", whereas centralized governance system will likely perform well due to developed specialist skills related to network-level needs (Provan and Kenis 2008: 240f.).

H4: In centralized network settings, the positive effect of managerial activities on network outcomes is expected to be stronger than in decentralized network settings

Trust. Considering the discourse on trust in the classic network literature stemming from organizational studies, trust has been seen as an essential organizing principle for networks to perform well (Powell 1990; Uzzi 1997; among others). The idea that trust is a major organizing principle in network settings goes back to the notion that markets, hierarchies, and networks coexist, and make use of different logics, which make these three mechanisms of resource allocation more or less suitable in varying circumstances. However, only recently the literature on public networks has started to pay attention to trust as an organizing principle in public networks (Edelenbros and Klijn 2007; Klijn et al. 2010b: Nolte and Boenigk 2011; Provan and Kenis 2008). Yet, compared to the importance that the concept of trust gained in other fields, it seems understudied in the context of public networks, which is surprising as it is supposed to be important in situations of high uncertainty (Klijn et al. 2010b). Trust itself is a multidimensional concept. The broader literature on trust seems to agree on three characteristics that allow to give a definition of the concept: vulnerability, risk and expectations (ibid.). Klijn and colleagues, scholars within the public network literature that have engaged in greater efforts to

discover the effects of trust in network settings, define trust as willingness to assume a vulnerable position by expecting that another actor will refrain from opportunistic behavior without a guarantee that the other party will in fact act behave as expected. Hence, trust is especially important in unpredictable and risky situations, since actors have less formed expectations about the behavior of the other party (Klijn et al. 2010b). Therefore, trust is expected to be an important organizing principle in network settings with increasing complexities, horizontal relationships and less predictability of outcomes. In this sense, Edelenbros and Klijn (2007) showed that higher levels of trust are positively related with better network level outcomes and argued that trust facilitates cooperation by reducing uncertainty and by saving transaction costs. Furthermore, trust solidifies cooperation by enhancing investments and stability in relations, and enhances network level outcomes by stimulating learning, knowledge exchange and innovation. Interestingly, in a subsequent study by the same group of researcher, trust still positively affected network outcomes (this time perceived outcomes), but the effect was weakened (yet still statistically significant) when network management strategies were included into the model. The authors concluded that network management strategies (especially the number of strategies employed) and trust distinctively affect network outcomes (Klijn et al. 2010b).

In 2008, Provan and Kenis made an interesting contribution to the discussion on the role and importance of trust in network settings, connecting the concept of trust with certain structural arguments. These authors argue that network governance, which can be either decentralized and shared among participant, or centralized and executed by a central core agency, must be consistent with the general level of trust density that occurs across the network as a whole. Thus, in some specific network settings (decentralized, shared governance settings) trust ties must be dense, so that perceptions of trust are shared among and between network members, whereas other network settings (centralized governance settings) can function well even when the trust density, i.e. the amount of at least dyadic trust-based ties, is low. (Provan and Kenis 2008). "*In the absence of this* [a dense web of trust-based ties], *shared*

governance will not be effective since there will be little basis for collaboration among network members. When low-density trust is prevalent, networks can still be effective and be a viable form of accomplishing collective goals. However, under this circumstance, network governance is likely to be brokered, either through a lead organization or through an NAO" (Provan and Kenis 2008: 10).

H5: The level of trust within in a network is positively affecting network outcomes

H6: In decentralized network settings, the effect of trust on network outcomes is stronger than in centralized settings

The reviewed literature brought up hypotheses about the effects of varying organizing principles (formalization, trust and network management) and how their effects might be distinct in varying network structures. The state of the art within the literature and the results of own research have motivated us to investigate whether different organizing principles, such as trust, formalization and network management, are contingent upon the degree of network centralization. Answering this question may shed light on the underlying contingencies between network structure and organizing principles in public network research.

Empirical Setting

Public networks set up by Swiss cantons and municipalities to deliver ambulant health- and social care services provided the empirical setting. These ambulant health and social care services are an essential part of the Swiss healthcare system, providing services to the big majority of the elderly at their homes, thereby increasing patients comfort and reducing costs to the healthcare system. The responsibility to organize the delivery of these services either lies at the cantonal level, or has been delegated to the municipalities. However, almost never do governmental entities provide these services

themselves. They rather set up specific organizations in forms of consortia or foundations. Those contracted, private non-profit organizations provide some core services by their own and usually activate other no-profit organizations (e.g. the Swiss Red Cross, collaborating nursing homes, or collaborating specialized physicians) to provide ancillary services, as for example transportation of disabled clients, meal-services for those unable to cook, night care, oncological care and psychological support. In this way, a public network emerges, including the canton, the municipalities, the established focal organization as an administrative and professional organization managing the network and providing the majority of services, and other non-profit organizations in charge of the delivery of complementary services. Each of these non-profit organizations providing complementary services is usually an independent organizational entity with own competences and specializations. The emerging networks are being called "Spitex networks". With their provided services, Spitex networks support clients of all age groups, who need medical aid, care, supervision, monitoring or advice for their capability to life at home while receiving specific treatment or assistance. The idea behind Spitex networks is that patients are treated, supported and advised by special trained nurses in a known environment. The aim is to increase patients' comfort, autonomy and self-determination. Furthermore, such services offered at the patient's home are considered to be less cost-intensive than treatments in stationary facilities like hospital or nursing homes. In this way, the offered homecare services became an essential part of total health- and social care system in Switzerland.

