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Holding the Stick at Both Ends: The Design of Network Administrative Organizations

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http://hdl.handle.net/10803/404968

DOCTORAL THESIS

Title	Holding the Stick at Both Ends: The Design of Network Administrative Organizations
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Center	**ESADE BUSINESS SCHOOL**
Department	STRATEGY AND GENERAL MANAGEMENT AND PEOPLE MANAGEMENT AND ORGANIZATIONS
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ABSTRACT OF THE THESIS

Holding the Stick at Both Ends: The Design of Network Administrative Organizations
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(Under the direction of Dr. Angel Saz-Carranza)

The focus of this Ph.D. dissertation is the design of Network Administrative Organizations (NAOs), the separate units purposefully set up by public inter-organizational goal-directed network partners for to govern and manage it. Despite the interest shown by both public management and organizational scholars in the field of Goal-Directed networks governance, few theoretical studies have built on Provan and Kenis's (2008) seminal contribution. As a result, this field remains a promising avenue for research. By bringing together the literature on networks, inter-organizational collaborations, organizational design, and corporate governance, this Ph.D. dissertation sheds light on two factors intimately associated with the design of Network Administrative Organizations: strategic interdependence and outcome uncertainty avoidance.

To Carles, Rita, Octavi and Victòria

Acknowledgements

This thesis would not have been possible without the support and help of all those who believed in me, even when I did not believe in myself.

First of all, I must express my appreciation and gratitude to my supervisor, Dr. Angel Saz-Carranza. It has been a long and winding route and you have been there, patiently supporting me. Your guidance and help have been invaluable. When I was on the verge of abandoning this journey, you did not judge me. You have been there when I doubted that there would be light at the end of the tunnel. Thank you for your optimism and for believing in me and this dissertation.

I would like to especially thank my paper's co-authors, Dr. Xavier Fernández-Marín and Mr. Adrià Albareda, who have not only been a continuous source of inspiration, but have also accompanied me as friends. You have been extremely important to me. Beyond your advice, suggestions, and help as co-authors, you have always been there with a smile and reviving word. It has been a pleasure and an honor to work with you.

I would also like to thank Pilar Gallego and Sílvia Espín for their help during the Ph.D. years. Your door has been always open to answer my endless doubts. You were there for me on both bad and good days. Thank you.

I am grateful to all of my MRes professors, who paved the way for this research. In particular, I would like to honor Dr. Nutria Agell and Dr. Cristina Giménez, who believed in me and my ability to rise to this challenge. Thank you also to Dr. Eduard

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Chapter 1:

Introduction

This chapter introduces the Ph.D. thesis topic and provides a general overview of the Ph.D. content and structure.

1.1.Introduction to the topic of the Ph.D. thesis

If a single word could be used to define modern societies, a good candidate would be the "network" concept. As Castells (2000) has pointed out, for the last decades, humanity has embraced its networked features as an almost inevitable consequence of modern transformations of the economy and geo-political context, and of a redefinition of human interactions at all levels (Powell, 1990; Child, Faulkner, and Tallman, 2005; Raab and Kenis, 2009). The pervasiveness of the network approach in research mirrors the need to understand how individual units, whether firms, organizations, groups, or public agencies, interact with other units in their field of human activity (Kilduff and Tsai, 2003).

Public Management and Public Policy Research has not been immune to these developments. The proliferation of public inter-organizational goal-directed networks, as alternative governance mechanisms, has captured the attention of public management scholars in recent years (Agranoff, 2007). For Public Management researchers, the network concept not only acknowledges the interdependency among the actors within a specific policy arena but also questions the role, authority, legitimacy, competence, and capacity of isolated public agencies and organizations to process and decide unilaterally on most of the complex, borderless, and multilayered phenomena confronting modern societies (Klijn 2007). It is blithely assumed that public goal-directed networks are needed to solve "wicked problems" in many public policy domains (Turrini et al., 2009; Gray, 2000). As Isset et al. (2011, i166) have argued, the creation of public value is no longer the realm of standalone governments; against a background of mission expansion and remarkable levels of government de-legitimization, networks have become commonplace in the public domain. Consequently, public inter-organizational goal-directed networks are nowadays present in such varied fields as public service delivery (Provan and Milward, 1995), local economic development (Agranoff and McGuire,

2003), crime prevention (Raab, Mannak and Cambré, 2013), national security (Whelan, 2012), the fight against drugs (Ysa, Colom et al., 2016), emergency and recovery efforts (Vasavada, 2013), and regulation (Levi-Faur, 2011) among others. The optimistic view is that such networks are an effective way of providing public goods in a more flexible and less bureaucratic manner (Provan and Milward, 2001; Provan and Kenis, 2008; O'Toole, 1997; Isset et al, 2011).

The promise of networks depends on achieving the so-called collaborative advantage (Kantar, 1994; Huxham and Vangen, 2000). The rationale assumes that by building links, in a coupled net of interactions, among interdependent organizations (Thomson, 1967), institutions and/or government agents, positive outcomes will be granted. However, this may well be a naïve argument. The connections and interplay among actors do not inevitably lead to the achievement of network level goals. In addition, they do not always occur within a flat, horizontal organizational arrangement in which contributions, control, and benefits are equally or equitably distributed among partners. At the end of the day, public goal-directed networks, whether voluntary or mandated (Rodríguez et al., 2007) are created to pursue network-level goals that no single organization is able to achieve individually; these goals are aligned, to a greater or lesser extent, with the organizational aims of the network nodes. The downside is that collaborative endeavors can compromise an individual organization's resources, agenda, decision-making, and potentially, even its future. How then are public inter-organizational goal-directed networks able to hold the stick at both ends?

This paradox converts the need for mechanisms and institutions to coordinate joint action to attain whole-network goals (Provan and Kenis, 2008) into a cornerstone, regardless of the network's purposes (Saz-Carranza and Ospina, 2011; Dyer et al, 2007). As Kenis and Provan (2008) argue in their seminal piece, instead of assuming that a collaborative

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advantage can be gained for free, it is crucial to understand how networks actually function—not only whether network-level outcomes are achieved, but also how interdependences are managed, decisions made, conflicts handled, and eventual tensions resolved. Provan and Kenis's (2008) piece represents a theoretical milestone in the analysis of whole-network governance. This Ph.D. thesis builds on their important contribution.

