Network performance and its determinants

A review based on the public administration literature

INTRODUCTION

Since the early Nineties, public networks have been placed centre stage to solve “wicked” problems and are considered the multi-organizational arrangement ‘par excellence’ to achieve solutions that are difficult to obtain by individual organizations. Subverting traditional bureaucracies and hierarchies (Ferlie et al., 2003; Rhodes, 1996), the network society has taken the scene by storm (Raab and Kenis, 2009; Lipnack and Stamps, 1994) with scholars studying the topic and literature on public networks developing significantly as a consequence.

The study of networks can be traced back to studies of inter-organizational relations outside the boundaries of organizations and focusing on the relationships between organizations and their environment (Thompson, 1967). Seeking new methods to coordinate different but interdependent agencies, sociological studies looked at inter-organizational networks as a new framework for the interactions of groups of organizations (Ewalt, 1966). At the same time, managerial studies began investigating how to control and influence environmental complexity to fulfill management objectives (Zaald, 1966). Hence, a key issue has been to identify the boundaries of interorganizational networks and consider the interaction structure rather than their constraints (Porter, 1980; Warren, 1967). Networks are regarded as the third governing structure beyond bureaucracy and markets, characterized by aspects such as reciprocity and interdependencies and by a variety of individual and organizational actors with different goals. In 1997, O’Toole defined inter-organizational networks as “…structures of interdependence involving multiple organizations or parts thereof, where one unit is not merely the formal subordinate of the others in some larger hierarchical arrangement” (45).

Starting from these organizational perspectives and driven by the need to improve the management of intergovernmental relations, the “public management network” community (as defined by Berry, 2004) also focused on the study of inter-organizational
networks in the public sector. Public management and administration scholars began investigating whether networks exist and how they function (Mandell, 1988), how managers can successfully manage these, what competences and skills are needed for this purpose (Agranoff and McGuire, 2001; Klijn, 1996) and the impact that networks have on service delivery and customer satisfaction (Agranoff and McGuire, 2003; Provan and Milward, 1995). Among these studies, two main approaches can be identified (Klijn, 2008): the “American” perspective, which is more managerial-oriented and the “European” perspective with a governance-oriented focus. The American tradition puts emphasis on service delivery and implementation networks, looking mainly at the configuration of the network structure for collaboration (Provan and Milward 1995; Provan and Sebastian 1998; Huang and Provan 2007) and the context in which interactions take place. The European perspective instead mainly investigates governance networks, looking at the complexity of public decision-making and effective governance, linking network effectiveness with the mechanisms facilitating partner interactions (Klijn 1996; Kickert et al., 1997; Agranoff and McGuire, 2003) and network management capabilities (Klijn et al., 2010).

Notwithstanding these different approaches, public networks are frequently regarded as a key inter-organizational form to manage interdependencies and complexity through formal and informal ties between public and private actors aggregated around shared interests or common problems in decision-making and service delivery processes. As stated by Pollit and Hupe (2011: 650) “Networks are envisaged as the more adequate way to make sense of contemporary complexity”. Indeed, ‘wicked’ problems call for solutions other than contracting out, raising issues such as the need to serve collective actions, to put forward new governance mechanisms and to face new complexities and interdependencies (Isett, 2010). Based on horizontal ties and horizontal and non-hierarchical coordination mechanisms, networks can steer interdependencies and render the isolation of public providers or decision-makers impossible: they imply governance without government (Mayntz, 2002) and involve public, private and non-profit actors in the formulation, implementation and provision of collective goods and services. For all these reason, public networks have been associated with the attributes of quality, flexibility and innovativeness. The engagement of public actors in organizational networks for different purposes has become more the rule than the exception (Ferlie, Hartley and Martin 2003; Rhodes 1996). They are seen as strategic choices able to manage the cognitive, strategic and institutional uncertainties (Bueren et al, 2003) typical of contemporary societies where problems are characterised by lack of knowledge, the involvement of many interdependent actors and various decision-making arenas. Hence, public networks have represented for scholars, practitioners and policy-makers an easy way to reduce fragmentation and improve coordination among public agencies, thus increasing the efficiency and effectiveness of service provision, policy formation and implementation.
Despite this euphoria on networks as the best solution, in 1997 O’Toole’s call to “treat networks seriously” implied understanding how they perform, how to measure their performance and what affects their results. This is also the aim of the overarching question of this study: Do public networks really work?

Many authors have doubts, “Not all is in peace and harmony in networks... and network management must be placed upfront as an essential arena of examination” (Agranoff and McGuire 2001: 323). Public managers should take advantage of networks but the negative consequences of networks need to be addressed, “we tend to see the positive sides of network structures without examining the possible negative side, such as convergence toward groupthink, dependence on effective leaders and collaboration skills, and possible inefficiencies due to participant turnover and communication and meeting costs.” (Berry et al, 2004: 550). Many authors have questioned the effectiveness, accountability and legitimacy of networks. Networks cannot be considered as the perfect solution to promoting good governance and service effectiveness or as the panacea for contrasting wicked issues. In turn, good governance should be regarded as a normative statement that involves “the steering of society through networks and partnerships between governments, businesses, corporations and civil society associations” (Pollit and Huge, 2001: 647). The New Public Governance paradigm (Osborne, 2006) requires not only governance mechanisms and inter-organizational relations but also the need to investigate and explain the processes and outcomes of networking settings. Networks cannot be regarded as good per se, and the drawbacks should be addressed (Provan and Lemaire, 2012; Kenis and Provan, 2009; Milward and Provan, 2000; Kickert, Klijn and Koppenjan, 1997): they necessarily imply complex coordination, accountability concerns, instability, coordination difficulties and cost, management complexity, loss of autonomy, conflict and power issues.

Network failure is becoming a contemplated possibility for both practitioners and scholars, and negative outcomes are no longer an exception (Provan, Fish and Sidow, 2007), “if a network approach is judged to be the best strategy given the demands of the task, success is still far from assured” (Provan and Lemaire, 2012: 642). For instance, particularly in the early stage of development, lack of internal and external legitimacy and support can lead to the failure of the network (Human and Provan 2000). Furthermore, network endurance cannot be taken for granted since the external environment, resources and uncertainty (Provan and Milward 1995) can play a key role. Therefore, it is important to understand today whether and how public networks really work. Due to their intrinsic and overriding public function, public networks must be assessed and made accountable to the public they are intended to serve: “we must be able to measure the outcome and the performance of networks in order to assess how accountable a particular network is to its stakeholders and for achievement of its stated goals” (Agranoff and McGuire 2001: 311). At the same time, policy makers need to closely evaluate network effectiveness to better serve public needs in view of scarce public resources (Provan and Milward, 2001: 414). This requires going back to the origin
of networks: the best way of managing these wicked problems is essentially to investigate how public networks operate, define their main successful attributes and how they should be designed, governed (Lindencrona et al., 2009) and assessed.

From all these considerations, two sub-research questions arise: ‘How can we evaluate public network performance?’ and ‘What are the determinants of network performance?’ To clarify these points, the following sections will define public networks, public network performance and their determinants. Thus, the research questions will be discussed, the object of study clarified, the methodology introduced and the research structure presented.

Public networks

Only recently, literature has disentangled the links between public administration and other traditions and identified three main types of public networks, referring to specific research traditions (Klijn, 2008; Isett et al. 2011; Moran, 2013):

1. **Policy networks** lie in the political science tradition and involve public agencies, legislative bureaux and other (public, private or non-profit) organizations for decision-making and policy formation.

2. **Implementation/public service delivery networks** can be traced back to organisational studies focusing on providing public services: they cluster public and private organisations and actors for the creation of public goods, solving the impossibility of the unique involvement of the public or private sector.

3. **Governance networks** are a combination of the first two types. They are the essence of public administration studies since they aim at both policy formation and implementation through coordinating organisations and actors “toward a common goal rather that the policies or products that the networks actually produce” (Isett et al, 2011: 158).

On one hand, these three streams reflect the different sides and interest in public administration tradition (Berry et al, 2004) with scholar studying three different types of networks. On the other hand, they clearly show that the term “public network” is overloaded with meaning since the object of study varies enormously: networks involved in the decision-making process, networks for the provision of public services or networks managing horizontal governance relations to solve public problems. Moreover, some authors (Klijn, 2008; Berry et al., 2004) note that these three different research streams have clear geographical connotations: if policy networks are transversal to both USA and EU research communities, governance networks are mainly investigated in the EU and service delivery in the USA.

In addition to their focus and their geographical origins, the main themes differ. Policy networks are defined by Rhodes and Marsh (2003: 4) as “meso-level concept of interest group intermediation which can be adopted by authors operating with different models of power distribution in liberal democracies”. Here, the main issues refer to the
involvement of actors in the decision-making process, the power relations among them and their effects on policy decisions and agenda setting (Klijn, 2008).

Service delivery networks are “networks of service providers operating in local communities” (Provan and Milward, 2001: 416) developed as a consequence of the devolution process. Dealing with structural arrangements for the joint provision of services, research interest is concentrated on the implementation, management and coordination for effective services, namely, “how public policy is implemented through networks of cooperating service providers” (Provan and Milward, 2001: 414). Governance networks are “structures of interaction between public and private actors through which public policies are made” (Borzel, 2011) aimed at solving wicked problems. The main concerns for this research stream are processes and structures that, managing governance relations and connecting the network to traditional institutions, lead to common decision-making process.

Finally, considering these three traditions, their research focus, their similarities and inferences, a further factor becomes clear: the use of the word network is widespread but blurred in public administration literature (Isett et al., 2011) since it is used as a “metaphor” of a social phenomenon or as a methodological paradigm and analytical tool (Borzel, 2011). At times, the term “network” refers to an organisational concept that does not necessarily reflect a structured body but the organising principle of a group. Alternatively, it is embedded in the language of social network analysis and reflects this method and the measures of its structural components. Finally, this term is also conceived as a formal tool (bound by formal or informal contracts) for managing and providing public services.

Given this plethora of approaches and definitions, it is essential to specify the definition and research approach adopted here. In accordance with extant literature, this review defines public networks in line with the second type of definition: networks that “primarily deliver and manage a variety of public services and that previous authors have variously named providing networks, provider groups, managed network, service implementation network” (Turrini et al., 2010:529), community-based networks (Provan and Milward, 2001) and collaborative networks (Klijn, 2008; Isett et al., 2011; Moran, 2013). These are “instrumental” (Keast and Mandell, 2009; Provan and Lemaire, 2012) and goal-oriented networks, mainly publicly funded, with participants belonging to different sectors and variously committed to network goals (Provan and Kenis, 2007; Provan and Lemaire 2012). They can be formally mandated through a top down process but can also arise from the grassroots level, their boundaries can be formally stated but may also be fuzzy (Provan and Kenis, 2007; Provan and Lemaire, 2012).

Although focusing on a specific type of public network, this review considers both organisational and public administration studies. In fact, as stated by Klijn (2008), “It is not surprising, therefore, that a discerning reader may notice increasing levels of
overlap and mutual exchange between these traditions”. This approach shares Berry et al.’s (2004) view asserting the need to merge traditions, research methods and questions for all the “networks we look at for public management and policy change”. The study of service delivery networks should be able to incorporate typical elements of governance networks focusing not only on the actual provision of services but also on the decision-making and goals definition processes.