Due to the federalist culture and structure in Switzerland, the 26 Swiss cantons had plenty of scope for legally framing the options for the municipalities to organize the mode of homecare service-delivery according to cantonal, regional, political, and cultural contexts, and also according to different traditions of governments guaranteeing public service-delivery and specific fiscal constraints. In some cantons, the government directly activates the actors involved in the provision of home-care assistance (Spitex and no-profit organizations); in other cantons, the government or various municipalities delegate(s) the

responsibility to provide services, activate other actors when necessary, and administer and coordinate the resulting network to the focal Spitex organization; in other cantons again, the government entrusts the Spitex organization with the responsibility to provide services, activate other actors, administer and manage the network, but the Spitex organization splits its organizational structure into an headquarter administering and coordinating the network, and some subsidiaries providing services and activating no-profit organizations when necessary. For example, during our qualitative research we identified three particular modes of service-delivery of ambulant health and social care in Switzerland. They differ in the degree of regional aggregation, public funding, centralization, and the use of certain organizing principles to coordinate efforts of network participants. These three modes are mostly shaped by cantonal legislature and represent the typical modes that can be found in Switzerland: (1) municipality-based networks; (2) regional networks; and (3) cantonal networks. These different modes can be attributed to the three linguistic parts in Switzerland and are an expression of cantonal, regional and local peculiarities. As a result, Spitex networks were implemented with the same purpose and goal, but in varying contextual circumstances, with varying structural characteristics and relying on a plurality of organizing principles. Hence, Switzerland and the set up public networks covering different municipalities in different cantons are a rich empirical setting to analyze contingencies between network structure and organizing principles and their effect on network outcomes, since it allows to understand whether specific network arrangements proof more effective to achieve stated goals and fulfil the public assignment. In this way, the given variation on contextual, structural, functioning and managerial characteristics, and the equally given goals and public assignments provide a rare opportunity for scientific research.

Method

Data were conducted from a survey to test the derived hypotheses. We distributed the questionnaire to 523 directors of the focal Spitex organizations, which could either be operating at the cantonal, regional or municipal level. We received 265 questionnaires and obtained a response rate of about 50 %. The directors were asked questions about contextual, structural and functioning characteristics as well as the managerial activities that were used to coordinate the efforts of network participants. Furthermore, we measured our outcome variable trough questions that allow us to understand each networks performance as perceived by the director of the focal organization.

Network Outcomes. The outcome of interest was measured using perceived outcomes as an approximate evaluation. As Provan and Milward discussed in 2001, overall network performance can be assessed on three different levels, the community-, the network-, and the organizational level. At these three levels different stakeholders are of importance for the evaluation of network performance. Following Provan and Milward (2001) we measured network performance at the network level using the defined effectiveness criteria provided by the authors. In detail, we went through the definition of performance at the network level and the subjective effectiveness criteria (such as the growth of the range of provided services, the integration and coordination of services and the strength of the relationships) and defined four items (Cronbach's Alpha= .869) and asked the respondents whether they agree or not on a scale from 1 to 7 (1 equal to "I totally disagree" and 7 equal to "I totally agree"). After collecting the data, we performed an Exploratory Factor Analysis, which revealed that all four items loaded on one single dimension (factor loadings > .75). Thus, having ensured the reliability of our measurement instrument we created an index variable out of the four answers given by the respondents and used that variable in our statistical analyses.

Table 1. *Network Outcomes – Component Matrix and Cronbach's Alpha*

Network Outcomes	Component
	1
The number of partner organizations involved in the homecare provision grew over time	.756
The relationship to the partner organizations we collaborated with became stronger	.774
The range of services we provided grew due to the collaboration with other organizations	.849
Services from different organizations were better coordinated and integrated because of the collaboration	.868
N of items = 4	Cronbach's α = .869

Extraction Method: Principal Component Analysis, Eigenvalues >1. One component extracted.

Centralization. Accroding to Provan and Milward "*centralization describes the extent to which* […] *cohesion is organized around particular focal points*" (Provan and Milward 1995: 10). In this respect, the concept refers to the *"power and control structure of a network"* that is emerging around a focal organization when network links, coordinative activities and other moments of direct interaction are bound to one particular network participant. We followed the definition provided by Provan and Milward and measured to which extent network links, coordinative activities and other moments of direct interaction are bound to a central core agency. Thus, instead of measuring the network centralization directly through surveying every network participant about the link to other organizations, we followed a similar approach as Brown et al. (1998), surveying single network participants, in our case the director of the organization delivering the core services, about the existence of an agency that interacts with all other network participants, coordinates their activities and takes decisions regarding the network. We developed seven items (Cronbach's Alpha= .942) and asked the respondents to indicate whether they agree or not on a scale from 1 to 7 (1 equal to "I totally disagree" and 7 equal to "I totally agree"). Again, we performed an Exploratory Factor Analysis, which revealed that all seven items load on one single dimension (factor loadings > .8). After ensuring the reliability of our measurement instrument we created an index variable out of the seven answers given by the respondents and used that variable in our statistical analyses.