When studying public inter-organizational networks, researchers (perhaps grappling with methodological constraints and limitations) have generally focused on analyzing individual actors and their connections, rather than the network as a unit of analysis—in other words—the network as a whole. One explanation for this situation is the difficulty researchers face in gaining access to and collecting data from multiple networks. Thus, while Provan and Kenis's (2008) contribution on the three ideal types of network forms of governance (i.e., shared governance, lead organization, and network administrative organization) stands nowadays as a milestone, there is much to uncover about the exact mechanisms and processes designed and deployed to govern public-goal directed networks (Provan and Kenis, 2008; Provan, Fish, and Sydow, 2003).

Network Administrative Organizations (NAOs) represent the more organizationally sophisticated and demanding mode of network governance, entailing the creation of an utterly new and differentiated unit to steer the network. The Network Administrative Organization brokers the network but is not itself a member, so the network is governed externally. In place of the popular imagination of a flat, horizontal, hierarchy-less network, we face the existence of an external unit to oversee, coordinate, and govern the network.

Provan and Kenis's (2008) contribution opens the door to analyzing and exploring in detail the nuances and variations that characterize this mode of governance (i.e., the NAO). So far, qualitative research on networks and their governance has partially identified the main building blocks of NAOss (boards; directors or coordinators; working groups) and, even more important, pointed out the existence of different institutional designs for these organizations (Agranoff, 2007; Saz-Carranza, 2012; Saz-Carranza and Ospina, 2011; Saz-Carranza and Longo, 2012). One should note that, while scholars have made some conceptual and theoretical contributions to research in this field, findings are still very thin on the ground, opening up new avenues of enquiry (McGuire and Agranoff, 2007; Provan, Fish, and Sydow, 2007).

This Ph.D. thesis empirically explores a specific universe of goal-directed networks: European Regulatory Networks (Levi-Faur (2011). First, regardless of the specific policy arena in which they operate, regulatory networks within the European Union share membership and size, thus making this subset suitable for comparisons (Coen and Tatcher, 2008). At the same time, European regulatory networks face specific challenges and carry out different tasks to achieve network-level goals. The subset therefore offers a nicely diverse niche in which to conduct an empirical analysis. Second, previous qualitative analysis (Saz-Carranza, 2012) shows that the NAOs of European regulatory networks differ in organizational design (for example, in relation to their number of boards or decision-making mechanisms). Last but not least, the subset of European Regulatory networks is a medium-n universe through which to study the governance of inter-organizational goal-directed networks, thereby adding to the small set of empirical contributions that go beyond case-by-case analysis.

1.2. Overarching research objective and expected contributions

Using a comprehensive methodological approach that combines a systematic literature review and both qualitative and quantitative research methods, this Ph.D. dissertation's overarching research objective is to empirically shed light on the design of Network Administrative Organizations by unveiling some of the determinants and processes affecting the organizational choices made to govern European Regulatory Networks. More specifically, this thesis aims to unveil the role of power, resource interdependences, and uncertainty in the design of Network Administrative Organizations.

We aim to provide a sound step forward in our understanding of the rationale for the existence of distinct organizational design choices for Network Administrative Organizations. Up to now, apart from acknowledging the existence of a variety of different examples of Network Administrative Organizations, research has neglected the analysis of this phenomenon. The following questions can open a relevant avenue for new research insights:

Does design of Network Administrative Organizations associate to certain factors that can be empirically examined, or is it just the result of idiosyncratic variables that only allow understanding the phenomenon on a case-by-case basis?

In either case, which factors play a role when deciding on NAOs?

Does the interplay of power and/or uncertainty help to explain the appearance of NAOs? Building on literature that explores public goal-directed networks, organizational design, and corporate governance, this disseration aims to produce relevant results that not only make an academic contribution, but also have managerial implications for policy makers, managers, and other actors playing a role in the design of public networks.

The expected contributions to the design of network administrative organizations will cast light on the key factors associated with NAO design, offering an empirically based

explanation of the different types of network administrative organizations. We aim to contribute to the goal-directed network management literature by advancing existing knowledge on network governance modes.

In addition, as a second contribution, we will explore the rationale behind the design of NAOs for European regulatory networks. As supranational regulations permeate the regulatory space, it is crucial to understand how and why the organizations in charge of regulations (i.e., networks of regulators) are designed as they are; these details can help us understand their functioning, legitimately influence them, and foster or hinder their creation and evolution.

Last but not least, NAOs appear to be distinct organizations with multiple principals and, potentially, multiple agents. The findings of this thesis may help managers and board members in some of the situations discussed below to deal more effectively with this complex scenario. Beyond theoretical issues, in terms of practical implications, policy makers, European regulators, and national political and economic agents will benefit from the insights provided by this research project.

1.3. Structure and content of the Ph.D. thesis

This thesis takes the form of a monograph based on articles. Its main chapters are derived from articles that have not necessarily been published. Below, we present a detailed structure and brief overview of this research project.

Chapter 1 conveys the overarching framework of the Ph.D. thesis, presenting and discussing its theoretical framework. More specifically, in the first chapter, we establish theoretical connections and provide an overview that links our overarching research objective with the specific research questions and methodologies applied in Chapters 3, 4, 5, and 6. This chapter builds on a Master's Thesis for the degree of Master of Research in Management Sciences.

In Chapter 2, we present and depict a specific subset of public inter-organizational goal-directed networks to develop our empirical analysis of the design of NAOs: European Regulatory Networks. This chapter describes the findings derived from a custom-built database containing more than thirty elements of information for each of the networks studied. This dataset was built using a two-fold approach. It contains publicly available information on the networks analyzed in this study. In collaboration with ESADEgeo's research units, the bylaws and legislative acts establishing the networks were codified using a thematic analysis approach (Boyatzis, 1998). The final dataset contains information on the number of boards, decision-making processes, staff members, voting arrangements, and seats on boards, among other institutional characteristics related to network governance. At the same time, it also includes data related to the function, tasks, age, sector, and mandated or voluntary nature of each network, as well as information on the governance bodies, structure, and resources of 378 Goal-Directed European Regulatory Networks. This chapter has been written in collaboration with Mr. Adrià

Albareda and Dr. Angel Saz-Carranza, and has been published as a book chapter in *The Global Context: How Politics, Investment, and Institutions Impact European Businesses* edited by Javier Solana and Angel Saz-Carranza.