Public network performance
Defining the performance of service delivery networks is a difficult task. They are goal-oriented networks with various constituencies and, as a consequence, need to satisfy multiple but frequently conflicting stakeholder interests (of customers, clients, taxpayers, politicians, multiple organisations, to mention a few). These two main attributes - goal-orientation and conflicting stakeholder interests - often create tension and a trade-off in defining and evaluating network performance. On one hand, it is difficult to strike a balance between the two and, on the other, network results need to be defined and measured and choices must be made. This tension and the need for a solution are clear in the comparison between EU and USA literature: the former mostly focuses on the interdependence of multiple stakeholders in networking settings and the latter on the goal-oriented attribute. In order to reach a possible compromise between these two conflicting views, networks should respond to a set of goals in coherence with their key stakeholders (for instance, the community of reference, partner organisations and network members) while a multi-dimensional perspective on network performance and its assessment should be adopted. As Berry et al. (2004: 548) affirmed, “questions about success in network activities must always be asked in conjunction with normative questions about success for what, for whom, and at whose expense”. Any performance evaluation and definition, including multi-perspective and multi-measure approaches, should be considered a normative statement that subjectively solves the trade-off between different goals and conflicting stakeholders. Conscious of these difficulties in conceptualising and measuring public network performance, many authors claim that “despite these problems, networks funded by the public sector can and should be evaluated” (Provan and Milward, 2001). In 1995, Provan and Milward first proposed a multi-perspective and multi-measure approach to assessing network performance, concluding that evaluations and measures depend on the stakeholder perspective that is being considered. Since then, many authors have proposed various conceptualisations and measures of network performance according to different criteria.

First, some authors conceptualise and measure network performance based on the stakeholder perspective. Some focus on network performance from the partner organisations’ standpoint, referring to the returns from their membership; some take into account the entire network and evaluated the benefits for people working within the network; others look at matters from the community perspective, recognising the contribution to the pool of clients served by the network.
Other studies stress the conceptualisation and measures of network performance based on the intrinsic characteristics of the network itself. Some authors evaluate network performance by looking at the network’s ability to survive in the long term. According to others, networks can be considered successful when collaboration between partners works. Yet others focus on the ability of the network to achieve its expected objective. The resulting landscape is still perplexing and implies the need to understand the intrinsic meaning of network performance and its measurement criteria, “it is arbitrary to label one criterion a priori as the correct one because each presents a valid point of view” (Kenis and Provan, 2009). Researchers agree on the impossibility of an overall and unique judgement of network performance since network evaluation is an assumption of responsibility, a choice that reflects constituency judgements. At the same time, from a normative point of view, any criteria can be legitimate but not all criteria can be used for all networks: some, as an element of fact, may be inappropriate and unreasonable (depending on the network characteristics). Assuming this perspective, this review aims to review the different concepts and measures of network performance and proposes a reliable measure following a multidimensional approach that takes into consideration the different nuances of the term as stated by Kenis and Provan (2009). The multi-constituency perspective does not treat the concept of performance as a single statement “but as a set of several (or perhaps many) statements, each reflecting the evaluative criteria applied by various constituencies involved to a greater or lesser degree with the organisation” (Connolly et al. 1980, p. 213).

**Determinants of public network performance**

Understanding successful performance requires opening the black box of public networks and investigating network structural, functioning and managerial characteristics. Recent trends entail the integration of these traditions through understanding how these characteristics together affect network performance (Isett et al. 2011): structural, managerial, contextual and functioning characteristics coexist and jointly determine the success or failure of public networks. This review deals with the in-depth study of the relationships among these determinants. Indeed, the analysis of public network performance involves understanding and evaluating their structure, their functioning, the role of the different actors within the networks and the outcome both in term of decision-making and implementation (Berry et al., 2004). Turrini et al. (2010) define a model with four determinants of network effectiveness (see Figure 1 below): contextual characteristics, structural characteristics, functioning characteristics and network manager.
First, **contextual characteristics** refer to the external environment affecting public network performance and specifically environmental (in)stability and its causes (including resource munificence and cohesion and support from the broader community) and external controls. **Structural and governance characteristics** reflect the effect of structural and governance factors on network performance. Typical structural characteristics investigated by literature include integration, centralisation, the presence of strictly integrated subgroups, network size and composition. Similarly, governance aspects refer to the different modes and degrees of consolidation in which coordination, resource allocation and control among network members are defined. **Functioning characteristics** include all those (formal and informal) tools and mechanisms that support network management and can influence its performance. We can identify aspects such as: integration mechanisms and tools, formalisation and accountability, and inner network stability. Finally, only recently, public management scholars and researchers have focused their attention on the role of network managers in terms of success, however, empirical studies testing their arguments are still lacking. Current studies suggest that managers should nurture the network in order to render it functional and steer it through establishing a clear mission and developing strategies and interventions focused on both the network and their organisations.

According to the above considerations, extant studies provide useful insights on the predictors of public network performance, summarising these into a unitary framework...
and opening new lines of investigation on how these different predictors can jointly affect network performance.

**Research structure**

Based on the above-defined theoretical positioning and definitions, this review uses three chapters to investigate the research questions raised so far.

Conceptualizations and measures of network performance are investigated in the second chapter “Exploring the concept and measures of public network performance”. This systematizes the existing conceptualizations and measures of network performance into a unitary model and, using structural equation modelling, explores its construct validity.

Determinants of network performance are investigated in the first and third chapter. The first, “Structure, mechanisms and managers in successful networks“ takes an explorative and multiple case study approach investigating whether an interaction effect between the determinants of public network performance can be assumed.

The third chapter “Determinants of public network performance: linking governance forms, coordination mechanisms and managerial roles” also takes an explanatory approach and describes causal relations between performance determinants and network results.

Chapter four proposes that network management functions undertaken by governance networks incorporate stakeholder engagement and that network managers play a key role in creating and sustaining connections between governance networks and their stakeholders. Drawing on stakeholder theory and governance network theory, this chapter contributes to the literature by showing that stakeholder engagement is embedded within network management and identifying the critical role of network managers in establishing and maintaining stakeholder engagement.

**References**


Chapter One
Structure, mechanisms and managers in successful networks

Introduction
Public networks have now become widespread, due to the view that they are the most appropriate organizational form for solving “wicked” public problems (Provan and Milward 1995; Ferlie and Pettigrew 1996; O’Toole 1997; Agranoff and McGuire 1998; Keast et al. 2004; Ferlie et al. 2011). In the short time since this happened, doubts have quickly arisen over how to make them succeed (Agranoff and McGuire 2001a; Mandell 2001; Provan and Milward 2001; McGuire and Agranoff 2011).

Scholars have traditionally addressed the issue in different ways (Turrini et al. 2010). Some have focused on the need to pay attention to the configuration of the network structure for collaboration (Provan and Milward 1995; Provan and Sebastian 1998; Huang and Provan 2007). Some have concentrated on the mechanisms facilitating partner interaction (Klijn 1996; Kickert et al. 1997; Agranoff 2003), while others still have focused on the abilities that the so-called “network manager” (or network managers as Klijn et al. 2010 showed) is expected to own in order to nurture and steer the network successfully (Kickert et al. 1997; Agranoff and McGuire 2001b; 2003; Meier and O’Toole 2001; McGuire 2002; O’Toole and Meier 2004).

Within this plethora of studies, what is missing is an attempt to explore “whether an interaction effect between the above mentioned factors can be supposed, as the effect of each predictor might be mediated or moderated by others, and thus might affect network performance”, to recall Turrini et al. (2010: 546).

Starting to explore this possibility is the aim of our paper. More specifically, by taking the article by Turrini et al. (2010) as theoretical framework, this chapter intends to explore whether, given the context, it might be supposed that there is a relationship between the network structure, mechanisms and manager (or managers) that jointly affects network performance.

Literature review
Since the seminal work of Provan and Milward in 1995, several studies have focused on network performance (Kenis and Provan 2009; for a review see Turrini et al. 2010), in search of an explanation for its predictors.

Following the example of Turrini et al. (2010), below we will group these predictors into four main categories, dealing with network context (Provan and Milward 1995), structure (Provan and Milward 1995; Provan and Sebastian 1998; Huang and Provan 2007), mechanisms (Klijn 1996; Kickert et al. 1997; Jennings and Ewalt 1998; Mitchell et al.
Network context.
Extant studies show that there are two characteristics of the external environment that affect network performance: environmental stability or lack thereof (including resource munificence and cohesion and support from the broader community) and external controls. As far as environmental stability or instability is concerned, Provan and Milward (1995) show that resource munificence weakens the performance of public networks unless they are highly integrated. However, other studies illustrate that the availability of local financial resources has a direct, positive effect on network outcomes, such as the quality of services (Conrad et al. 2003), capacity for achieving stated goals (Agranoff and McGuire 1999, 2001 a,b); Mitchell et al. 2002; Bazzoli et al. 2003; Shortell et al. 2002), overall community welfare (Fawcett et al. 2000), and improved access to public services (Conrad et al. 2003). Extant studies also show that a positive relationship seems to exist between cohesion and support from the broader community and network performance (Mitchell et al. 2002; Hasnain-Wynia et al. 2003; Zacocs and Edwards 2006).

As far as external control is concerned, the current literature shows its positive impact on network performance. In particular, Provan and Milward (1995) and O'Toole and Meier (2004) focus on mechanisms by which the State exercises fiscal control on local systems and find that direct, centralized and non-fragmented external control leads to better performances, or moderates the negative effect of structural network characteristics. Similarly, Mitchell et al. (2002) and Bazzoli et al. (2003) focus on the role played by state regulatory agencies, and shed light on their ability to influence the achievement of network goals, but do not identify the precise direction of this relationship.

Network structure.
A large amount of literature focuses on the relationship between the structural characteristics of public networks and their performance. More specifically, extant studies focus on factors including network integration and centralization, and network size and composition.

By investigating mental care networks in four large American cities, Provan and Milward (1995) show the positive impact of centrally integrated network structures (networks integrated around a central core agency) on network performance. In a subsequent study, Provan and Sebastian (1998) question the relationship between network integration and network performance and show that densely integrated networks do not necessarily achieve good performances, unless they can count on the presence of strongly integrated and overlapping subgroups (clique overlap) to provide services within it, thus leading one to suppose that multi-centrally integrated network structures (or networks strongly integrated in a number of overlapping subgroups) have a positive effect on
network performance. In a study from some years later, Huang and Provan (2007) also show that network centrality is related to better performances in terms of trustworthiness, reputation and influence.

Additionally, previous studies show that a relationship exists between both network size and network composition (in terms of heterogeneity of the network partners) and network performance (Brown et al. 1998; Mitchell et al. 2002; Hasnain-Wynia et al. 2003; Zacocs and Edwards 2006). The direction of this relationship is not determined in the existing literature, although Hasnain-Wynia et al. (2003) find that the larger the network, the lower the degree of its perceived effectiveness, and Brown et al. (1998) determine that in order to achieve higher levels of network performance it is necessary to cap the number of network members.

**Network mechanisms.**

In management and public management literature, many scholars have showed the existence of a relationship between network mechanisms and performance (Grandori and Soda 1995). In the following, we will define network mechanisms as formalized instruments and tools normally employed to sustain partner interaction, and categorize them into three main groups: integration, coordination and control mechanisms.

As far as integration mechanisms are concerned, a positive relationship seems to exist between network performance and such mechanisms as: *shared information and communication systems* (Klijn 1996; Jennings and Ewalt 1998; Provan and Sebastian 1998; Mitchell et al. 2002; Agranoff 2003), *joint staff activities* (like marketing, funding and planning) (Jennings and Ewalt 1998; Shortell et al. 2002; Bazzoli et al. 2003), and *linked roles and units* (such as joint, one-stop operations to integrate the service capacity for clients) (Jennings and Ewalt 1998; Conrad et al. 2003). Furthermore, the relationship between *coordination mechanisms* (such as the organization of meetings, definition of agendas, and establishment of procedures for partner interaction and decision-making processes) and *network performance* also seems to be positive (Brown et al. 1998; Jennings and Ewalt 1998; Mitchell et al. 2002; Lindekriona et al. 2009).