Table 2. *Centralization – Component Matrix and Cronbach's Alpha*

Centralization	Component 1
There is one central organization (including my Spitex) with which all the organizations interact	.843
There is one central organization (including my Spitex) that plays a central role in coordinating the activity of all the other partner organizations	.898
There is one central organization (including my Spitex) that is in contact with all the other partner organizations	.886
There is one central organization (including my Spitex) that has relationships with all the other partner organizations	.885
There is one central organization (including my Spitex) that plays a central role in administering the activity of all the other partner organizations	.843
There is one central organization (including my Spitex) that plays a central role in governing the activity of all the other partner organizations	.864
There is one central organization (including my Spitex) that activates all the other partner organizations	.819
N of items = 7	Cronbach's α = .942

Extraction Method: Principal Component Analysis, Eigenvalues >1. One component extracted

Integration. In general terms, network integration describes to which extent all network organizations are interconnected or linked to each other. (Provan and Milward 1995). We defined four items to measure network integration (Cronbach's Alpha= .86) and asked the respondents to which extent they agree to the defined statements on a scale from 1 to 7 (1 equal to "I totally disagree" and 7 equal to "I totally agree"). An Exploratory Factor Analysis showed that all items loaded on one single dimension, with the factor loadings being relatively high (factor loadings > .77).

Table 3. *Integration – Component Matrix and Cronbach's Alpha*

Integration	Component
	1
The partner organizations of my Spitex, normally contact each other, regardless the Spitexs' activity, if this is necessary to improve the provision of their services	.858
The partner organizations of my Spitex, normally interact to provide their services, regardless the relationship with my Spitex	.907
The partner organizations of my Spitex collaborate with each other for the provisioning of homecare services	.818
Relationships exist among the partner organizations of my Spitex	.773
N of items = 4	Cronbach's α = .86

Extraction Method: Principal Component Analysis, Eigenvalues >1. One component extracted.

Formalization. Following the study of Brown et al. (1998) we measured the degree of formalization by defining survey items and let the respondents express whether the means of coordination and interaction are rather formalized or informal. We developed three items (Cronbach's Alpha= .763) and let the respondents indicate whether the means of coordination and interaction are considered to be informal or formal on a scale from 1 "informal" to 7 "formal". After collecting the data we performed an Exploratory Factor Analysis which revealed that all three items load on a single dimension with the factor loadings being sufficiently high (factor loadings > .8). Again, we created an index variable out of the three items and used that index in our statistical analyses.

Table 4. *Formalization – Component Matrix and Cronbach's Alpha*

Formalization	Component
	1
My Spitex relies on agreements that spell out relationships between partners. These agreements are…	.810
My Spitex relies on communication channels when contacting partner organizations about issues related to the homecare. These are…	.819
To coordinate each other's activities in the collaboration my Spitex and its partner relies on agreements. These agreements are…	.843
N of items = 3	Cronbach's α =.763

Extraction Method: Principal Component Analysis, Eigenvalues >1. One component extracted.

Trust. Trust is a multidimensional concept, which can sometimes be difficult to measure. Klijn and colleagues mention five different dimensions of trust: agreement trust, benefit of the doubt, reliability, absence of opportunistic behavior and goodwill trust (Klijn et al. 2010b). Instead of defining several items for each dimension, we asked the respondents to provide a general rating of the degree of trust among network participants collaborating to deliver health- and social care services by choosing a number from 1 to 10.

Trust
If you had to give a number rating the degree of trust between the partner organizations collaborating with your Spitex for the provision of homecare assistance, with what number would you rate it (Give a number from 1 to 10 whereby number 1 is the lowest score and 10 the highest score)?

Network Management. Following the definitions provided by the literature (Agranoff and McGuire 2001; Agranoff and McGuire 1999; Kickert et al. 1997, among others) we have derived three respectively four items per defined activity, i.e. facilitating, mediating, and leadership, to evaluate whether managerial activities were employed in each network. We asked the respondents to indicate whether that activity was performed by nobody, institutional bodies, or the Spitex management, as it is often the focal organization to manage the common efforts of network participants. Subsequently we performed several factor analyses in order to extract the items measuring an activity in its best way. Therefore, we selected the items with the lowest cross-loadings and obtained two items per activity. In order to appreciate the general use of network management activities, we summed the average responses to these six items and created an index, the independent variable network management. After ensuring that the newly created scale is sufficiently reliable (Cronbach's Alpha= .795), we used the generated index variable to appreciate the overall effect of network management (consisting out of three concepts/activities) on network outcomes.