Chapter 3 includes a systematic literature review on the concept of interdependence in public management. Based on the reviewed literature from top peer-reviewed public management journals, we propose a preliminary theoretical model for analyzing interdependence that considers both antecedents and consequences at different levels of analysis. This chapter was written in collaboration with Mr. Adrià Albareda and Dr. Angel Saz-Carranza. It suggests avenues for research that are covered in more detail in Chapters 4 and 5.

Chapter 4 is the first of two empirical sections of this Ph.D. dissertation: a case study of four European public networks of regulators belonging to two different regulatory regimes: Energy and Telecommunications. The paper empirically explores the establishment and development of the governance structures of both networks in order to analyze the source of their differences, focusing on the role of power and dependence in the final design of NAOs. This paper, "The Power Dynamics of Mandated Network Administrative Organizations (NAOs)," has been written in collaboration with Dr. Angel Saz-Carranza and Mr. Adrià Albareda. This chapter was accepted for publication on July 14, 2015 in *Public Administration Review* (Impact Factor: 2.636; ISI Journal Citation Reports Ranking: 2015: 5/47 (Public Administration))

Chapter 5 presents our second empirical contribution: a quantitative analysis carried out using a database of 37 public goal-directed networks. In the chapter, a set of hypotheses is developed and tested using Item Response Modelling and Bayesian Statistics to investigate factors that associate with the design of Network Administrative

Organizations. This chapter, entitled "The Governance of Goal-Directed Networks: An Empirical Analysis of European Regulatory Networks" has been written in collaboration with Dr. Angel Saz-Carranza, Dr. Xavier Gimenez-Marín, and Mr. Adrià Albareda. It has been submitted to *The Journal of Public Administration Research and Theory* (Impact Factor: 3.893), where it is currently undergoing a second round of review.

Chapter 6 concludes this research study. In particular, it provides an integrated discussion of the theoretical contributions, managerial implications, limitations, and further research challenges posed by the findings of this dissertation.

A unique and combined list of references for all of the chapters is included at the end of this monograph.

Chapter 2:

Overarching framework: Network Administrative Organizations and the Governance of Goal-Directed Networks

This chapter discusses the theoretical background, identifies research gaps, and presents the research objectives and methodologies used in the articles that constitute Chapters 3, 4, 5 and 6.

2.1. Goal-Directed Networks in Public Management

2.1.1. Goal-Directed Networks: a working, theory-based definition

Beyond the traditional dichotomy between markets and hierarchies as economic forms of organization (Williamson, 1975), networks are now recognized as a viable approach to public and private governance, economic relationships, collaborative public management, and resource allocation mechanisms—falling somewhere between the make-or-buy alternatives (Powell, 1990; Child, Faulkner, and Tallman, 2005; Agranoff, 2006; Miles and Snow, 1992). However, given that networks can be understood from various theoretical perspectives (Salanick, 1995; Klijn, 1998; Scott and Davis, 2007), the term can prove misleading (Provan et al., 2007; Agranoff, 2006). Hence, there is a need to define and clarify the nature of networks in general and to identify the key features of public-goal directed networks in particular.

At the simplest level, networks can be defined as systems of relationships among parts (Scott and Davis, 2007). Taking a more precise approach, Powell (1990) argues that networks are characterized by mutual and reciprocal patterns of communication and exchange among units that are independent but relate to other units. These units, organizations, agencies, or groups of organizations (whether public, non-profit or private) cooperate beyond their own boundaries, engage in mutual action to achieve a common goal, and are structurally interdependent, although no organization is subordinate to the others (O'Toole, 1997; Agranoff, 2006; Provan, Fish, and Sydow, 2007).

As a first step, we must clearly distinguish between ego-networks (i.e., social networks) and public goal-directed networks as two different forms of public management activity (Agranoff, 2007). Accordingly, even as inter-organizational relationships, networks can be broadly understood from two perspectives (Kilduff and Tsai, 2003). On the one hand,

networks can be analyzed by focusing on the ties and characteristics of individual players; these are egocentric networks (Brass et al., 2004). This micro-level perspective aims to explore individual players' motives for joining networks, and the consequences of that participation. It covers the player's position within the network and the number and strength of his or her ties. Social Network Analysis focuses on the patterns of connectivity and cleavage among nodes (ego-networks) that integrate a social network, focusing on exploring its social structure (Kilduff and Tsai, 2003; Wellman, 1988). The following key features characterize a network's partner relationships (i.e., ego-network relationships), determining how partners are connected to each other: centrality (its degree determined by the number of connections a player has to others); density (expressing the ratio between the network's present connections and its total potential connections); and betweenness (the extent to which a player is positioned between others in a network) (Freeman, 1979; 1982).

Networks can also be analyzed as a whole. In this approach, used in this dissertation, the focus is not on the individual organization but on the network, exploring how the network's features and characteristics may help or hinder the achievement of outcomes. Networks are seen as collaborative modes of production that strive towards common goals that may not be fully aligned with the individual goals of each network partner. These goals result from the synergies and added value offered by the collaborative advantage derived from collaboration (Huxham, 1993; Kanter, 1994).

In a complementary approach, Kilduff and Tsai (2003) argue that networks also differ in their processes, goal-direction, and serendipity, shaping their emergence and evolution over time. In serendipitous networks, connections and collaboration have no undergirding or specific rationale; the actors' choices do not reflect a common purpose. By contrast, goal-directed networks emerge because members do share a common aim, and most of

the network's activities are focused on it. Goal-directed networks are usually set up through a third-party mandate (Rodríguez et al., 2007) or by network members. They are established to achieve complex multi-organizational outcomes and goals, especially in the public sector, where collaboration and cooperation are needed to yield an optimal solution to social challenges and problems at the network level (Provan and Kenis, 2008). In this Ph.D. thesis, we focus on inter-organizational goal-directed networks. Table 2.1 summarizes different perspectives on the study of networks, briefly summarized in this section.