Last but not least, *control, accountability and transparency mechanisms* (i.e. regular external communication about rates of community social change) also seem to have a positive effect on network performance (Fawcett et al. 2000).

**Network managers.**

Only recently, public management scholars have shown the importance of the presence of one or more network managers for network success. Following Klijn et al. (2010), for network manager(s) we mean those who “initiate and support interaction among members, solve and manage conflict and changes, lead the network to its goals and mission, build trust and commitments”, by selecting and making use of appropriate managerial mechanisms. Typically, those actors are labelled as network facilitator,
mediator and leader, depending on the abilities they exhibit in support of their role (Kickert et al. 1997; Agranoff and McGuire 2001b, 2003; McGuire 2002). In particular, network facilitators are those who create (and redefine, if necessary) an institutional environment to favour and sustain partner interaction (Kickert et al. 1997; O'Toole 1997a; Agranoff and McGuire 1998a, b; Hageman et al. 1998; Weiner et al. 2000; Agranoff and McGuire 2001a, b; Koppenjan and Klijn 2004; O'Toole and Meier 2004a): “the facilitator focuses almost entirely on process, makes sure meeting places and times are agreed upon, sees that meeting space is arranged appropriately, and ensures that notes and minutes of the meeting are kept... facilitators monitor the quality of the dialogue and intervene with questions designed to enhance understanding” (Sussikind and Cruikshank, 1987: 152).

The presence of network mediators also normally aids network success, by being them able to solve tensions among partners through bargaining and negotiation (Kickert et al. 1997; Shortell et al. 2002; Bazzoli et al. 2003). More specifically, mediators are those who operate in critical situations and reconcile or restructure existing network relations: they catch and collect resources necessary to conflict solution, create a neutral setting for contrasting members, explore and suggest solutions (Kickert et al. 1997).

Last but not least, as far as network leaders are considered, extant studies shed light on the positive relationship between network performance and the presence of leaders as those who are able to plan actions (action planning) (Agranoff and McGuire 1998a, b); activate actors and resources for the network, (activating) (Klijn 1996; Agranoff and McGuire 2001a, c); mobilize the network members and build consensus and commitment to the common purpose of the network (mobilizing) (Agranoff and McGuire 2001a; McGuire 2002; Mandell and Keast 2006). More specifically, “action planning” involves the ability to establish clear missions and develop focused strategies and interventions, for the network and for the organization in which the leader works (Agranoff and McGuire 1998; Mitchell et al. 2002; Page 2003); it involves also the ability to adjust and reposition the network objectives in case of changes in the external environment.

According to Kickert et al. (1997: 47), “activating” refers to the “the activation of links in a network” and to “the nature and the amount of information which need to be sent through these links”. At the same time, Agranoff and McGuire (2001a: 298) state that activating “includes the process of identifying participants for the network and stakeholders in the network as well as tapping the skills, knowledge and resources of these persons”. Last but not least, “mobilizing” refers to the ability to motivate, inspire and induce commitment among and network members: "managers build support for the network by mobilizing organizations and coalitions, and by forging an agreement on the role and scope of network operations. Additionally, the ability to manage networks is related to the internal support and cooperation of the manager's primary organization." (Agranoff and McGuire 2001a: 300).
As shown by the above considerations, the extant literature provides useful insights on how to make public networks really work. Nevertheless, it is in danger of only providing a partial sketch of the phenomenon, as it tends to neglect the potential interaction effects between single factors, whereas the effect of each predictor might be mediated or moderated by others, with a consequent impact on network performance (Turrini et al. 2010).

References


Chapter two

Exploring the concept and measures of public network performance

Introduction

In 1995, Provan and Milward were the first people to propose a conceptualization and measure of public network performance. In order to explore the existence of a relationship between the context, the structure and the effectiveness of mental health delivery networks, they used a multi-perspective and multi-measure approach to assess client well-being.

Since then, many authors have proposed various conceptualizations and measures of network performance. Some focused on the performance of the network from the partner organizations’ point of view (Provan et al. 2005; O’Toole and Meier 2004, 2006; Kiefer and Montjoy 2006; Goerdel 2006; May and Winter 2007; Meier and O’Toole 2001, 2003, 2010; LeRoux et al. 2010; Akkerman and Torenvlied 2011), others took into account the entire network (Mandell et al. 1994; Provan and Milward 1995; Provan and Sebastian 1998; Keast et al. 2004; Van Raaij 2006; Lindecrona et al. 2009; Provan et al. 2009; Herranz 2010) and others still looked at matters from the community’s perspective (Provan and Milward 1995; Provan and Sebastian 1998). Some authors evaluated network performance by looking at the network structure (Provan et al. 2005), some considered the network processes (Mandell et al. 1994; Keast et al. 2004; Van Raaij 2006), and others focused on the network output and outcome (Provan and Milward 1995; Provan and Sebastian 1998; Meier and O’Toole 2001, 2003, 2010; O’Toole and Meier 2004, 2006). The resulting landscape was so confusing that in 2009 Kenis and Provan were still arguing that it is difficult to answer the questions “what is performance?” and “how should performance be measured?” (Kenis and Provan, 2009, p. 442).

Given this situation, this chapter represents an attempt to wind a rope into a ball. In particular, by focusing on service-delivery networks, and taking Kenis and Provan’s (2009) invitation to concentrate on the whole network, this chapter aims to systematize the existing conceptualizations and measures of network performance into a unitary and parsimonious model and to explore its construct validity.

The results show that conceptualizing and measuring network performance actually seems to be easier than one might think. According to our review, service-delivery networks seem to be considered successful when their structure is able to survive in the long term and achieve the expected outputs. Meanwhile, the development of collaborative processes seems to be a “prerequisite” for network survival and the achievement of the expected outputs.
The chapter is structured into two sections. The first section reviews the existing literature on the concepts and measures of network performance in service-delivery networks. The second section proposes a multidimensional model of network performance.

**Conceptualizing and measuring network performance: from the origins of the concept to the present day**

After a period when simply establishing a network was considered a success, scholars and practitioners have started to ask themselves whether and when public networks really work (to recall Provan and Milward 2001). Studies investigating the network performance (network effectiveness or network success, as it was variously labelled) subsequently proliferated, and scholars were forced to give a definition of network performance in their works.

Starting from the seminal work of Provan and Milward (1995), below we will review the studies of the performance of service-delivery networks in such a way as to reveal the complexity of the concept and outline the various measures that are normally proposed to evaluate it. Table 1 gives a list of concepts and measures of network performance, as described in the existing literature.

As previously stated, the concept of network performance appeared for the first time in 1995, along with an attempt to define and measure it. In their study concerning mental health delivery networks, Provan and Milward (1995) conceived network performance (effectiveness in their parlance) in terms of network outcome, or enhanced client well-being, and proposed a multi-perspective and multi-measure approach to evaluate it. More specifically, they identified three categories of key stakeholders affected by the network (clients, their families and their therapists) and through a factor analysis they recognized two measures of well-being for clients (quality of life and improvements in their medical status) and one measure for both families and therapists (quality of life). Provan and Milward (1995) originally aimed to develop a single measure of network performance by combining the perspectives of clients, families and therapists, but the views of network effectiveness were so varied among the three categories of stakeholders that they preferred to keep them separate. They concluded that the choice of the best factors to explain network outcomes depends on whose effectiveness perspective is being considered.

In 1998, Provan and Sebastian focused on network outcome for clients (in terms of quality of life and medical status for clients, and quality of life for families) and evaluated the final performance of networks by averaging the single factor scores. In 2001, Provan and Milward enriched the 1995 framework for the evaluation of network performance. They stated that in order to evaluate public networks, it is necessary to consider the network’s benefits for three categories of players: 1) the community, or the pool of clients that is served by the network; 2) the network itself and those who work
for the network as administrators or service-level professionals; and 3) the member organizations that monitor and fund network activities. Provan and Milward (2001) operationalized the concept of network effectiveness and proposed some measures to evaluate it. They argued that to appreciate the contribution made by the network to the community, it is necessary to focus on the overall costs of the treatment/services for the whole community, while also considering the quality and effectiveness of the services provided to clients. To appreciate the benefits for those working for the network, it is necessary to focus on the network’s ability to grow and survive over time. Accordingly, they suggested examination of the ebb and flow of organizations to and from the network, the range of services provided, the strength of the relationships and the presence of an administrative structure. To appreciate the network’s benefits for the partner organizations, Provan and Milward (2001) suggested considering the returns of network membership for the partner organizations in terms of greater legitimacy, resource accessibility, cost reduction and enhanced client outcomes. At the end of the paper, Provan and Milward (2001) pointed out that the importance of single measures can vary depending on the phase of development in which the network finds itself (emergence of a coalition, transition to a federation, maturity of the federation and critical crossroads). They invited scholars to consider the three dimensions simultaneously, although they admitted that they can be contrasting, and they recommended focusing on the outcome for clients as the most important dimension of network performance.

In 2005, by exploring the advantages of social network analysis in the study of service delivery networks, Provan et al. (2005) gave a better overview of the measures of network performance on an organizational level. In order to appreciate network performance, they argued that it is necessary to consider the expectations of the network’s participants with regard to the network outcomes, and more specifically their perception of the expected advantages and drawbacks of network evolution.

Similarly, in 2007 May and Winter focused on network performance in terms of organizational outcomes. To evaluate it, they proposed a perceived outcome index based on the responses of middle managers about the extent to which the municipality involved in the network has succeeded in getting clients to search for jobs, to be available for work, and to enter ordinary employment on a scale of 1 to 10. Similarly, in a study that explored the effect of networks on organizational performance, Schalk et al. (2010) measured organizational performance in terms of individual client satisfaction.

In 2008, by exploring the relationship between network governance and its impact on network effectiveness, Provan and Kenis came back to the concept of network performance and recognized problems regarding its conceptualization and measurement. In their paper, they defined network effectiveness as “the attainment of positive network level outcomes that could not normally be achieved by individual
organizational participants acting independently” (Provan and Kenis 2008, p. 230).
Consequently, they suggested some variables that should be taken into account in order to evaluate network performance: network efficiency, network effectiveness, internal and external network legitimacy (Human and Provan 2000), and network stability. They concluded that the relative importance of these factors can vary according to the form of network governance (i.e., participant-governed networks, lead organization-governed networks and network administrative organizations).

In 2009, Kenis and Provan elaborated further on this framework. Firstly, they recommended focusing on the performance of the network as a whole, since it is “the most appropriate level in the public sector”. Secondly, they listed a series of measures that are normally used to evaluate network performance and argued that each measure is as “legitimate as any other to assess a network” (Kenis and Provan 2009, p. 444). Consequently, each measure can be chosen by the researcher. What is important is that the chosen measure is in keeping with the perspective of those who evaluate the network (as Provan and Milward previously showed in 1995 and 2001) and certain exogenous network characteristics, i.e. network governance (shared governance networks, lead organization networks), network inception (mandatory vs. voluntary networks) and the network development stage (emergence of a coalition, transition to a federation, maturity of the federation and critical crossroads).

Furthermore, by exploring the relationships between network embeddedness and organizationally-based social outcomes (trustworthiness, reputation and influence) in centrally governed health and human service networks, Provan et al. (2009) examined how service network performance is related to network evolution, and suggested collecting information about network performance by surveying the directors on: cost control, quality of services, coordination of care, access to services by clients and resource availability.

More recently, in an attempt to look for a relationship between network management coordination strategies and network performance, Herranz (2010) focused on workforce development networks in Boston and proposed an operationalization of the Provan and Milward (2001) theoretical framework based on two objective measures for each level of network performance.