Table 5. *Network Management – Rotated Component Matrix and Cronbach's Alpha*

Network Management	Component		
	F	M	L
Defining the operating rules to favour the partner collaboration	.895		
Defining the framework of rules within which the partner collaboration can take place	.861		
Helping the partner organizations to collaborate regardless their contrasting interests		.901	
Acting as a mediator and broker (of interests/points of view) among the partner organizations		.787	
Forging an agreement among the partner organizations on the role and support of the network activities			.650
Lead all the partner organizations towards a common objective			.943
N of items = 6	Cronbach's α = .795		

Extraction Method: Principal Component Analysis, Eigenvalues >.7. Rotation Method:Varimax with Kaiser Normalization.

Rotation converged in 4 iterations. Factor loadings <.45 suppressed for better visualization.

Controls. In order to arrive at good causal inference using statistical analyses, we need to control for confounders, i.e. for variables that have an effect on our independent variables as specified above and our dependent variable – network outcomes. In a vast majority of statistical analyses, it is impossible to control for all possible confounders. Therefore, it has to be the goal to control for confounders with the biggest effect on the independent and the dependent variables, since these confounders present the biggest threat to causal inference using statistical analyses. However, these confounders are usually easier to spot and often have been subject to previous investigation. Thus, in order to arrive at a list of possible important confounders we screened the literature and extracted control variables. Table 6 provides a summary of control variables that have been extracted and how these controls have been operationalized in order to use them in our statistical analyses.

Finally, in order to test our hypotheses we centered the independent variables, built interaction terms and checked for multicollinearity (VIF <1.3).

Table 6. *Control Variables*

Controls	Source	Definition	Operationalization
Size	Provan and Kenis 2008	Number of network participants	Please indicate with how many organizations you usually collaborate to deliver home- and social care services
Catchment Area		Population living in the designated area	Please indicate how many citizens live in the area that your Spitex is supposed to serve
Autonomy	Pollitt et al. 2004; Kort and Klijn 2011	Degree to which discretionary powers to make independent decision exist	To which extent does your organizations have he power to make decisions about… …the provision of homecare services …the definition of its own mission and vision …the definition of its own mid- and long term programs …the definition of its own objectives …the collaboration with other organizations (scale adapted from Kort/Klijn 2011)
Disaggregation	Pollitt et al. 2004; Kort and Klijn 2011	Degree of structural separation from public entities	A clear framework was set up by municipalities/canton that determined the tasks at hand for our organization The control by the municipalities/canton is tight The municipalities/canton want to be frequently informed on the progress of our activities (scale adapted from Kort/Klijn 2011)
Control	Provan/Milward 1995 Meier and O'Toole 2004	Direct, unfragmented external control	Please indicate which of these entities usually control the activities of your organization (list of seven institutions + else option provided)
Financial Resources	Provan and Milward 1995	Availability of financial resources in the environment	Percentage of public funding provided by municipalities/canton

Results

In order to test our six hypotheses we used several standard OLS Regressions. Tables 7 and 8 present the results of that analysis. Model 1 is the baseline equation with all control variables, while Model 2 introduces our derived independent variables: centralization; integration; formalization; management and trust. It shows that centralization has a significant positive effect on network outcomes,

as well as integration, formalization and trust. Building on the previous model, model 3 introduces the interaction terms between centralization and integration, formalization, management as well as trust. Considering Model 3 the reader can see that integration and formalization as well as trust are still statistical significant predictors of network performance. However, the interaction among centralization and formalization is negative significant, while centralization and management is positive significant. Thus, formalization and management have distinct effects depending on whether they are mediated by centralization.

Table 7. *Results of Regression Analyses*

	Model 1	Model 2	Model 3
Size	.200 **	.221 ***	.211 ***
Catchment Area	-.117 *	-.079	-.066
Autonomy	.048	-.038	-.030
Disaggregation	.147 **	.019	.037
Control	.095	.076	.053
Financial Resources	-.073	-.075	-.062
Centralization		.131 **	.096
Integration		.180 **	.161 **
Formalization		.195 ***	.221 ***
Management		.000	.026
Trust		.243 ***	.238 ***
Centralization_Integration			-.060
Centralization_Formalization			-.129 **
Centralization_Management			.189 **
Centralization_Trust			.050
R^2	.074	.252	.289

Standardized Coefficients; * p< 0.1; ** p< 0.05; *** p< 0.01; reflected and log-transformed dependent variable

Figure 1 shows the differences for the effect of network management on network outcomes along three groups of low, moderate and highly centralized networks.