Table 2.1 *Various theoretical approaches to networks*

		Unit of analysis	
		Ego network	**Whole network**
Phenomenon studied	**Serendipitous networks**	Social relations of a single node	Whole social network
	Goal-directed networks	Single organization within a GDN	Management/Governance of a whole GDN

Source: author's own

Networks allow players to realize mutual goals without relying on rigid hierarchies (Dachau, 2012). They are particularly suitable where there are complementary strengths among partners that require a medium-to-high degree of commitment (Powell, 1990). Rather than relying on individual efforts, conscious collaboration and cooperation among interdependent groups working to provide complex public and community-based services may enhance effectiveness (Alter and Hage, 1993; O'Toole, 1997). The use of collaboration in networks improves the likelihood that individual organizations will be able to cope with settings in which there is greater uncertainty (Gulati and Gargiolu, 1999). When there is uncertainty, shared risk makes the alternative of collaboration attractive (Alter and Hage, 1993). Networks are considered, despite their potential

problems, to be a positive option for overcoming the failures of markets and hierarchies. The presumed flexibility of networked organizations allows them to respond more rapidly to competition and other threats, as they enable a more efficient use of resources, including an increased capacity to plan and address complex problems (Provan and Kenis, 2007). Following Child (2005), networks here are understood to be long-term cooperative and collaborative inter-organizational arrangements or agreements among partners, who, while retaining control over their own resources, decide as a group how to use them (Brass et al., 2004) in a more or less formal and explicitly institutionalized fashion (Isset et al., 2011).

Hitherto, theoretical studies of networks as inter-organizational agreements have mainly dealt with their origin, determinants of existence, and evolution; they have been linked to contextual, structural, and behavioral determinants and dimensions (Oliver, 1991; Saz-Carranza and Ospina, 2010). The tensions in a networked form of governance determine how networks are built and managed. Provan and Kenis (2007) state that networks are sensitive to conflicts between efficiency and inclusiveness, internal and external legitimacy, and flexibility versus stability. Saz-Carranza and Ospina's (2010) analysis of the behavioral dimensions of networks sheds light on the tension between unity (understood as the absence of tensions), and diversity (defined as variability in structural and behavioral traits within and across organizations). This tension is a crucial dimension that configures networks and their governance. As Saz-Carranza and Ospina (2010) argue, understanding how goal-directed networks perform requires an analysis of both the behavioral and structural dimensions of whole networks (Dyer at al., 2007). The behavioral dimension deals with the actions of groups that aim to control joint actions, whereas the structural dimension encompasses the institutions and resources designed to control the networks' joint activities (Saz-Carranza and Ospina, 2010).

2.1.2. Public Management Networks and Goal-Directed Networks

Public management networks refer to those agencies and/or organizations (both governmental and nongovernmental, profit and non-profit) involved in public policy-making, as well as to the structure that plans, designs, produces and/or delivers public goods and services (Agranoff and McGuire, 2003). These are broadly labelled "collaborative networks" in the public management research field on networks (Agranoff and McGuire, 2001; O'Toole, 1997). Public networks develop their work in policy scenarios where linkages, cooperation, partnering and boundary spanning are crucial to their core mission (Agranoff, 2007). When considering the realm of public management networks, we should note that the literature also uses "network" to refer to policy networks (Klijn and Kopenjan, 1997). In this theoretical approach, the concept links a collaborative view of policy decision-making with the collaborative provision of public goods, fusing public policies with the strategic and institutionalized context (Kicker, Klijn, and Kopenjan, 1997).

In this Ph.D. dissertation, we will consider public goal-directed networks as inter-organizational networks encompassing a group (i.e., at least three partners) of autonomous, legally independent organizations (either government agencies or other profit or non-profit organizations) that either formally decide or are mandated to work together towards a collective goal that they would be unable to achieve on their own (Provan and Kenis, 2007). The literature has found widespread use of this specific type of network, not only to deliver public health, education, and social services, but also as a way of fostering local economic development and other municipal services (Agranoff and McGuire, 2003; Provan and Milward, 1995; Provan and Sebastian, 1998; Rethemeyer and Hatmaker, 1998; Krätke, 2002).

Public goal-directed networks, in particular, can be categorized by their overarching aims, as well as by their operational and structural complexity. Informational networks recruit partners who take part solely to exchange information (i.e., programs, technologies, or possible solutions). Action is taken on a voluntary basis. One step further, "developmental networks" deliver a certain degree of education and membership services to boost the partners' ability to implement solutions in their own organizations. Outreach network activities include information and technology, providing new, interactive programming opportunities, and establishing a strategic blueprint for implementation by the partners. It is worth mentioning that outreach networks do not engage in collective action but do collectively point out courses of action. Finally, the most sophisticated type of public network—the action network—attempts to make inter-partner adjustments and to formally adopt collective courses of action, which typically involve service delivery along with knowledge exchanges (Agranoff, 2007).

Public goal-directed networks do not benefit from a centralized superordinate unit wielding authority over network members (Agranoff, 2007). At the same time, goal-directed networks cannot operate without a mechanism for ensuring that the network achieves its goals, operates effectively, and articulates relationships (whether these lie within or outside the network's often blurred boundaries) (Huxham and Vangen, 2005; Sandfort and Milward, 2008).

Public goal-directed networks therefore need a form of inter-organizational governance to both leverage the network's ability to achieve its goals and to govern the network while allowing its members to independently pursue their missions. Even so, collaboration is hard to coordinate and manage (Dyer, 1996; Wang et al., 2005). The structural and behavioral properties of a network may either help or hinder it in achieving its aims (Huxham and Vangen, 1993). Hindrances include the lack of centralized authority

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structures affecting the decision-making processes and resulting in so-called "collaborative inertia" (Huxham, 1993). Thus, designing and setting up the right governance structures is crucial to reaping the benefits of collaboration (Grey, 1989; Huxham and Vangen, 2005). As Provan and Kenis (2007) have noted and we contend, the governance structure of whole networks has not received the research attention and theoretical study it so richly deserves.