From a different perspective, in 1994 Mandell et al. distinguished between measures of performance focused on task accomplishment and measures focused on the development of new behaviours. They argued that the central issue when evaluating network performance is not the task accomplished by a network but new ways of behaving and managing (such as the development of trust, ways of communicating between members and development of commitment).
Similarly, in 2004 Keast et al. recommended taking into account three categories of factors related to network functioning in order to evaluate network performance: the development of a joint mission; partner interdependence; and the development of unique structural arrangements. Keast et al. argued (2004) that the first factor is related to the fact that when entering the network, members begin to see themselves as “one small piece of a larger whole” and need a new set of values and attitudes that reshape the views of the individual members. The second factor is related to the fact that in a network members are not simply interconnected, but they depend on each other; “this means that each member begins to see himself or herself as one piece of a larger picture”. “Stepping into others’ shoes” is the way in which Keast et al. (2004) described this factor. The third factor deals with the development of a unique structural arrangement involving representatives of many diverse organizations and groups.

In 2006, by comparing four healthcare networks, Van Raaij showed that for better evaluation of network success, it is necessary to take into consideration three norms: the norm of network legitimacy, the norm of activating capacity, and the norm of network climate. She argued that in service delivery literature, objective as well as subjective measures of network performance are normally deduced from formal network goals and/or previous literature on the measurement of organizational performance. Therefore, she suggested that if networks vary in achieving their own norms, these norms can be understood as a supplementary set of performance indicators for network success.

In a similar vein, in 2008 Head stated that in order to really appreciate network performance, it is not enough to consider the structure or output measures proposed by the existing literature. Measures concerning the processual side of network functioning should also be taken into consideration. Consequently, Head (2008) recommended focusing on assessing whether good processes and relationships have been developed within the network as a measure of network performance, and stated that the quality and coherence of network processes are largely measurable through the perceptions of participants. Such perceptions may be variable among stakeholders and may also change over time.

By focusing on collaborative networks, in 2007 and 2008 Mandell and Keast continued to elaborate on this idea and developed a set of measures to assess network performance by also considering the processual side of network activity. They shed light on the limitations of traditional performance measures that focus on the outcomes of single organizations, and claimed that new and non-traditional methods to evaluate network performance are necessary. They argued that conventional or traditional performance measures “may be adequate and appropriate to assess some network effectiveness criteria, but tend to ignore the predominantly relations operating style of networks” (2008, p. 716), when “the main purpose of networks is to link members and their resources, facilitate joint action and learning and in doing so, leverage from these
collective interactions to respond in a new and innovative way to issues” (2008, p. 716). Accordingly, they focused on long term results and the ability of the network to change systems, develop new relationships, and integrate individual participants into a new whole as measures of network performance. More specifically, Mandell and Keast (2008) identified three levels of network operation (environmental, organizational and operating) and proposed measures of network performance at each level. The environmental level refers to external stakeholders who are able to have an impact on network activity. At this level, the measures of network performance concern the continuing support given to the network by critical stakeholders providing resources, support and legitimacy. The organizational level concerns the structural characteristics of the network, the development of a joint vision and commitment to the whole, the extent to which critical stakeholders are included in the process and acknowledgment of the partners’ interdependence. The operational level refers to the interaction between partner organizations and the extent to which participants have developed not only a better understanding of each other, but also a shared language and culture, new ways of communicating and the ability to find common ground. At the end, Mandell and Keast (2008) shed light on the fact that the measures of network performance vary in importance, depending on the phases of network development (network formation, struggle for network stability, network routinization and network extension).

Moving in the same direction, in a 2009 study on the influence of group modes of interaction on the performance of health and human service networks, Lindencrona et al. recommended simultaneous contemplation of different dimensions of network performance and client outcomes. Network performance, they argued, covers three different dimensions: comprehensiveness; network learning, which is related to the perceived ability within the network to learn from the ongoing interaction and activities; and client outcomes, which are measured by the percentage of clients that resettled in the local authority area during a specific year and were still there 24 months after resettlement.

From a different perspective, in 1998 Jennings and Ewalt distinguished between objective and subjective (based on single actors’ perception) measures of network performance. They showed that “success along one dimension of policy performance does not necessarily mean success along others” (1998, p. 425) and argued that the former measures are more reliable.

By focusing on objective measures of organizational performance, in their first study exploring the existence of relationships between network management and network performance, Meier and O’Toole (2001) proposed evaluating the performance of Texas school districts in terms of the percentage of students in each school district who pass standardized, state-required reading, writing and mathematics tests each year. Actually, Meier and O’Toole and O’Toole and Meier did not study organizational networks as a collection of organizations; rather they studied the networking behavior of critical stakeholders (as school superintendents). However, we thought to include them in our
literature review due to the importance of their work for the network performance measurement; in the following of the paper we will neglect their perspective.

To elaborate further in that direction, O’Toole and Meier (2004, 2006) and Meier and O’Toole (2003, 2010) explored how network management in school districts influences an array of performance results. More specifically, they proposed ten different indicators to measure network performance on an organizational level. They are based on student performance and varying levels of importance are attributed to them by critical stakeholders (e.g. the government, students and families, policymakers).


In 2006, Kiefer and Montjoy proposed another measure for objective evaluation of the success of the collaboration developed to deal with Hurricane Katrina: the ability to evacuate residents before a major disaster. In 2010 LeRoux et al. assessed network success in terms of interlocal service cooperation, which was measured as the number of interlocal agreements reported at the municipal department level by each respondent. Similarly, in a study of nursing colleges, Akkerman and Torenvlied (2011) evaluated network performance in terms of organizational outcomes and considered the diploma rate and the drop-out rates.

On the basis of the articles reviewed, it seems apparent that many scholars have tried to conceptualize and measure network performance since Provan and Milward’s work (1995) and they have done it in very different ways. As our literature review shows, differences in performance conceptualization and measurement occur depending on the network level (community, network, partner organizations), the focus on the network structure, the network process or the network output/outcome and the nature of the proposed indicators (objective or subjective measures of network performance).

As a result of this lack of consensus among academics, despite the plethora of studies of network performance, fifteen years after Provan and Milward’s work (1995), scholars still claim that the concept of network performance is not properly defined and operationalized and that valid and reliable measures to evaluate it are still lacking (Kenis and Provan 2009; McGuire and Agranoff 2011).
<table>
<thead>
<tr>
<th>Measures of network performance</th>
<th>Community level</th>
<th>Network level</th>
<th>Organizational level</th>
<th>Network structure</th>
<th>Network process</th>
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<td>They conceptualized network performance in terms of outcome, or enhanced client well-being, for three categories of stakeholders (clients, families, and therapists) and proposed:</td>
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<td>- two measures of well-being for clients (in terms of quality of life and improvements in their medical status)</td>
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<td>- one measure for both families and therapists (in terms of quality of life)</td>
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<td><strong>Provan and Milward 2001</strong></td>
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<td>They identified three levels of network performance (community, network and partner organizations), and proposed measures at each level:</td>
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<td>- community level: overall costs of the treatment/services for the whole community and quality and effectiveness of the provided services for clients (in terms of service accessibility, service utilization, service responsiveness, service integration, client well-being and changes in the clients' condition)</td>
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<td>- network level: network ability to grow and survive over time. Accordingly, they proposed to consider the ebb and flow of organizations to and from the network (in terms of difference between the entrance rate and the exit rate), the range of provided services (in terms of provision of core and ancillary services), the strength of relationships (in terms of multiplexity) and the presence of an administrative structure or NAO (as signals of the partners' wish to maintain the network)</td>
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<td>- partner organizations: returns of the network membership for the partner organizations (in terms of enhanced legitimacy, resource accessibility, cost reduction and enhanced client outcomes)</td>
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<td><strong>Provan et al. 2005</strong></td>
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<td>They argued that in order to appreciate the network performance, it is necessary to consider the partners' perception of the evolution of the:</td>
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<td>- network expected advantages (in terms of increased ability to serve clients, increased ability to serve the community as a whole, increased ability to acquire additional funding and resources, increased ability to acquire new knowledge or skills, better use of partner organization's services, development of new relationships helpful to the partner organization, enhancement of the public profile of the partner organizations, enhanced influence in the community, increased ability to reallocate resources)</td>
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<td>- network expected drawbacks (in terms of increased efforts in terms of time and resources, loss of contribution over time, strained relations within the partner organization, difficulty in dealing with partners, not enough credit given to the partners organizations)</td>
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<td><strong>May and Siren 2007</strong></td>
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<td>They proposed an index of perceived outcome based on the responses of middle managers about the extent to which the municipality involved in the network has succeeded in getting clients to search for jobs, to be available for work, and to enter ordinary employment on a scale of 1 to 10</td>
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<td>They proposed to consider the individual client satisfaction</td>
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<td><strong>Provan and Kanis 2007</strong></td>
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<td>They suggested some variables to take into account in order to appreciate the network performance efficiency (in terms of ratio outputs/inputs), network effectiveness, network internal and external legitimacy (Human and Provan 2000), network stability (as the ability to develop long-term relationships with other network members)</td>
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<td><strong>Kanis and Provan 2009</strong></td>
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<td>They listed a series of measures normally used to evaluate the network performance i.e., efficiency, effectiveness, goal attainment, equity, quality, productivity, level of conflict, growth, survival, profit, stability, resilience, client satisfaction, satisfaction of professionals working in the network, learning etc.</td>
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<td>They examined how the service network performance is related to the network evolution, and proposed to collect information about the network performance by surveying the NAO directors on: cost control, quality of services, coordination of care, access to services by clients and resource availability</td>
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<td><strong>Hernandez 2010</strong></td>
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<td>By focusing on networks for the development of workforce in Boston, Hernan (2010) operationalized the theoretical framework proposed by Provan and Milward (2001), and identified a set of two measures for each level of network performance:</td>
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<td>- community level changes in problem incidence (in terms of job placement rate of individuals who received services through the network and by considering the perception of services integration by network client)</td>
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<td>Mandell et al. 1994</td>
<td>They distinguished between measures of performance focused on task accomplishment and measures focused on the development of new behaviours, and argued that it is not the task accomplished in a network that is central in evaluating the network performance, but rather new ways of behaving and managing (like the development of trust, ways of communicating among members and development of commitment).</td>
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| Keast et al. 2004 | They invited to take into account three categories of factors related to the network functioning to appreciate the network performance:  
- the development of a common mission (in terms of synergies development; doing more with less; development of more meaningful programs, improvement in the power by being able to convince the "power brokers" in government—because of the increased "strength" of the network members as a whole, development of points of convergence, rather than of contention; not fighting over scarce resources, but seeing how each wants the same thing; not wasting time and money)  
- the partner interdependence (in terms development of relationships, development of trust, breakdown of communication barriers, development of new resources to use (gaining new "eyes and ears" on the scene); development of new "expertise"—meshing different types of expertise; listening to both professional and community "experts"; recognizing the expertise of others; resolving conflicts (or potential conflicts))  
- the development of a unique structural arrangements (in terms of actively doing something; systems change; members need to represent their own organizations and the network structure; new way of thinking; risk taking, flexible, innovative ideas merge, visible/invisible conflicts) |
| Van Raaij. 2006 | She suggested that to appreciate the network success it is necessary to take into consideration three norms: the norm of network legitimacy, the norm of activating capacity, and the norm of network climate. |
| Head 2008 | He invited to focus on assessing whether good processes and relationships have been developed within the network as a measure of network performance, and stated that the quality and coherence of network processes are largely measurable through the perceptions of participants. |
| Mandell and Keast 2007, 2008 | They identified three levels of network operation (environmental, organizational and operating level) and proposed measures of network performance at each level:  
- The environmental level refers to external stakeholders; at this level the measures of network performance concern the continuing support given to the network by critical stakeholders proving resources, support and legitimacy  
- The organizational level concerns the structural characteristics of the network, the development of a common vision and commitment to the whole, the extent to which critical stakeholders are included in the process and the acknowledgment of the partner interdependence  
- The operational level refers to the interactions among the partner organizations and the extent to which participants have developed not only a better understanding of each other, but also a shared language and culture, new ways of communicating and the ability to find common ground |
| Lindersons et al. 2009 | They identified three dimensions of network performance: comprehensiveness; network learning, related to the perceived ability within the network to learn from the on-going interactions and activities, and client outcomes measured by the percentage of clients that had re-entered in the local authority area during the considered year and that twenty-four months after resettlement |
| Meier and O'Toole 2001 | They appreciated the performance of Texas school districts in terms of the percentage of students in each school district who pass state required, standardized reading, writing, and mathematics tests each year. |
A multidimensional model of network performance

In an attempt to create some order in this confusing landscape, below we will systematize the conceptualizations and measures of network performance proposed by the existing literature into a unitary model (Figure 1). In particular, we will focus on service-delivery networks, accept the invitation from Provan et al. (2007) to concentrate on networks as a whole, and propose a multidimensional model of network performance made up of three key dimensions: structure-related, process-related and output-related constructs and measures (Figure 1).