Figure 1. *Effect of Network Management on Outcomes by Centralization*
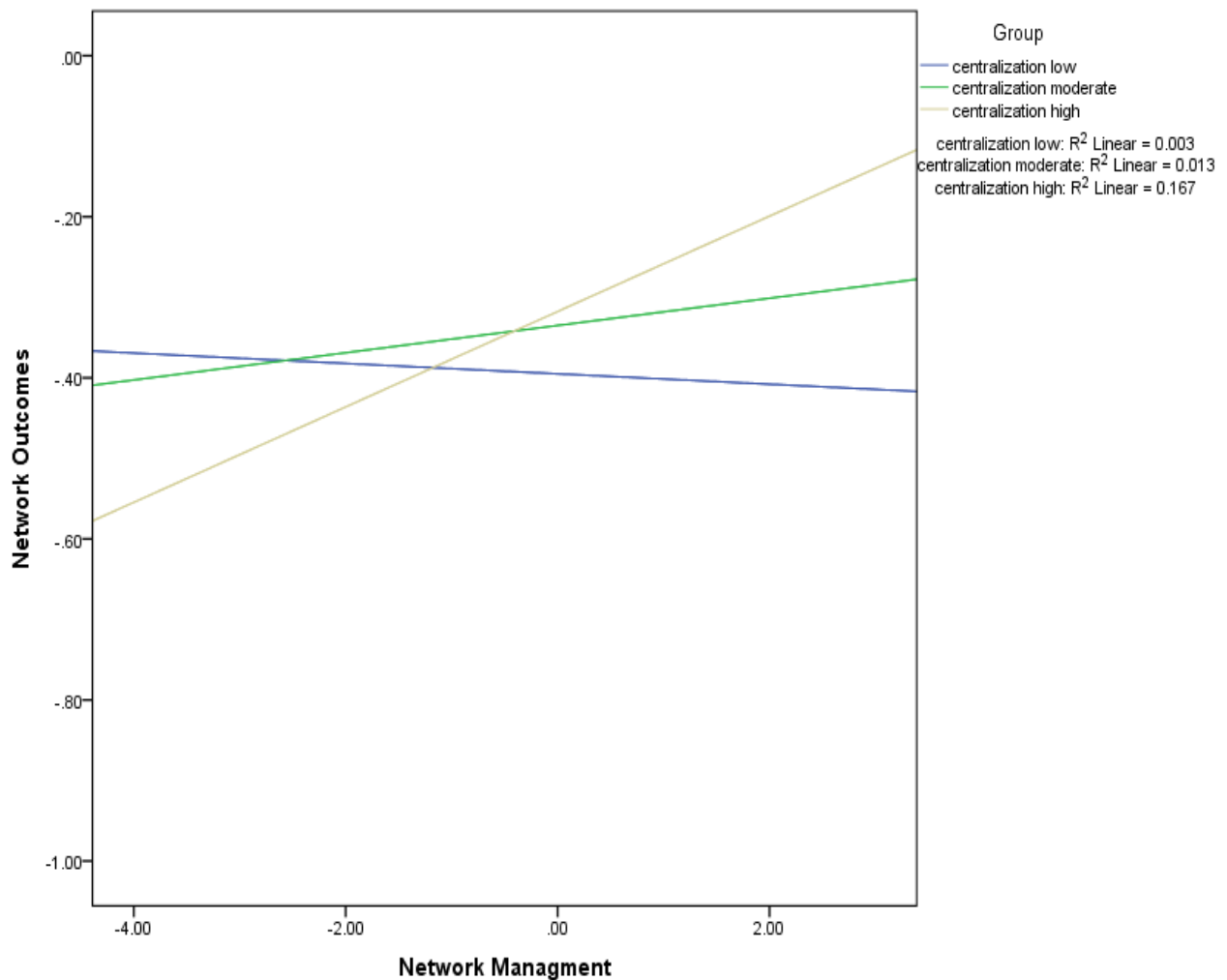
Following Model 3 and Figure 1, we performed further regression analyses using fully interactive models among the least centralized 1/3 of the sample (Model 4) and the most centralized 1/3 of the sample (Model 5), in order to unwrap the varying effects of integration, formalization, network management and trust in centralized and decentralized networks. These two models draw a clearer picture of the varying effects of different organizing principles in public networks. The results of the

performed analyses support most of derived hypotheses. Regarding the control variables, network size had a positive significant effect on network outcomes throughout all models, while broader control has a positive significant effect on network outcomes in decentralized networks. Regarding the effects of defined independent variables, Model 4 shows that in the group of the least centralized networks higher degrees of integration among network participants is positively affecting network outcomes. Hence, we fail to reject hypothesis H2. Further, considering the varying effect of formalization in decentralized networks (Model 4) and in centralized networks (Model 5), results show that in decentralized networks higher degrees of formalization are positively affecting network outcomes. Again, we fail to reject hypothesis H3. Hypothesis H4 suggested a positive association between network management in centralized network settings that is stronger than in decentralized networks. Table 8, Figure 1 and the comparison between Model 4 and Model 5 indicates that there is a significant positive effect of network management on network performance in centralized networks, while it is negative and significant in decentralized network settings. In this respect, we fail to reject hypothesis H4. The last two hypotheses concern the effect of trust. Hypothesis H5 proposed a positive relationship between the level of trust an network performance, while hypothesis H6 proposed a stronger positive relationship in decentralized networks than in centralized networks. The results represented by Model 4 and Model 5 show that a significant positive association between trust and network performance exists, and further that this relationship is stronger in decentralized networks (Model 4) than in centralized networks (Model 5).

Finally, it seems important to highlight that by analyzing the effects of formalization, network management and trust with fully interactive models in decentralized and centralized network settings, we were able to account for a higher explained variance in Model 4 and Model 5, providing the notion of distinct organizing principles in varying structural settings further support.