2.2. The governance of public goal-directed networks

The next section looks at the scant literature on the governance of goal-directed networks. The public network phenomenon has been thoroughly analyzed and researched, both empirically and theoretically, as the one most paradigmatic forms of governance in the hollowing state (Milward and Provan, 2001; Klijn, 2002; Agranoff and McGuire, 2003). However, little research has been done on how networks are born, how they evolve, and how they work (McGuire and Agranoff, 2007; Ring and Van de Ven, 1994).

Irrespective of their purpose, goal-directed networks must somehow be governed to ensure coordinated actions to achieve their goals (Saz-Carranza and Ospina, 2011). Public goal-directed networks do not benefit from authoritative relationships among units (Agranoff, 2007). Therefore they need a governance mechanism that both leverages the network's ability to achieve its goals and governs the network, while allowing its members to independently pursue their own missions.

It is well known that governing networks—or any other kind of inter-organizational body—is an inherently difficult task (Dyer, 1996; Dyer et al. 2006; Human and Provan, 2000). Business scholars estimate that more than 50% of alliances fail (Kelly, Schaan, and Jonacas, 2002; Park and Ungson, 2001). The failure rates of public networks are not

available, but Huxham and Vangen (2000) have shown that collaboration often succumbs to what they term, "collaborative inertia."

A network's form of governance implies its use of institutions, mechanisms, and resources to coordinate and control its collective action (Provan and Kenis, 2008; Saz-Carranza and Ospina, 2010). In governing inter-organizational alliances, there is a need to balance control and trust when dealing with the inherent risks of managing an inter-organizational setting (De Man and Roijakkers, 2009). Governing a network implies setting up processes and systems to achieve the network's goals; fostering cooperation; monitoring and controlling behavior; establishing safeguards for partners; and determining the overall functioning of the system (Child, 1990). Network governance thus has both a behavioral dimension (covering individual and group actions within the network) and a structural one (dealing with formal government institutions) (Saz-Carranza and Ospina, 2010). The latter is the focus of this Ph.D. dissertation. In this vein, we aim to build on Provan and Kenis's (2008) seminal study, which provided a typology of the forms of governance found in goal-directed networks.

Provan and Kenis's (2008) contribution to research on the three modes of network governance has driven academic discussions about the governance of whole-networks since its publication. Proof of this are several recent contributions that, to various extents, build on Provan and Kenis's (2008) three ideal types. Vasudeva (2013), in his analysis of a recovery and emergency network in the Indian state of Gujarati, uses Provan and Kenis's contingency model to explore the governance structure and effectiveness of the network. Raab, Mannack, and Cambré (2013) in turn explore the effectiveness of a set of crime prevention networks in the Netherlands. Although their hypothesis, that being governed by a NAO is a necessary but not sufficient condition for effectiveness, is not supported, the authors suggest that the degree of centralized integration within a network,

in relation to governance, may impact its effectiveness, depending on the type of services the network aims to provide (i.e., a full package of services to clients). Saz-Carranza and Ospina (2011) point out that Network Administrative Organizations are the key to managing the unity-diversity tension inherent to networks.

2.2.1. Provan and Kenis's model

According to Provan and Kenis's (2008) theoretical mode (Figure 2.1): governance in goal-directed networks takes one of three forms: shared governance, lead organization governance, and Network Administrative Organization (NAO) governance, defined using two criteria—the extent to which governance: 1) is brokered, and 2) is led by network partners. These three forms allude to the structural dimension of network governance, i.e., the formal institutions and resources designed to coordinate and control joint action (Saz-Carranza and Ospina, 2010; Provan and Kenis, 2008).

Provan and Kenis (2008) argue that "the successful adoption of a particular form of governance will be based on four key structural and relational contingencies. These are: trust, size, goal consensus, and the nature of the task (i.e., "the need for network-level competencies," p. 237). The contingencies are garnered from network literature and considered relevant when choosing a given form of governance. Table 2.2 summarizes Provan and Kenis's contingency model. As the authors point out, the four contingency factors included in this model are not exhaustive; it should be noted that they represent mainly inherent structural or network design elements that can be supplemented, building on the extant body of network literature, with other contextual or environmental factors (such as complexity or uncertainty), which affect how the network is managed (Provan and Milward, 1995; Milward and Provan, 2000; McGuire and Agranoff, 2003).

Table 2.2 *Provan and Kenis's contingency model*

	Participant-governed		Externally Governed
	Non-Brokered	**Brokered**	
Contingencies	**Shared Governance**	**Lead Organization**	**NAO**
Trust (Density)	Widely shared (high-density and decentralized)	Narrowly shared (low-density, highly decentralized)	Moderately to widely shared (moderate density)
Size	Moderate	Moderate	Moderate to multiple
Goal Consensus	Few	Moderately low	Moderately high
Network Competences	Moderate	Moderate	High

Source: compiled by the author

On one end, the shared governance structure entails a cooperative, non-brokered, and collaborative management approach, in which members participate directly as equals in both its operative and strategic decision-making processes. Hence, the network is participant-governed and decentralized; no formal governance structure is set up or required, since the network's overall functioning depends on its members' commitment and involvement.

On the other end, governance can either be brokered by a partner (i.e., the lead organization) or by a single formalized, external administrative unit set up for this purpose (i.e., an NAO). Highly-centralized networks typically have lead organizations; this is a brokered and participatory form of governance. In this case, the network is led by one of its members for reasons of power, legitimacy, resources, or other asymmetries, because it is mandated by an external player, or because partners recognize this structure as the most efficient approach to network management. The lead organization provides network administration and assumes a facilitating role in pursuing network goals, which are often sharply aligned with its own.

Finally, the focus of this Ph.D. thesis, the Network Administrative Organization (NAO), is a completely external and brokered form of governance, set up specifically to oversee, govern, and coordinate the network (Provan and Kenis, 2008:236).

An NAO's main purpose is thus to lead the network, rather than to carry out a network-level goal or mission. The Network Administrative Organization (which can be a single individual or a broader and more formalized entity) is not a member of the network by nature. The NAO, usually established when a network has broad and complex goals, is in charge of executing the operational decisions required to attain them. Table 2.3 summarizes the characteristics of the aforementioned forms of network governance.