As far as network structure is concerned, following the work of Provan and Milward (2001), networks can be considered successful when they are able to survive in the long term. Network survival allows network clients to access services in a stable way and gives network workers stable jobs, while the network partners can systematically exploit the advantages of the network. Accordingly, following the existing studies (Provan and Milward 2001; Kenis and Provan 2007, 2009), four measures can be used to assess the network’s ability to survive in the long term. In particular, Mandell and Keast (2008) recommend considering the willingness of critical network stakeholders to continue investing resources in the network’s activity. They defined this concept as internal (from network workers) and external (from politicians, citizens and mass media) network legitimacy (Human and Provan 2000; Provan and Kenis 2007).

As far as the network process is concerned, following Keast et al. (2004), networks can be considered successful when the collaboration between partners works. Following Keast et al. (2004) and Mandell and Keast (2007 and 2008), collaboration works when it leads to the creation of a new organizational form that exists by itself, independently from the network partners. In this case, network participants can feel that they are part of a whole and no longer subject to pressure from their former organizations. Following Mandell and Keast (2008), this can be operationalized into three variables: the development of partner inclusion; the development of network identity; and the
development of a unique structural network arrangement. According to Mandell and Keast (2008), three measures can be used to evaluate partner inclusion: independence, dependence and interdependence. The greater the feeling of independence among network participants, the better chance the network will have of existing as an organizational arrangement of its own. Following Provan and Milward (2001) and Mandell and Keast (2007 and 2008), the development of network identity can be measured in terms of identification with the network and commitment to the network. By drawing from organizational literature, the identification with the network characterizes: “the process by which the goals of the organization and those of the individual become increasingly integrated or congruent” (Hall et al. 1973, p. 177). Similarly, the commitment to the network values and activity can be considered a signal of the establishment of an organization that exists by itself, with its own identity. On the basis of the organizational literature, network commitment can thus be defined as a psychological state characterizing the link between an individual and his or her organization and it is closely related to the decision to stay within it or leave. Last but not least, following Keast et al. (2004) and Mandell and Keast (2008), the development of network communication and integration tools can be evaluated in terms of development of a new culture and shared values; a new vision and shared sensitiveness; a new way to communicate and a shared language; a new way to operate and shared procedures. The development of these organizational tools gives the network participants access to specific instruments and tools for fostering the collaboration within the network.

Last but not least, as far as the network outputs are concerned, following Provan and Milward (2001) and Kenis and Provan (2007, 2009), networks can be considered successful when they are able to achieve their expected objectives. Normally, the expected outputs of public networks can be expressed in terms of improved efficiency, effectiveness and equity (Provan and Milward 2001; Kenis and Provan 2007, 2009). Consequently, the expected objectives in terms of efficiency, effectiveness and equity reflect the network’s ability to achieve its own objectives. Figure 1 provides an overview of the model to conceptualize and measure network performance, as resulting from the systematization of the existing studies.

FIGURE 1. Overarching construct, constructs and measures of network performance
Variables for the constructs: structure-related, process-related and output-related

References


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Network Analysis to Strengthen Community Partnerships”, *Public Administration Review*, 65, 5, 603-613.


Chapter three

Determinants of public network performance: linking governance forms, coordination mechanisms and managerial roles

Introduction
Since Provan and Milward’s (1995) seminal study, many authors have investigated how to successfully manage public networks and the structural and managerial determinants that affect their results (McGuire and Agranoff, 2011; Turrini, Cristofoli, Frosini and Nasi, 2010). However, public network scholars have only recently started interrelating these different network characteristics and evaluating how they affect network performance (Cristofoli and Markovic, 2012; Cristofoli and Maccio’, 2012; Steijn, Klijn and Edelenbos, 2011). From this literature, we identify and focus on three main predictors of network performance: governance forms, coordination mechanisms and managerial roles. The objective of the present review is to explore the relationships among these three predictors and identify how they jointly affect public network performance. Citing Provan and Kenis (2007), we believe that “the form of network governance adopted and the management of tensions related to that form are critical for explaining network effectiveness” (247). Hence, our aim is to understand how governance forms, coordination mechanisms and managerial roles reciprocally reinforce each other in achieving successful public networks.

Literature
Studies investigating how to successfully manage public networks can be ascribed to three distinct perspectives focusing on the following predictors of network performance: 1) the configuration of the governance forms for collaboration (Provan and Sebastian, 1998), 2) the coordination mechanisms facilitating partner interaction (Agranoff and McGuire, 2003; Kickert, Klijn and Koppenjan, 1997; E. Klijn, 1996) and 3) the role of the management of the network (Agranoff and McGuire, 2001, 2003; O’Toole and Meier, 2004).

First, the form of governance defines the different mechanisms and degrees of consolidation with which coordination, resource allocation and control among network members are designed. The study of the relationship between governance forms and network performance is relatively recent but its origin resides in the ample literature on the classic structural characteristics of networks - such as integration, centralization, density, size and composition - and their performance (Huang and Provan, 2007; Provan and Milward, 1995; Provan and Sebastian, 1998).

Second, in line with inter-organizational literature (Grandori and Soda, 1995), we define coordination mechanisms as the variety of tools and methods aimed at maintaining
partner cooperation and stable ties. Scholars have investigated and shown the existence of links between these mechanisms (such as the organization of meetings, definition of agendas and procedures) and network performance (Brown, O’Toole and Brudney, 1998; Jennings and Ewalt, 1998; Lindencrona, Ekblad and Axelsson, 2009; Mitchell, Florin and Stevenson, 2002).

Third, managerial roles refer to literature investigating the relationship between network performance and the role of the network manager or other institutional bodies in promoting and sustaining interaction among network members, managing conflict, facing and foreseeing changes, building commitment and trust, leading to the achievement of the goals and mission (Agranoff and McGuire, 2001; Huang and Provan, 2007; E. H. Klijn, Steijn and Edelenbos, 2010; Kort and Klijn, 2011; M.P. Mandell, 2001; Meier and O’Toole, 2001; Steijn et al., 2011).

Recent developments call for an integration of these three traditions through understanding how they jointly affect network performance. Provan, Sidow and Fish (2007) view networks as coordination and governance mechanisms and call for research to identify the management mechanisms and the structures that govern networks in achieving their results. In 2010, Turrini et al. encouraged investigating the interaction among contextual, structural, functioning and managerial characteristics of networks and their joint effects on network success.

Accordingly, some new studies have considered the different predictors of network performance. Isett and Provan (2005) identify the need for facilitating structures and managerial frameworks to fulfill key network activities and functions. Governance modes and functioning mechanisms, such as a network administrative organization (NAO) and formal ties, protect network stability from political turbulence and coercive institutional pressures and define a safe and stable organizational environment to achieve network goals. In 2012, Raab and Milward, applying a configurational approach to the Provan and Milward 1995 study, suggested considering the combination of structural characteristics and network functioning, paying particular attention to the managerial role of network leaders and facilitators. Cristofoli and Maccio’ (2011) sustain that different network structures require different mechanisms and managerial capabilities to ensure network success. Cristofoli, Markovic and Meneguzzo (2012) consider the joint effect of network managers, governance forms and mechanisms on network performance and conclude that the success of shared-governance structures can be ensured by network administrators and coordination mechanisms. Cristofoli and Markovic (2012) shows that the main predictors of network performance (namely, network structure, functioning mechanisms, managers and context) are neither a necessary nor a sufficient condition for the success of a network, only a combination of these can lead to better results.
Following this research path, this chapter investigates the direct and joint effects of governance modes, managerial and functioning characteristics on public network performance. We believe it is also important for scholars and practitioners to analyse how network success is affected by the broader implication of these effects. In fact, existing studies advocate possible links between different governance forms and network performance (Isett and Provan, 2005; Provan and Milward, 2001; Provan et al., 2007), but we do not know if different governance modes require distinct managerial and functioning mechanisms. Some authors indicate that mechanisms (Brown et al., 1998; Jennings and Ewalt, 1998; Lindencrona et al., 2009; Mitchell et al., 2002) and managerial roles (Agranoff and McGuire, 2001; Kickert et al., 1997; Kort and Klijn, 2011; Mandell. M.P., 2001; Meier and O'Toole, 2001; Provan et al., 2007; Steijn et al., 2011) affect network performance, while others (Steijn et al., 2011) link the two, suggesting managerial roles to select and use appropriate managerial tools. However, their unique and joint effects on network performance are still poorly understood. Finally, the causal relationships between these three main factors could provide important guidelines for successful public networks and enhance understanding of the concept of public network performance.

The figure below shows the conceptual model developed in this paper and presented in detail in the following sections.

FIGURE 1. The conceptual model

Assumptions
Based on the aforementioned conceptual model, the following section outlines the assumptions. First, we specify our dependent concept and thereafter investigate the other elements and their effects on network performance.

Performance
Network performance is a recognized theme in public network studies but is still a contradictory and at times blurry matter. A variety of labels, concepts and measures have been proposed, suggesting not only the complexity but also the crucial importance
of the issue. Kenis and Provan (2009) call for a multi-constituency approach to network performance where any definition and criteria can be legitimate but need to be defined appropriately, respecting the main network characteristics and research goals. McGuire and Agranoff (2011) also discuss the multi-dimensionality of this concept and the inappropriateness of traditional output-outcome measures typical of hierarchical organizations. Cristofoli and Maccio’ (2012) systematize the proposed conceptualizations and measures of network performance (in terms of network effectiveness or network success) into a multidimensional model and find different levels of analysis and measurement approaches.

First, performance can be defined according to three distinct levels of analysis:
1) the “partner organizations” level refers to the benefits for member organizations that monitor and fund network activities;
2) the “whole network” level takes into account the benefits for those working for the network as administrators or service-level professionals;
3) the “community” level instead considers the results for customers served by the network itself.

Second, network performance can be measured according to its structure, process and output: from the structural perspective, networks can be considered successful when they are able to survive in the long term. Authors considering processes-based measures evaluate network results in terms of the ability to create both inclusion and collaboration.

Finally, from the output-based perspective, network performance refers to traditional concepts of efficacy, efficiency and equity and reflects the ability of the network to achieve its goals.

Given this plethora of approaches and studies of the definition and measurement of network performance, in this chapter we aim to identify the benefits for those working within the network as administrators and professionals (the so-called “whole network” level of analysis) and define network performance as the ability of a network to survive and achieve its objectives (Isett and Provan, 2005; Provan and Milward, 1995; Provan and Milward, 2001). According to this perspective, successful public networks can endure, improve over time and fulfill their goals.