Table 8. *Results of Regression Analyses for Groups*

	Model 4	Model 5
Size	.212 **	.226 *
Catchment Area	-.082	-.067
Autonomy	-.103	.123
Disaggregation	.045	-.004
Control	.263 **	-.035
Financial Resources	-.050	.037
Centralization	.008	.145
Integration	.269 **	.028
Formalization	.292 **	.079
Management	-.261 **	.297 **
Trust	.278 **	.237 **
R^2	.380	.326

Standardized Coefficients; * p< 0.1; ** p< 0.05; *** p< 0.01; Log-transformed dependent variable

Discussion

Starting from the literature we identified three different organizing playing an important role for the governance of public networks. While the effect of trust on network outcomes seems to be positive in centralized and decentralized network settings, the effect and therefore the importance of formalization and network management as organizing principles is contingent upon the given network structure. Thus, we identified two broader organizing principles that have significantly varying effects on outcomes measured at the network level. One organizing principle, i.e. the contractual definition of relationships, roles, responsibilities, boundaries and communication channels, in short the bureaucratic coordination of common efforts, has shown to have positive effects in decentralized networks settings, while another organizing principle, the use of managerial activities to organize and coordinate the activities of network participants has shown positive effects on network outcomes in a setting in which the "*power and control structure of a network*" (Provan and Milward 1995: 10) is organized around one a focal

organization. In this respect the power and control structure network management seems to be key to the understanding of obtained results. In decentralized networks the network power and control structure is complex, since it is often shared among multiple horizontally dispersed but powerful network participants (Cristofoli and Markovic 2014). In such situations higher integration (H2) among those members that have a stake and higher degrees of formalization of contracts, agreements and communication channels (H3) form a basis to coordinate joint efforts towards a common goal. Network participants then make use of a bureaucratic approach in order to organize, coordinate and direct network participants towards a common goal in accordance with established rules and procedures. On the other hand, centralized networks with a central core agency operate in a context where the governance structure provides significant power asymmetries. These power asymmetries occur either through core providers assuming a leading role in the network bolstered by their central position in the flow of clients and key resources or through inception by legal authorities that establish a Network Administrative Organization to coordinate and sustain a network (Provan and Kenis 2008). In such situations, public networks tend to rely less on formalized mechanisms to organize, coordinate and direct network participants towards a common goal in accordance with established rules and procedures. To the contrary, the central core agency possesses a certain scope to actively engage in steering and nurturing the network with its managerial abilities. Formalization as a guiding principle of organizing and coordinating the efforts of more or less equal network participants with own agendas towards a common goal turns obsolete and is being replaced by managerial activities, typically performed by the most central node in the network. Thus, centralized networks seem to make use of their enhanced access to resources and greater legitimacy providing them with a certain authority to steer and nurture the network in a top-down manner. At this point, it seems interesting to recall Powell (1990) and his typology of markets, hierarchies and networks. Even though networks are clearly contrasted to market and hierarchical governance structures, the author mentions mixed forms of "*status hierarchies*" and "*formal*

rules" within networks. Our research pointed us to the existence of such mixed types. On the one hand, we have found a significant positive effect of formal rules on network performance in decentralized networks and argued that networks with a complex power and control structure, due to widely scattered network participants taking commonly part in the governance of the network, make use of formal rules in order to organize and coordinate the efforts of network participants towards a common goal. On the other hand, we have argued that in centralized networks the central core agency employs its authority based on greater legitimacy, better access to resources respectively, and governs the entire network by exerting influence through managerial activities.

In this sense, we can argue that there is not one best way of organizing common efforts to seek the achievement of certain goals, but that in different network environments, varying structures and diverse organizing principles may lead to success. Hence, there are rather multiple configurations of determinants, which have to be combined in a meaningful manner in order to foster network performance (Cristofoli and Markovic 2014). Each configuration is to be based coherently on the organizing principles in place, which in turn are contingent upon the network structure. These arguments are in line with the literature, as Provan and Milward (1995) and later Raab et al. (2013) have pointed out that network effectiveness is highest if the coordination of partner interaction towards a common goal, is achieved through centralized integration, in other words network centralization, and not simultaneously through a high degree of density among network participants, since this might impose two contradictory coordination logics[13]. These competing coordination logics, or as we called it here "organizing principles", make systems "*unnecessarily complex and inefficient*", since the resources that go into creating and maintaining redundant ties will adversely affect efficiency (Raab et al. 2013).

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[13] However, networks that are centralized through a central core agency are at the same time also more likely to have built certain managerial capacities in terms of network level coordination competencies and are therefore more likely to perform well due to developed speciality skills related to network-level needs (H4) (Provan and Kenis 2008).