Table 2.3. *Characteristics of goal-directed networks' modes of governance*

Shared Governance	Lead Organization	NAO
PARTICIPANT-GOVERNED: by network's members with no separate or unique governance entity.	*Externally Governed*	
Non-Brokered	*Brokered*	
Involvement and commitment of partners is key	Potentially closely aligned with the goals of the LO	The NAO is not a member
Collective Decision-making	All major activity levels coordinated by a single participant (LO)	Externally governed through the NAO
Collective Management	LO provides administration/facilities	Set up to stimulate network growth and to ensure that network goals are met
Symmetrical power	Asymmetrical power	Scale: single individual to formal organization
No distinct administrative formal unit /decentralized	Highly centralized and brokered	Centralized

Source: compiled by the author

Provan and Kenis (2008) argue that "the successful adoption of a particular form of governance will be based on four key structural and relational contingencies: trust, size, goal consensus, and the nature of the task (i.e., "the need for network-level competencies," p. 237). Provan and Kenis's (2008) underlying assumption is that the above-mentioned contingency factors are key predictors that determine the choice of governance form in goal-directed networks. The contingencies are garnered from the network literature and considered of relevance in choosing a form of governance. As the authors point out, the four contingency factors included in this model are not exhaustive. These factors represent mainly inherent structural or network design elements that can be supplemented, building on the extant body of network literature, with other contextual or environmental factors—such as complexity, power, or uncertainty—that affect how the network is managed (Agranoff and McGuire, 2003; Milward and Provan, 2000; Provan and Milward, 1995).

2.3. The design of Network Administrative Organizations

While Provan and Kenis's (2008) classical triad is a solid stepping stone toward understanding network governance, it has some shortcomings with respect to our research aims. Provan and Kenis's (2008) ground-breaking work on network governance does not explicitly provide a specific set of defining elements found in the structure of this form of governance. In particular, their framework stops short of developing a precise characterization of NAOs; it does not specify how or why NAOs differ in form and structure. This is precisely the overarching research objective we aim to explore.

Having taken stock of the previous literature on goal-directed networks and their forms of governance, we may also bring into play the contributions of scholars in the inter-organizational field. Here, one should sound a note of caution. We are fully aware of the

challenges arising from this interplay. They stem largely from the governmental nature of some of the agencies involved in public goal-directed networks, the type of goods and services provided, and the utterly different effectiveness measures applied. Even so, following Isset et al. (2011), we argue that the public management literature on networks will benefit from findings drawn from disciplines such as management and sociology, which are more advanced in their network research. Furthermore, we wholly agree with Isset's statement (Isset, 2011, i168): "our field (public management) needs to be more cognizant of the network literature in other disciplines and to employ this research to advance our own understanding of network issues in public sector contexts." In particular, we focus on Contingency Theory, Resource Dependence Theory, and Agency Theory, as applied to contexts with multiple principals.

2.3.1. Contingency Theory and the Design of Network Administrative Organizations

In particular, we first take on the literature on contingency theory applied to new organizational forms. Simply stated, contingency theory, or structural contingency theory (Burns and Stalker, 1961; Donaldson, 2001; Lawrence and Lorsch, 1967; Thompson, 1967), an outgrowth of system design, contends that there is no best, universally applicable way of organizing, and that different ways of organizing will not be equally effective (Galbraith, 1973). Developed as a behavioral theory to assess the effectiveness of different leadership styles in various contextual situations (Fiedler, 1972), contingency theory applied to organizational structures assumes that organizations whose internal characteristics better match their environmental demands will tend to achieve a higher degree of adaptation (Scott and Davis, 2007). The term was coined in 1967 by Lawrence and Lorsch, who argued that the amount of uncertainty and rate of change in an environment had an impact on the development of internal features in organizations.

Contingency theory is deterministic, assuming that the best design is that which fits an organization's key contingencies, allowing it to better achieve its goals. Moreover, it holds that the "fit" between the two has a direct positive and causal relation with organizational performance (Donaldson, 2001; Miles and Snow, 2006; Mintzberg, 1983).

Complex organizations, such as goal-directed networks, are better understood when the study of their internal mechanisms (i.e., their NAOs) is linked to the demands of their organizational settings (Lawrence and Lorsch, 1967). As posited by Miles and Snow (1986), organizations must first achieve a high degree of external fit (i.e., with the environment). Second, the structure of the organization and its managerial activities must align with its strategy (i.e., internal fit). Third, an organization must dispose of elements, in order to continuously adapt and maintain fit over the long run (i.e., dynamic fit). Thus, the most effective organizations exhibit a fine-grained match between their structure and activities and the uncertainty and/or complexity of their environments (Lawrence and Lorsch, 1967).

Contingency theory provides an influential framework for analyzing the structural design of organizations (Luo and Donaldson, 2013). Given our interest in how and why NAOs are designed as they are, it is only logical to draw on classic organizational design and contingency theory when exploring the factors associated with NAO design.

2.3.2. Resource Dependence Theory and the design of Network Administrative Organizations

In this Ph.D. thesis, we also draw on Resource-Dependence Theory. According to the tenets of Resource-Dependence Theory, organizations are characterized as open systems that depend on their external contexts (Pfeffer and Salancik, 1978). Pfeffer and Salancik's theory takes up Emerson's (1962) exchange-based power approach and assumes the existence of interdependences among organizations.

Resource-Dependence Theory builds on three core ideas: a) the organization's social environment matters; b) within a given context, organizations have at their disposal different tactics to pursue their interests and maintain autonomy; and, c) power is key to understanding these actions (Davis and Cob, 2009). Social control is understood as a process in which both the influencer and the actions of the focal organization affect the governance of the influence process. Thus, resource dependences linked to the environment and to specific individual goals convey both interdependence and conflict (Scarp, 1978).

From a more political perspective, as Hennart (2011) argues, autonomy, dependence, cooperation, conflict, control, coordination, coercion, and force are determined by the interplay, generation, and distribution of power among organizations. Resource-Dependence Theory argues that organizations will seek less constraining devices to govern their relationship with their environment, thus managing dependence and uncertainty while safeguarding autonomy (Pfeffer and Salancik, 1978).