**Governance Forms**

Form of governance is a key element in managing network complexity and “involves the use of institutions and structures of authority and collaboration to allocate resources and to coordinate and control joint actions across the network as a whole” (Provan and Kenis, 2007: 231). Only recently, literature has started focusing on network governance modes, how they are maintained and governed and how they can affect the performance of the whole network.
Provan and Kenis (2007) identify three main forms of network governance on a continuum from a non-brokered and loose form to a brokered, tight and externally governed form. At one extreme, shared/participative governance is the simplest form of governance: participants, as a group, govern the network without a representative and separate entity. All network members are jointly responsible of network functioning and management through formal and informal mechanisms to manage and ensure their participation. Commitment is the key word: shared governance requires the involvement of all members in the network goals and the ability to organize governance processes based on equal interaction and symmetrical powers. On the other extreme, network administrative organization is the most elaborate form of governance: a fully centralized and ad hoc network administrative organization (NAO) is responsible for organizing and managing internal and external relations. The NAO is established by network members and has the unique role of managing, coordinating and brokering the network governance. The NAO is not conceived as a network member since it does not provide any service but is the enabler of interactions, activities and decisions within the network. Between these two extremes, the lead administrative agency has a highly brokered but internal-participative governance form: a core and legitimized member of the network becomes the lead organization that, in addition to providing network services, also administers and supports network activities and its functioning.

This continuum clearly shows the strengths and weaknesses (Nolte and Boeing, 2011; Provan and Kenis, 2007) of each governance form and the effect on the performance of the whole network. In shared/participative governance, involvement and flexibility coexist with coordination complexity and an efficiency-efficacy trade-off while in NAO, legitimacy, reduced complexity and efficiency coexist with bureaucratic and rigid decision-making processes. Consequently, shared governance is considered more effective in small networks and simple environments where informal and flexible interactions are more likely. To the contrary, a lead organization and NAO tend to be more effective for large and complex networks that require high levels of coordination, have substantial interdependent task requirements and specific competencies to ensure collaboration. Particularly in multifaceted, mandatory and public-funded networks, the NAO is responsible for network growth and maintenance. Following principal-agent theory, Provan and Milward (2001) consider this as solving the principal-agent conflict “in its key role as disseminator of funds, administrator and coordinator of the network, in an agency-theory context, the NAO is both the agent of the community and the principal of the network participants” (Provan and Milward, 2001: 418). It prevents service duplication and competition among network members in favour of the success of the overall network. Huang and Provan (2007) also affirm that the need for service coordination and cost control implies defining tight forms of governance. Finally, Isett and Provan (2005) clearly state the link between NAO and network performance: “NAOs perform facilitative and intermediary roles to organize services in a way that contributes to the effectiveness and sustainability of the system as a whole” (p.161). Provan and
Milward (2004:18) sustain that “powerful NAOs that are centrally integrated facilitate effective network performance”. Hence our first assumption:

A1: Tight governance forms lead to better performance at the network level.

**Coordination Mechanisms**

Studies on coordination in network settings (Agranoff, 2006; Morris, Morris and Jones, 2007) call for an integration of the main theoretical approaches, namely, the classical hierarchical and network-based coordination approaches. The classical hierarchical approach has its root in Taylor’s bureaucracy and requires coordination based on definite connections, distinct positions and authority functions, hierarchical mechanisms, task specialization, routines and rules. The network-based approach, to the contrary, recognizes the need to manage network interdependences with flexible and adaptable tools as well as negotiation and mutual adjustment mechanisms. According to Agranoff (2006: 58), “networks are different from organizations but not completely different”; networks are non-hierarchical systems of interdependent actors that require a combination of bureaucratic and network-based organizational mechanisms to ease and improve their coordination.

In the following, we refer to the bureaucratic approach and define coordination mechanisms as all the formalized methods and tools used to sustain partner interaction (Jennings and Ewalt, 1998). Many management and public management scholars indicate the presence of a relationship between these mechanisms and network performance (Grandori and Soda, 1995). In general, formalized coordination mechanisms would seem to positively affect network performance (Jennings and Ewalt, 1998; Lindencrona et al., 2009; Mitchell et al., 2002). Hence, tools such as the organization of meetings, the definition of agendas and the establishment of procedures for partner interaction and decision-making processes (such as steering groups) influence the performance of the whole network. However, this relationship would seem to be subjected to the effects of the structural characteristics of the network itself: the level of network integration enhances the relationship between formalized coordination mechanisms and performance (Conrad et al., 2003; Jennings and Ewalt, 1998; Mitchell et al., 2002). Jennings and Ewalt (1998) refer to the “effects of coordination and consolidation” (p. 425); if coordination tools only have a marginal role in network outcome, the joint effect of coordination mechanisms and centrally integrated network structures positively and substantially affects network results. Other authors (Huang and Provan, 2006; Isett and Provan, 2005) affirm that complex networks with an NAO governance form require high levels of formal coordination “because of the need to manage the complexity of coordination across the many organizations that constitute the network” (p.161); through proper traditional coordination mechanisms, tight governance modes can foster member interaction, obligation and conflict resolution. Hence, we propose:

A2: Tight governance forms lead to a high level of formal coordination mechanisms.
A3: A high level of coordination mechanisms leads to better performance at the network level.

**Managerial roles**

According to Steijn et al. (2011), managerial roles refer to the unique network manager or the set of institutional bodies/roles that initiate and support interaction among members, solve and manage conflict and changes, lead the network towards its goals and mission, build trust and commitment by selecting and making use of appropriate managerial mechanisms. We consider both the unique network manager and set of institutional bodies/roles following Cristofoli and Maccio’ (2011), who indicate in their study that public networks are managed by multiple roles. Hence, in the following sections we will use the term ‘managerial roles’ taking into account the complexity and multi-actor configurations in managing public networks.

Studies focusing on the different abilities and functions of these managerial roles suggest that the network manager or the set of institutional bodies can facilitate, mediate and lead the network (Agranoff and McGuire, 2001; Agranoff and McGuire, 2003; Shortell et al., 2002). Facilitating the networks refers to the ability to create (and redefine, if necessary) an institutional environment, to favour and sustain partner interaction and define (and change) network arrangements (Agranoff and McGuire, 1998; 2001; Hageman, Zuckerman, Weiner, Alexander and Bogue, 1998; Kickert et al., 1997; E. H. Klijn and Koppenjan, 2004; McGuire, 2002; O’Toole and Meier, 2004; 1997; Weiner, Alexander and Zuckerman, 2000). These competencies focus on the management of network processes and the need for agreed places and times, appropriate spaces, notes and minutes of meetings (Susskind and Cruikshank, 1987). Mediating refers to the ability of the managerial roles in supporting network success, resolving tension among partners through bargaining and negotiation (Agranoff and McGuire, 2001; Kickert et al., 1997; Shortell et al., 2002). Managerial roles operate in critical situations and have the ability to reconcile or restructure existing network relations (Kickert et al., 1997). Finally, network leadership requires action planning (Agranoff and McGuire, 1998), activating actors and resources for the network (Agranoff and McGuire, 1998; E. Klijn, 1996; McGuire, 2002), mobilizing members, consensus building and commitment to common objectives (Agranoff and McGuire, 2001; Mandell and Keast, 2008; McGuire, 2002).

Many studies argue that managerial roles and their skills have a positive effect on network performance. Meier and O’Toole (2001) claim that managerial roles that are able to actively manage network interdependencies aid network performance. Steijn et al. (2011) and Kort and Klijn (2011) demonstrate that the number of managerial strategies employed has a strong and positive effect on the results of public-private partnerships.

Moreover, Provan and Kenis (2007) maintain that managerial roles are affected by and depend on network governance forms: “different governance forms place a different
burden on network members to provide these competencies” (p.240). Hence, tight governance forms characterized by high managerial complexity (Isett and Provan, 2005) require a great concentration of managerial abilities and skills. Finally, some authors (Klijn et al., 2010; Steijn et al., 2011) consider the selection and use of proper managerial tools as a critical managerial skill. Network managers should be able to lead their members by “creating and changing network arrangement for better coordination” (Agranoff and McGuire, 2001b: 676) and, in complex governance forms, should take advantage of appropriate formal coordination mechanisms. Hence, we propose:

A4: The presence of a network manager will lead to better performance at the network level.
A5: Tight forms of governance will lead to the presence of a network manager.
A6: The presence of a network manager will lead to a high level of formal coordination mechanisms.

References


Chapter four

Stakeholder Engagement and Governance Networks

Introduction
The literature tends to focus on three major and idealised governance paradigms, unicentric or hierarchical forms (state hierarchy), multicentric (market) and pluricentric (network) (Lowndes & Skelcher, 1998; Powell, 1990; Thompson, Frances, Levacic, & Mitchell, 1991; Van Kersbergen & Van Waarden, 2004). Hierarchical governance is characterised as a vertical or top down co-ordinating mechanism which is based on the bureaucratic model of organisation (Kooiman, 2005; Peters & Pierre, 1998). By contrast, market governance is a more spontaneous co-ordination mechanism which operates in a market context and makes use of multiple economic and judicial institutions and contractual arrangements to govern economic transactions (Powell, 1990; Van Kersbergen & Van Waarden, 2004).

While network governance is understood to be the overarching form of more collaborative styles of governance (Lowndes & Skelcher, 1998), the literature also acknowledges the concept of governance networks (Sorensen & Torfing, 2007). This network type can be distinguished as horizontally interdependent, but operationally autonomous actors, who interact through negotiations and in so doing, contribute to the production of public value within a particular field of operation (Marcussen & Törfing, 2003). However, governance networks differ from other complex organisational forms in several ways and these differences have an impact on the way stakeholder engagement is approached.

Firstly, the literature has acknowledged that governance networks can simultaneously exhibit various hierarchical, market and networked arrangements through the adoption of a hybrid approach (Considine & Lewis, 1999; Keast, Mandell, & Brown, 2006; Powell, 1990). That is, governance networks link together a range of actors through a mix of governance modes one of which is network governance. Working under hybrid arrangements creates tensions for networks of schools (Provan & Kenis, 2005) seeking to engage with stakeholders because they operate in an environment that blends aspects of three different modes of governance. As a result, these networks face the complexity of dealing with stakeholders in relationships which operate on a relational level through reciprocity, trust and interdependence (Keast & Hampson, 2007) but also incorporate legislative elements. Under hybrid governance arrangements, stakeholder engagement undertaken by networks of schools would not be straightforward or simple to manage.
Secondly, while power is seldom at the forefront of theorising about governance networks (Klijn & Skelcher, 2007, p. 602), the literature has recognised that power distribution within networks is asymmetrical, resulting in a series of power dependence relationships (Agranoff and McGuire 2001). Differential power distribution is particularly pertinent to governance networks as demonstrated by a number of studies (Agranoff, 2007; Eglene, Dawes, & Schneider, 2007; Graddy & Chen, 2006; Provan & Milward, 1995) which show that government can be an actor in governance networks. Given its potential to dominate because it is usually a major funder of schooling, government, as a stakeholder, may be accorded privileged status by the network and receive disproportionately favourable treatment than other equally influential stakeholders. Managing this dynamic also points to the complexities that infrastructure governance networks face in interacting with stakeholders.

Thirdly, Sorensen and Torfing (2003) contend that individual actors may be unable to discard the responsibilities of belonging to a particular organisation in favour of the collective network approach despite the pressure brought to bear by working in a networked environment. This inability or unwillingness of network members to set aside their representative role (Mandell & Keast, 2008) may influence decision making about stakeholders, particularly as the result of power domination. It could be argued that this impact may be more pronounced if there is direct political representation within networks responsible for delivery of schooling as a result of tension between public managers and democratically elected representatives.

Getting stakeholder participation right (Glicken, 2000) is a significant challenge for networks of schools. Operating in a network form presents opportunities to more effectively leverage relationships with stakeholders to achieve results. However, it also raises a number of challenges for stakeholder engagement due to network operating arrangements: the complexity associated with mixed governance modes, the impact of power differentials and the difficulties of organisational representation. All of these factors can influence the way that infrastructure networks conceptualise stakeholder engagement and management. The next section presents a framework for stakeholder management and situates stakeholder engagement within this framework.