Apart from these key findings, this paper sheds light on another interesting relationship. We were able to show that trust has a positive effect on network outcomes (H5) almost regardless of the actual structural setting of a network (H6). In line with the scarce literature, trust seems to have a strong relation with performance in public network by reducing transaction costs, increasing predictability of partners' strategies, reducing possibilities for opportunism and thereby enhancing the chances for collaboration between actors (Edelenbros and Klijn 2007). This result is of exceptional interest, since there has been no study that analyzed the effect of trust on public network performance in varying network structures. Unlike other organizing principles governing in public networks, trust seems to have nearly a universal positive effect in varying network structures. It functions as a lubricant for the relationships among the numerous actors pursuing various interests. In this sense we would like to recall Edelenbros et al. 2012 who argued that network management seems to find its real impact on network outcomes through trust creation and therefore through perceived trust among actors in public networks. These authors attribute a stabilizing effect to trust, arguing that it reduces uncertainty stemming from value conflicts among separate actors and subsequent strategic actions. Even in those situations where value conflicts and various interests are initially met with bureaucratic means, i.e. by high levels of formalization in order to reduce unpredictability, increase reliability, and thereby safeguard stability, trust is not negatively affected (Isett and Provan 2005). To the contrary, it is very likely to lead to more intense relationships as well as increased multiplexity among network participants, and is therefore beneficial for network performance (ibid.). Hence, the co-existence of formalization and trust governing participant interaction in public networks is not a paradox; it rather shows the importance of trust as universal guiding principle in public networks. Apart from formalization in decentralized power and control structures and network management in centralized network settings, trust-based ties among several actors pursuing various agendas is of highest significance for establishing a basis that allows to organize and coordinate common efforts to secure the achievement of a mutual goal.

Conclusion

There are multiple, logically coherent organizing principles within successful interorganizational public networks. One organizing principle, i.e. the contractual definition of relationships, roles, responsibilities, boundaries and communication channels (in short the bureaucratic coordination of common efforts), has shown to have positive effects in decentralized networks settings, while another organizing principle, the use of managerial activities to organize and coordinate the activities of network participants has shown positive effects on network outcomes in a setting in which the "*power and control structure of a network*" (Provan and Milward 1995: 10) is organized around one focal organization. Furthermore, there is evidence that breaking with the inherent logics of each network might affect network performance negatively as the application of network management activities in decentralized network settings is highly negatively related with network performance. Referring back to the start of our paper, we believe to have shown that different network structures rely on varying organizing principles and that it is necessary to integrate evidence regarding managerial steering, bureaucratic coordination, structural arrangements of networks and the role of trust in order to arrive at a more complete understanding of underlying contingencies and how they define the way public networks function. Given the evidence brought forward in this paper, we think that the widespread consensus that network management is paramount to success of public networks might be misleading.

Discussion and Conclusion

The Irony of Networks

As the public sector evolved through three distinct paradigms that shaped the nature of its regime, three resource allocation mechanisms, hierarchies, markets and networks, were used as instruments in order to organize and coordinate policy design, policy implementation and public service delivery. During the preeminent era of the traditional Public Administration model, the state and its administration were seen as the only entities responsible for the design of policies, their implementation and the delivery of services to the public. Hence, the traditional Public Administration model was built on vertical integration of units and an emphasis was placed on formal rules and procedures, which provided the bases for organizing and coordinating policy implementation and public service delivery through hierarchies embodied by bureaucracies. As that model reach its limits, the public sector evolved from a hierarchical model of organizing and coordinating its activities, to a more horizontal approach, where private and non-profit organizations increasingly participate in the design, formulation and implementation of public policy. Hierarchies between public and private entities have been replaced with rather horizontal relationships, in which the participants are partners in achieving effective outcomes (Mandell 1999a). Scholars have argued that in complex, plural and fragmented societies, horizontal partnerships ought to achieve more effective policy outcomes by using participative approaches (Agranoff 1992; Mandell 1999b). Nowadays, such horizontal partnerships are being structured in networks in order to find solutions for complex societal problems and ensure the provision of public services. Consequently, the structure of relationships among actors involved in such processes changed considerably. As public sector entities moved policy design, policy implementation and service delivery from hierarchies to networks, and thereby enlarged the number of participating entities as well as altered the structure of relationships among them, the practices applied in order to organize and coordinate within these new governance systems changed at the same time.

The above presented studies deal exactly with the question of how network structures interact with practices to organize and coordinate efforts of various public, private and non-profit entities and enable or constrain new governance systems to implement policies and provide services to the public. The first study "*Governance, "management" and performance in public networks: How to be successful in shared-governance networks*" was an attempt to explore the interaction between horizontally integrated network structures, where governance is shared among most participants, and bureaucratic means of coordination among involved entities as well as managerial intervention. The results have shown that despite a supposed flexibility and responsiveness to the needs of network participants (Kenis and Provan 2009), success in networks with a shared-governance system seems to depend on the simultaneous reliance on formalized coordination mechanisms and the presence of "*network administrators*" that establish and maintain network rules and procedures (Cristofoli et al. 2014b). These network administrators adopt the role of bureaucrats and follow impersonal, legislated decision-making procedures in order to preserve a balance of power between the major network partners and thus, guarantee stability, accountability and goal attainment in complex networks characterized by a horizontally dispersed power and control structure. Accordingly, the function of these bureaucrats cannot be subsumed under the network management approaches described in the literature as facilitator, mediator and leader (Agranoff and McGuire 2001; 2003; McGuire 2002).