Environmental uncertainty is defined by Pfeffer and Salancik as "the degree to which future states of the world cannot be anticipated and accurately predicted" (p. 67). When uncertainty is coupled with a situation of critical interdependence, organizations are forced to cope with it to stabilize the environment and reduce uncertainty (Thompson 1967). As Pfeffer and Salancik (1978) argue, power is "the ability to organize activities to minimize uncertainties and costs" (p. 284).

We expect power and interdependences (generated by both context and the tasks a network must perform) to play a role in the design of NAOs, especially when determining access to critical resources for network members and the adoption or change of beneficial norms related to network governance mechanisms.

2.3.3. Multiple Principals and Agency Theory and the design of Network

Administrative Organizations

In NAO-governed networks, the collaborative dimension is salient. An NAO has multiple principals, who must collaborate among themselves, as well as an agent, the NAO executive. Thus, networks face a "multiple principals" scenario (Miller, 2005; Whitford, 2005), as their governance arrangements need to accommodate and deal with multiple network members (Hoskisson, Hitt, Johnson, and Grossman, 2002; Child and Rodrigues, 2003). To theoretically deal with this multiple principals' context, we draw on a third literature stream, Corporate Governance. As defined by Aguilera and Jackson (2010), Corporate Governance elucidates the "power and influence over decision making within the corporation" (p. 487), a critical dimension when analyzing the design of NAOs. This approach allows us to analyze how governance structures are designed to serve different interests and needs within a goal-directed network. In a broad sense, corporate governance is concerned with the structure and processes that facilitate and determine how an organization, especially at its apex, is managed; how the decision-making processes are designed; how the organization is held to account; and which tools are used to monitor and control effective management (Davis, 2005). These arrangements help to define the relationship between governing bodies (i.e., boards of directors), shareholders (i.e., owners), stakeholders, and top management, and to establish how power is both limited and delegated (Urhig, 2003). The effectiveness of an organization's governance structures and mechanisms appears to affect its ability to attain goals and create value for its stakeholders (Jensen, 1993; John and Senbet; OECD, 1999, 2004; Vishny and Shleifer, 1997). For private sector organizations, the interplay between management and ownership is the main vector driving the rationale for governance choices (Fama and Jensen, 1983; Gillan, Hartzel, and Starks, 2011; Kiel and Nicholson, 2003). Although these variables do play a role in public sector corporate governance arrangements, others,

such as transparency, compliance, stewardship, accountability, and a stronger focus on stakeholders appear to be core and more relevant (Edwards and Clough, 2005).

Within corporate governance literature, we build on Agency Theory (Jensen and Meckling, 1976), to explore the issue of governance/management design. The difficult equilibrium between power and control, pointed out by Berle and Means (1965), stands at the core of Agency Theory (Alchian and Demsetz, 1972; Jensen and Meckling, 1976). Principals delegate management responsibilities to agents, who are responsible for running the business in the best interest of the owners (Clarke, 2004). However, this alignment may not always apply, due to information asymmetries or incongruences among principals and their agents, opportunistic and/or self-interested behavior by agents, or, simply, different assessments of risk. Therefore, the main function of a board of directors is to adequately monitor and reward management (Fama and Jensen, 1976), in order to dissuade agents from pursuing interests other than those of the company's shareholders.

However, when it comes to contexts involving multiple principals, such as Network Administrative Organizations, the assumption that principals direct agents based on coherent preferences (Miller, 2005) does not totally hold. According to Moe (1984) public agencies are often caught between warring principals. This may sometimes be the case in NAO-governed networks, in which multiple principals (i.e., network members), meet at different points in time to make collective decisions and supervise the NAO executive. This multilateral decision-making occurs though a specific organizational unit: an assembly or board. One of the most important issues for boards, in particular network boards, is decision-making (Agranoff, 2007), since the board's most important function is to provide a space where major decisions can be collectively taken, and where the NAO director general and his or her executive staff are monitored. Accordingly, the design of

NAOs, including their governance bodies and decision-making mechanisms, reflects the competing preferences of multiple principals, casting a shadow toward the future.

To explore this area further, we also draw on Transaction-Cost Theory, which provides a framework for choosing the optimum mode for coping with incomplete contracts and uncertainty (Williamson, 1975). In the business alliance literature, Transaction-Cost Theory has been successfully applied to the choice of governance mechanism, enabling managers to choose between contract and joint-venture alliances (Hennart, 1988; Talman, 2009). In dealing with potential opportunistic behavior, partners in an inter-organizational relationship seek to reduce transaction risks by establishing the right monitoring and steering mechanisms. Provan and Kenis (2008) draw on Transaction-Cost Theory when developing contingency factors for the network form of governance, and, in particular, when predicting that networks with more members—i.e., with higher coordination costs—are best governed by NAOs. Thus, Transaction Cost Economics may help researchers better understand the antecedents and factors associated with the design of Network Administrative Organizations.

2.4. The theoretical framework in context

The following table establishes connections between the literature reviewed, the overarching research aim of the thesis, the specific research questions addressed in Chapters 4, 5 and 6 and the methods used.