**Stakeholder Management and Engagement**

The literature has suggested a number of steps that are important in effectively managing stakeholders (Freeman, 1984). These elements are presented in figure 2 as an integrated chain through which organisations can manage relationships with stakeholders.
This framework shows that stakeholder management is undertaken through a series of five interlinked activities. The starting point, stakeholder identification (Donaldson & Preston, 1995; Freeman, 1984; Friedman & Miles, 2006; Mitchell, Agle, & Wood, 1997; Rowley, 1997) focuses on defining stakeholders. From this step, stakeholders are classified and prioritised according to one of the many schemas suggested in the literature (Clarkson, 1995; Donaldson & Preston, 1995; Frooman, 1999; Frooman & Murrell, 2005; Goodpaster, 1991; Hill & Jones, 1992; Jones, Felps, & Bigley, 2007; Mitchell et al., 1997; Savage, Nix, Whitehead, & Blair, 1991).

Having allocated priorities to various stakeholders, the strategy development phase (Freeman, 1984; Harrison & St. John, 1996) of stakeholder management focuses on building stakeholder relationships that are strategically important. Based on this strategy, stakeholder engagement which involves a structured approach to connecting with stakeholders (Friedman & Miles, 2006; Greenwood, 2007; Leach, Lowndes, Cowell, & Downe, 2005; Thomson & Bebbington, 2005) is enacted with priority stakeholders. The final step in the chain is the maintenance or de-activation of stakeholder relationships (Crane & Livesey, 2003; Post, Preston, & Sachs, 2002) depending upon their continuing strategic importance to project outcomes. While acknowledging the significance of each element of this framework, this chapter primarily deals with the core activity of stakeholder engagement and how it is enacted by networks of schools.

Although the stakeholder concept is evident in the governance network literature (Agranoff, 2007; Agranoff & McGuire, 2001b, 2003; Edelenbos & Klijn, 2006; McGuire, 2002), it could be argued that a more in-depth understanding of the mechanisms that governance networks use to interact with stakeholders is required. Given that a degree of "publicness" (Antonsen & Jorgensen, 1997) is inherent to networks of schools, it could be argued that the public sector approach to stakeholder engagement is highly relevant to such networks.

In the literature, a broad spectrum of stakeholders has been identified as important to the effective delivery of public outcomes. These include: citizens, service users or consumers, the business community, interest groups and stakeholders (Bryson, 2004). Given this breadth of stakeholders who may have a claim, legitimate or otherwise, it could be argued that a more strategic approach to managing stakeholder relationships needs to be adopted to secure the stakeholder “buy in” required for successful project completion. For networks of schools, this translates into the challenge of satisfying “the needs and interests of stakeholders at network and organization levels, while emphasizing the broader needs of the community and the clients the network must serve” (Provan & Milward, 2001, p. 422).

Deciding how to include stakeholders in decision-making processes about schooling, is a difficult network activity because of the range of influencing strategies that
stakeholders can employ (Frooman, 1999; Frooman & Murrell, 2005) and the impact that this can have on delivery of outcomes. The next section takes this a step further by arguing that stakeholder engagement is a network management activity.

STAKEHOLDER ENGAGEMENT AS A NETWORK MANAGEMENT ACTIVITY
A strong link running through the network management literature is the importance of engaging with and managing actors in network processes, with the objective of improving outcomes by incorporating a range of diverse ideas, insights, responses and solutions (Agranoff & McGuire, 1999). This is supported by Agranoff (2007) and Koppenjan and Klijn (2004) who contended that engaging with actors in network processes is a fundamental aspect of network management.

The literature has identified a range of network management structures that might be adopted to organise and manage networks:
1. Self-governing general assembly,
2. Lead organisational structure,
3. Equal partnership,
4. Network administrative organization and

However, irrespective of the network management structure implemented, the objective of using that structure as a means of managing and leveraging relationships remains paramount.

Keast and Hampson (2007) in a recent study of a Cooperative Research Centre as an inter-organisational innovation network, reinforced the concept that relationships are a significant feature of networks and further, that these relationships need to be strategically managed by networks to obtain the best possible results. In contending that management “must happen for networks to be effective”, McGuire (2003, p. 6) also supported this position. However, despite acknowledgement that networks and therefore, the interconnecting relationships through which they operate (Klijn & Skelcher, 2007) need to be managed (Keast & Hampson, 2007), there are ongoing debates in the literature about the conceptualisation of network management and activities that might be undertaken under the auspices of network management.

In the literature, a wide range of non-traditional management strategies have been proposed as mechanisms for guiding network interactions (Agranoff & McGuire, 2001b, 2003; Koppenjan & Klijn, 2004; Mandell, 2001). However, McGuire (2003) has challenged the notion that networks need different management strategies suggesting that network management tasks may not be different from hierarchical management activities.

Adding to the complexity, Jarvenisvu and Moller (2008) assert that there is no developed theory of network management because the field is so fragmented. This is supported by
Rethemeyer and Hatmaker (2007) who contend that there is no integration across network management processes and models. This viewpoint is in keeping with Agranoff’s (2007) contention that there is a shortfall in knowledge about how governance networks are managed.

However despite these disagreements within the network management literature, the following networks management functions have been distilled (Agranoff & McGuire, 2001a, 2001b; Keast & Hampson, 2007; Kickert, Klijn, & Koppenjan, 1997; McGuire, 2003):
1. Activating- recruiting members and resources,
2. Framing- establishing the vision and rules,
3. Mobilising- creating joint commitment, and
4. Synthesising- building and maintaining relationships.

Given the relational tasks embedded within both network management (Keast & Hampson, 2007) and stakeholder engagement (Maak & Pless, 2006), it could be argued that there is an alignment between the two concepts particularly within the activating, mobilising and synthesising functions.

Activating
Activating has been identified as the identification and selection of actors and stakeholders who are important to achievement of network outcomes and so as to obtain access to resources including money, expertise and support (Agranoff & McGuire, 1999; Keast & Hampson, 2007). Indeed, Agranoff and McGuire (2003) point out that selection of partners is critical to success. This supported Klijn (1996) who argued that network management involves the selective activation and introduction of new actors to networks.

An initial step in activation is the identification of network participants (Lipnack & Stamps, 1994) whose skills and resources are required by the network (Agranoff & McGuire, 1999). Furthermore, the need for networks to identify stakeholders has been explicitly confirmed by Gray (1989). Therefore, it could be argued that the task of stakeholder identification, a fundamental step in stakeholder engagement, is encompassed within the activating function of network management.

Taking this a step further, Klijn’s (1996) contention that an element of selectivity is required when bringing new actors into networks, points to a parallel process in the stakeholder literature; prioritisation of stakeholders to be included in stakeholder engagement processes. Stakeholder prioritisation is fundamentally a process of selectively making choices between stakeholders based on a range of attributes including access to resources (Frooman, 1999; Frooman & Murrell, 2005). This similarity between these processes, adds weight to the argument that stakeholder prioritisation could be considered a network activating function.
The role of framing in facilitating stakeholder engagement is discussed next.

**Framing**
The network management activity of framing is essentially about establishing the operating system of the network through the development of rules and norms (Agranoff & McGuire, 2001b) and establishing “a sense of interdependency and the need for collective action (Keast & Hampson, 2007, p. 368). To achieve this shift from a positional to a collective approach, framing operates as a mechanism for negotiating the terms of agreement for the network (Waterhouse, Keast, & Brown, Forthcoming).

It could be argued that framing facilitates stakeholder engagement in two ways. Firstly, framing activities could extend beyond the network boundary to establish the terms of engagement for interactions with stakeholders in the surrounding web of relationships (Rowley, 1997). Secondly, having established how the network engages with stakeholders, framing can be used to build interdependency with stakeholders and increase their level of commitment to collective outcomes over self interest. In this way, relationships with stakeholders can be leveraged to create the collaborative advantage necessary to achieve network outcomes (Waterhouse et al., Forthcoming).

By framing relationships with stakeholders in these ways, networks will be better able to understand what stakeholders are seeking to achieve, develop options that are mutually beneficial and negotiate productive outcomes. By creating this type of platform for engagement with stakeholders, networks will be better able to manage the constant process of framing, reframing and negotiation.

The preceding discussion identified two key network management tasks which facilitate stakeholder engagement at the framing stage: 1. Establishing the terms of engagement for the network, and 2. Building levels of interdependency to increase commitment to collective outcomes. Mobilisation and its relationship with stakeholder engagement is discussed in the next section.

**Mobilisation**
The network management function of mobilisation is concerned with bringing together separate entities into a collective unit through alignment of interests and building a sense of common purpose (Agranoff & McGuire, 2003). Key mobilisation tasks include developing new coalitions (Keast, Mandell, Brown, & Woolcock, 2004) and building support within and beyond the network (Gray, 1989). Both of these activities can be directly related to the processes associated with stakeholder engagement (Bourne & Walker, 2006). When viewed as a catalyst for stakeholder engagement, mobilisation provides a means of building support beyond network boundaries through deliberative relationship development strategies designed to ensure stable resource flows (Keast & Hampson, 2007), a strong motivation for stakeholder engagement.
This type of relationship development is critical to networks because of the propensity of stakeholders with conflicting objectives to consume significant amounts of time while these differences are resolved (Olander & Landin, 2005).

As shown previously, two key mobilisation tasks may facilitate stakeholder engagement: 1. Developing new coalitions and 2. Obtaining support both within and outside the network. The role of synthesising will be examined from a stakeholder engagement perspective in the next section.

**Synthesising**

The synthesising activity of network management focuses closely on developing the environment and conditions (Keast & Hampson, 2007) which will engender productive relationships among members (McGuire, 2006). According to Keast and Hampson (2007, p. 370), one of the key activities in maintaining these relationships is “checking levels of engagement and contribution”. It could be argued that synthesising activities are directly applicable to those stakeholders identified and selected for inclusion in network activities through activation processes.

In the literature it is contended that information exchange strategies are fundamental to creating network synthesis (Herranz Jnr., 2005). Information exchange strategies are also an important feature of stakeholder engagement as emphasised by Friedman and Miles (2006) in the ladder of stakeholder management and engagement. In the road infrastructure context, the significance of information exchange as a stakeholder engagement technique was also supported by Lemley (1995) in a review of the Channel Tunnel project. Given the high priority placed on information exchange, network synthesis could be seen as a mechanism to engage with stakeholders who are on the periphery (Rowley, 1997) of road infrastructure networks. Thus network synthesis activities could be considered a key activity for infrastructure networks seeking to engage with stakeholders as a means of reducing project risks which could result in cost and time overruns. Based on the earlier discussion, it is possible to see that two key synthesising tasks are parallel to processes in stakeholder engagement: 1. Checking levels of engagement and contribution, and 2. Information exchange.

Drawing on the insights from the stakeholder literature and the network management literature, the preceding discussion demonstrated that that the relational tasks associated with stakeholder engagement align closely within the activating, framing, mobilising and synthesising functions of network management.

**ROLE OF THE NETWORK MANAGER IN STAKEHOLDER ENGAGEMENT**

Despite the self-organising nature of governance networks, there is a need for network managers to guide the network toward a set of goals and away from blockages in decision making and achieving outcomes (Rethemeyer & Hatmaker, 2007, p. 15). Thus the role of the network manager is well established in the literature (Agranoff &
McGuire, 2001b; Keast & Hampson, 2007; Keast & Mandell, 2005; Klijn, Koppenjan, & Termeer, 1995; Mandell, 2001; McGuire, 2002, 2003). This role may be undertaken by one or more network members who ensure that networks stay on track and develop a collective sense of purpose, (Mandell & Keast, 2009) through implementation of the network management functions of activating, framing, mobilising and synthesising. Depending on the issue, the network manager’s approach to undertaking these tasks can range from facilitation to orchestration of relationships (Rethemeyer, 2005). Elaborating on this approach, Keast and Brown (2006) characterised network managers as drivers who assume the responsibility for managing relationships to achieve outcomes (Keast & Hampson, 2007).