The second study "*How to make public networks really work. A Qualitative Comparative Analysis*", seeks to unwrap the complex causality among the network context, the network structure, formalized coordination mechanisms and managerial activities further. The results show that there a multiple configurational patterns leading to successful public networks. The first pattern consists of adequate funding, a decentralized and horizontal governance system, a high reliance on formal bureaucratic coordination mechanisms and the absence of managerial intervention. Confirming results from the first analysis, the study shows how successful shared-governance networks with a complex structure of

interorganizational relationships share the task of governing the network by taking a bureaucratic approach in order to organize, coordinate and direct network participants towards a common goal in accordance with established rules and procedures. Bureaucratic means become a guiding principle for the interaction among equal network participants with own agendas. The scope for managerial intervention is thus reduced to a minimum, while the reliance on formalized coordination mechanisms becomes a governing principle.

Yet, this insight might be one that is only relevant for (mandated) service-delivery networks for two reasons. On the one hand, horizontally integrated public networks with a shared-governance system consist of rather autonomous organizations that are often independently funded by the public in order to provide services to citizens (Cristofoli and Markovic 2014). Hence, to preserve autonomy, competencies and thereby secure future public funding, formalized coordination mechanisms serve as means to define relationships, roles and responsibilities, and to establish a balance of power among the most important participants. On the other hand, research carried out on governance networks has shown that the more actors are participating in a horizontally structured network, the more complex the decision-making process is due to competing strategies and sudden changes in the environment or the participants' preferences (Koopenjan and Klijn 2004). While governance networks do not need to provide solutions to complex societal problems and value conflicts immediately, (mandated) service-delivery networks do have responsibilities towards citizens, which in most cases depend on a reliable, uniform and adequate delivery of services. Furthermore, unlike governance networks, service-delivery networks have often contractual obligations towards public entities (the government, the administration) that are defined in performance agreements, which foresee penalties if contractual obligations have not been fulfilled. Hence, these formalized rules, agreements, procedures and a regulated decision-making process serve as safeguards to the fulfillment of responsibilities and obligations towards the citizens and public entities.

Besides, the analysis revealed a second configuration leading towards high performance in public networks. The second pattern requires adequate funding, and combines centralized integration through core agencies with the direct application of managerial activities to organize and coordinate the various efforts of network participants successfully. For that, centralized networks exploit power asymmetries among participants that occur due to enhanced access to resources or greater legitimacy. While these networks tend to rely less on formalized mechanisms, power asymmetries provide the central core agency a certain scope to actively engage in steering and nurturing the network with their managerial abilities. In this way, successful centralized networks rely on vertical integration through hierarchies in order to organize and coordinate the network in a top-down manner.

Finally, the last study "*Contingencies and Organizing Principles in Public Networks*" represents an empiric test of results obtained in pervious stages of the research process. It confirms on large scale the positive effect of bureaucratic means in decentralized networks and the positive effect of network management activities on network performance centralized settings. Furthermore, the results show that the practices applied in order to organize and coordinate the efforts of network participants need to be coherently matched with the complexity of structure of relationships among network participants, as managerial practices have a strong and significant negative effect on performance in decentralized service-delivery networks. Lastly, obtained results also provide insights into the function of trust as lubricant of relationships among network participants in varying structural settings. Trust has a positive effect on network performance for both centrally integrated and horizontally structured network settings. Given previous considerations on the interorganizational relationships among network participants, it is not surprising that its effects are slightly stronger in complex networks characterized by a horizontally dispersed power and control structure, as the reduction of transaction costs, the greater predictability of partners' strategies, and reduced opportunism are more functional in systems of independent equals with own agendas.

While the above presented research was conducted using three different methodological approaches and varying data sources, the results gained through a stepwise approach point to the same direction. They show that networks that adopt features of hierarchies function better. Two aspects constitute this particular irony of networks: First, in pluricentric networks with complex relationship structures among participants, horizontally integrated governance systems rely on practices primarily typical for hierarchies and on bureaucrats maintaining them in order to be successful. These insights are remarkable as they challenge the supposed flexibility and responsiveness of shared-governance networks (Provan and Kenis 2009). Second, networks with significant power asymmetries among participants developed certain characteristics of a hierarchical structure, which allow a small subset of participants to steer and nurture network activities in a top-down manner.

Therefore, the sequential tripartite regime model, from the traditional Public Administration, through New Public Management, to the latest New Public Governance model, is a simplification (Osborne 2010). In the empirical world, we find elements of hierarchies, markets and networks coexisting and complementing each other. In a complex reality, hybrids of hierarchies, markets and networks develop and expand into new areas of application in order to find suitable and sustainable solutions to the old problem of organization, i.e. the question of how to get physically and cognitively limited independent actors to cooperate in order to overcome their boundaries and achieve a greater mutual goal through common efforts (to recall Barnard 1938; Simon 1947 and Thompson 1967). Given the increasing complexity of societal problems and value conflicts in a plural, fragmented and interorganizational environment (Osborne 2010), we can observe the introduction of new resource allocation mechanisms to the public sector, but also the recombination of new and existent structures and practices that allows to organize hierarchies, markets and networks. Yet, as this research has shown, only (re-) combinations that follow the idiosyncratic logics of each particular governance system can lead to satisfying outcomes.

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