Given the sensitivity and significance of education and the resultant complexity involved in engaging with stakeholders it could be argued that the network manager’s role may be more attuned to relationship management than group facilitation activities. This distinction is particularly important where the intent of building relationships with stakeholders is to leverage resources towards the creation of collective benefit (Keast & Hampson, 2007, p. 371) to both the network and stakeholders. To maximise these benefits, it could be argued that the relationship management tasks which are embedded in stakeholder engagement need to be driven by network managers through the network management activities.

It has been acknowledged that eventuating results from stakeholder engagement can be time and resource intensive (Keown, Van Eerd, & Irvin, 2008) over the life of a road project. Nonetheless, as this chapter has argued, network managers have an important role as drivers of stakeholder engagement.

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Conclusions

“Do public networks really work?” is the leitmotiv of this review: despite being pervasive and considered a good solution to managing interdependencies and provide public services, public networks need to be investigated alongside their performance and structural and managerial characteristics. Addressing these topics is crucial not only for scholars in the field but also for the community at large. Understanding how to measure network performance is highly relevant to researchers investigating public networks as well as to practitioners managing and coordinating them. Understanding the relations between structural and managerial network characteristics and how these can jointly affect network performance would not only enhance the acquisition of theoretical knowledge but would also provide practical guidelines for sustaining and improving network success. Furthermore, these investigations could promote the improvement of services offered to network clients who require networks to produce, to manage resources, organize their structures and evaluate their results according to needs. Finally, they can improve both external legitimacy towards the network activities of external stakeholders and internal legitimacy, with network members sharing a common vision and commitment.

In the first stage of this review, we opt for an exploratory multiple case study to provide better understanding of the public networks in question, their main governance, structural and managerial characteristics, paving the way for the subsequent quantitative investigations. Indeed, the chapter “Structure, mechanisms and managers in successful networks” shows that, in successful networks and established contexts, different network structures may require different mechanisms and managerial abilities (or a different combination of these) with the latter aspects depending on the former. This enables to hypothesize that the network mechanisms, structure and manager(s) can jointly affect network performance. Moreover, this first chapter shows that networks rely on both formal and informal mechanisms to support member integration and coordination: reliance on formalized rules, procedures and personal relationships between network members are powerful means of integration and could affect network success. Third, the results outlined in the chapter appear to challenge the importance of a unique network manager for network success while suggesting that the different skills and abilities that a network manager is expected to develop to successfully manage public networks can be also shared among numerous official actors and institutional bodies.

Next the review considers the concepts and measurements of network performance and moves towards a quantitative but still exploratory approach. The results from the chapter “Exploring the concept and measures of public network performance” suggest
some relevant considerations. Concepts and measures of network performance are numerous, at times fuzzy and overlapping: network performance is approached from different levels of analysis (community, network and organization) and with three key measurement approaches (structure-related, process-related and output-related). The results support the use of a multidimensional model to ascertain network performance. Comprehensive understanding of the term and its measures requires combining innovative measures related to network processes with more traditional measures related to network structure and outputs. Hence, the chapter demonstrates that traditional performance attributes, in terms of the network’s ability to survive in the long term and achieve its goals, should be combined with more innovative measures mirroring the level of interdependence, collaboration and integration within the network.

Secondly, it is noted that, notwithstanding the coexistence of multiple measures and approaches, those participating and working in networks pay more attention to traditional measures of network performance, namely, those formerly called structure-related and output-related constructs. Finally, the chapter develops a multidimensional conceptualization and measure of performance at the network level of analysis based on two main attributes: the ability of the network to survive in the long term and to achieve its outputs. Network survival rests on internal (from network workers) and external (from politicians, citizens and mass media) legitimacy that allows clients to access stable and continuous services, provides worker recognition and support, with network partners progressively deriving advantages from the collaboration. The network’s ability to achieve its own objectives refers to the outputs of public networks in terms of efficiency, effectiveness and equity. These results respond to one of the research questions and fill an important gap in literature on public networks since they lead to a conceptualization of network performance based on a multidimensional model that largely supports traditional definitions and measures. Moreover, presenting the viewpoint of those participating and working in the network, this model integrates and is consistent with those approaches that consider the ability of a network to survive and achieve its objectives as the most important indicator of good performance for clients (as Provan and Milward argued in 1995 and 2001) and network partners (as Provan et al. stated in 2005).

The last chapter “Determinants of public network performance: linking governance forms, coordination mechanisms and managerial roles” addresses the question on performance determinants and how these relate to each other. The multidimensional model presented in the second chapter provides a conceptualization of network performance and sound measures. Consequently, this last part takes a quantitative and explanatory approach to evaluate the joint impact of structural, governance, managerial and functioning characteristics on network performance in line with more traditional concepts and measures. The results are important because they confirm that service delivery networks are a combination of structural characteristics and managerial roles
and tools that together can improve their performance. Hence, scholars can no longer focus on single performance predictors but need to look at their joint effects: network governance forms cannot ensure good performance on their own but need to be associated with proper managerial roles and arrangements. Indeed, the review demonstrates that public networks can ensure their success through a combination of proper structural, managerial and functioning characteristics. This combination includes three key components: a dedicated organization disbursing funds, administrating and coordinating the network, a network manager with facilitating, mediating and leadership capabilities, and formalized instruments and tools to sustain partner interactions. Mandatory and publicly funded service delivery networks have to manage complex settings and problems, large numbers of members, difficult coordination processes and have highly interdependent task requirements. Through highly structured network forms, consolidated managerial roles and traditional hierarchal coordination mechanisms they can improve their ability to survive in the long term and achieve their goals.

From a theoretical perspective, the review offers some important contributions.

In line with recent studies (Provan and Milward, 2001; Keast et al., 2004; Kenis and Provan, 2009; Lindencrona et al., 2009), public network performance requires a multidimensional approach combining different traditional conceptualizations and measures to assess the network’s ability to survive in the long term (Provan and Milward, 2001; Kenis and Provan, 2007, 2009) and to reflect the network’s ability to achieve its own objectives (Provan and Milward, 2001; Kenis and Provan, 2007, 2009) in terms of efficiency, effectiveness and equity. However, more innovative concepts and measures in relation to the development of collaborative processes within the network would seem to be a “prerequisite” for network survival and the achievement of expected outputs.

This review integrates literature investigating how to successfully manage public networks and the structural and managerial determinants that affect network results (McGuire and Agranoff, 2011; Turrini, Cristofoli, Frosini and Nasi, 2010). Specifically, it deals with studies (Cristofoli, Maccio’ and Pedrazzi, 2013; Cristofoli and Markovic, 2012; Edelenbos et al., 2010; Kort and Klijn, 2011; Raab and Milward, 2012) analysing the relationships between network performance and structural, functioning and managerial network characteristics and, within this stream of research, represents a first attempt to overcome the weakness of small sample-size of prior studies. As suggested by Turrini et al. (2010), this review indicates that network success relies on different combinations of network performance predictors. Different network structures may in fact require different mechanisms and managerial roles and abilities (or a different combination of these) to be successful. Among these combinations, we have demonstrated clear causal relationships: to positively improve network performance, tight governance modes should be combined with the presence of a network manager making use of appropriate formal coordination mechanisms.
The more in-depth analysis of the importance of each performance determinant enhances literature investigating structural and governance characteristics (Raab and Kenis, 2009). Partially supporting prior studies (Milward and Provan, 1998; Provan and Kenis, 2007), this review emphasizes the importance of a NAO as network fund disseminator, administrator and coordinator: tight network forms alone cannot ensure good performance but need to be combined with appropriate managerial roles and arrangements. Similarly, the joint and positive effect of tight forms of governance, the presence of a network manager and formalized coordination mechanisms on the ability to endure and improve over time confirms the need for “a formalized structure that can be sustained over time” (Provan and Kenis, 2007: 245).

Public networks have always been labelled as an organizational form that is able to overcome bureaucratic rigidity. However, this review suggests that in uncertain and complex situations, public networks need to be managed bureaucratically: formalized mechanisms and tools used to sustain partner interactions are useful in complex networks to coordinate partner interdependences and harmonize different interests. In line with existing literature, functioning mechanisms should refer to both the traditional hierarchical and the networking approach to coordination (Agranoff, 2006; Brown et al., 1998; Kettl, 2003; Morris et al., 2007). Hence, definitive connections, distinct positions and authority functions, hierarchical mechanisms, task specialization, routines and rules should coexist with more flexible and adaptable tools, negotiation and mutual adjustment mechanisms.

Although non-hierarchical, public networks also have some aspects typifying the culture and traditional behaviours of public sector organizations. As bureaucracies, they manage uncertainty and complexity by defining rules and procedures, while formalization is considered a good way to sustain network stability.

The review supports literature (Agranoff and McGuire, 2001; Edelenbos et al., 2010; Kickert et al., 1997; Kort and Klijn, 2011) investigating the importance of managerial roles and capabilities in public networks. Extant literature has typically stressed the need for a network mediator, facilitator and/or leader in order to ensure that the network is successful (Kickert et al. 1997; Agranoff and McGuire 1998; Mitchell et al. 2002). However, coherently with literature emphasizing that it is more managerial capabilities and skills than the person per se that matter, this review maintains that the simple presence of a network manager does not guarantee successful performance but should be associated with proper coordination mechanisms and governance forms. Moreover, it suggests that attention should be paid to how these managerial roles perform and which strategies they apply. Indeed, these managerial activities could be performed not only by the unique network manager but also by a group of institutional and official bodies sharing skills, tasks and responsibilities. Again in this case, public networks appear to be midway between the bureaucratic and the network approach: at
times, they seem to be ruled by numerous official actors typical of the bureaucratic culture, at others, they appear to take a managerial and entrepreneurial approach. In empirical terms, this review offers insights for public managers on how to successfully manage public networks and shows that selecting network mechanisms and managerial roles and capabilities that sustain the network governance form is beneficial. On one hand, a unique network manager and formal coordination mechanisms for partner interactions and decision-making processes are essential when a tight form of governance is established. On the other hand, the definition and establishment of the governance form calls for a careful selection of proper managerial roles and tools.

Finally, networks that are able to survive in the long-term and achieve their goals cannot avoid a certain level of bureaucratization of tools and mechanisms that coordinate and manage interdependencies.

The challenge for networks, is to be able to effectively manage a wide range of stakeholder expectations while providing the best possible schooling. Within this context, this chapter proposes that there is a link between network management and managers and stakeholder engagement by networks.

By unpacking the relationships between network management and stakeholder engagement, this chapter has generated a number of insights. Firstly, it has indicated that the relational tasks associated with stakeholder engagement are embedded within the network management functions of activating, framing, mobilising and synthesising. By refocusing network management activities on the implementation of “fit for purpose” stakeholder engagement, networks will be better equipped to manage the risks and capitalise on the opportunities presented by stakeholders.

Secondly, it has proposed that as a result of strategically using the network management functions of activating, framing, mobilising and synthesising, networks are more likely to be able to leverage the relationships created with stakeholders to build collaborative advantage and secure better outcomes.

Finally it has identified that to capture these benefits, the role of the network manager is critical in enacting the relational tasks associated with stakeholder engagement. By driving stakeholder engagement in this way, network managers will be more likely to attain the “buy in” that is an important element in the successful delivery of road infrastructure projects by governance networks.

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