Table 2.4. Summary of the theoretical framework

Overarching research aim	To explain the design of Network Administrative Organizations by revealing some of the factors and processes associated with the organizational governance choices made by European Regulatory Networks. More specifically, this Ph.D. aims to unveil the role of power, resource interdependences, and uncertainty in the design of Network Administrative Organizations.		
Key factors affecting the design of Network Administrative Organizations (derived from the overarching framework)	(i) the partial delegation of governance to a broker (i.e., agent) and the existence of multiple principals (i.e., network members),	Agency Theory (multiple principals); Contingency Theory; Transaction Costs	
	(ii) the interplay of power and resource interdependences,	Contingency Theory; Resource Dependence Theory; Bargaining Power	
	(iii) the risk of opportunistic behavior (both from members and from the agent)	Agency Theory (multiple principals); Transaction Costs	
	(iv) the safeguards established to manage uncertainty in relation to network tasks, future decisions, and NAO monitoring and steering	Contingency Theory; Resource Dependence Theory	
	(v) the collective decision-making process among members	Contingency Theory; Collective Action	
Research Questions	Chapter 4: What are the antecedents and consequences of interdependence? How has the construct been operationalized?	Chapter 5: How does power bargaining affect the NAO's ability to develop mandated networks?	Chapter 6: What factors affect the structural complexity of network administrative organizations (NAOs)?
Methodologies and techniques applied	Systematic literature review	Qualitative: Specifically, we analyze differences or similarities among various cases, using a grounded and inductive strategy (Glasser and Strauss, 1967). The cases are built using an inductive coding strategy (Miles and Huberman, 1994) involving documents relating to the creation and design of networks and transcripts of interviews with the main actors involved in the process. This strategy allows us, after several types of coding, to reunite a corpus of material on tension, conflict, and the role of power in the design phases of Network Administrative Organizations.	Quantitative: Specifically, we apply an Item Response Modeling technique that assigns different weights to each institutional characteristic in an iterative process, and is able to discriminate among organizations (i.e., networks) and to rank institutional characteristics. Afterwards, using Bayesian Statistics, this score is used to infer associations among institutional characteristics, and variable-related tasks, age, sector, and the institution's mandated or voluntary nature. This analysis aims to quantitatively assess the relationships among a set of contingent elements (tasks, age, sector and mandated or voluntary nature) and a set of institutional characteristics of NAOs to determine the factors affecting their design.

2.5. Regulatory Goal-Directed Networks

Nowadays, goal-directed networks are increasingly used as a tool for achieving international regulatory harmonization (Levi-Faur, 2011; Raustiala, 2002). In an interconnected and interdependent world, the need for common regulatory frameworks is central to the political, economic, and social arenas (Levi-Faur, 2011; Mattli and Woods, 2009). Nation-states find themselves at a crossroads. While their will to delegate sovereignty is by nature limited, national governments acknowledge a decreasing capacity to tackle crucial phenomena in isolation (Keohane and Nye, 2000). In this context, international networks of independent national regulators provide a feasible and acceptable mechanism for fostering regulatory coordination regionally or globally (Kahler and Lake, 2009). Regulatory networks offer a middle way between full delegation to a superordinate level and full autocracy. The subset of regulatory public goal-directed networks constitutes the object of study of this dissertation.

The European Union and the so-called Single European Regulatory Space perfectly illustrate the proliferation of different types of networked regulatory organizations (Levi-Faur, 2011). Although both networks and agencies (Coen and Thatcher, 2008) have been implemented as institutional regulatory solutions in the EU, as Levi-Faur (2011) points out, from a functional point of view (beyond terminology) the distinction is not straightforward. Network-like forms of regulatory coordination are commonplace in the European Union.

According to Levi-Faur (2011), there are thirty-six different regulatory regimes in the European Union. Levi-Faur builds on Jordana et al.'s (2011) initial taxonomy of fifteen regimes. A regulatory regime encompasses norms, a mechanism for decision-making, and the various institutions and the networks of actors involved in regulation (Levi-Faur,

2001:811). The role played by these networks as supranational governance entities has recently been explored (Coen and Thatcher, 2008; Kelemen and Tarrant, 2001; Levi-Faur, 2011). Within the Single European Regulatory Space (SERS) (Levi-Faur, 2011), cooperation among member states, national regulatory agencies, and EU institutional players (i.e., mainly the European Commission, but also the European Parliament and Council) is commonly achieved through networks of regulators, whose final aim is to harmonize the implementation of rules across the EU.

The choice of European networks of regulators as the empirical material for this dissertation has involved both theoretical and practical considerations. First of all, as mentioned, the effervescence of phenomena in the European institutional landscape makes it possible to explore the governance of these networks and the design of their NAOs as a relevant object of analysis. As public networks, regulatory networks have specific legal, political, and accountability characteristics that, in contrast to for-profit networks, act as a constraint when such networks are formed (Herranz, 2008), potentially affecting the design of network governance structures. More concretely, most of the European networks of regulators targeted in this dissertation are mandated networks, set up as consultative bodies by a legislative European act. The mandate and the supporting legislation define their main rules, units, procedures, and other important design elements. The capacity to modify them autonomously is limited, as this would require a new legislative act. The mandate establishes who belongs to the network; normally, named entities have a right to participate (Kelemen and Tarrant, 2011), and cannot with withdraw from or avoid the network.

Finally, the subset of European networks of regulators offers a real-world illustration of the wide array of purposes and tasks these networks may perform. Following Agranoff

(2007), we expect public networks (including networks of regulators) to at least carry out some information-sharing activities. In addition, networks may implement joint-action activities, which stretch collaboration to its maximum. With respect to regulatory networks in particular, Levi-Faur (2011) identifies four functional tasks: information gathering, rule setting, monitoring, and enforcement tasks.

To summarize, the subset of European networks of regulators is an ideal object for study because it offers sufficiently various purposes, tasks, sectors, and institutional development to enable us to tackle the overarching research objective of this dissertation.

Chapter 3:

Regulating through networks[1]

This chapter explores the configurational design of European Regulatory networks using insights derived from a custom-built database.

[1] Salvador, Susanna, Adrià Albareda, and Angel Saz-Carranza. "Regulatory Agencies and Regulatory Networks in the European Union." *The Global Context* (2015): 178.

3.1. The Boom in Regulatory Activity in the EU

Throughout the last decades, the EU has significantly increased its regulatory capacity, a development that has run parallel to the more traditional trend of European member states delegating powers to EU institutions. As a result, the European regulatory landscape is plagued with a surfeit of agencies and networks with regulatory responsibilities that cover a wide array of policy domains (Levi-Faur, 2011a). Almost all aspects of human social and economic activity fall under the influence and control of these regulatory tools of EU meta-governance.

The use of autonomous regulatory mechanisms to foster market integration and market correction policies in the EU reveals a complex picture, involving both governance mechanisms and tasks (ranging from the mere exchange of information to the power of sanctioning or even autonomously enacting new rules and norms), resources (staff, decision-making structures, and professionalization), and levels of autonomy and discretion in pursuing their objectives. This chapter provides an overview of the current state of regulatory networks and agencies in Europe by analyzing 40 European regulatory agencies and networks and their main characteristics.

The data used in this chapter comes from a data-set built by the authors, which includes information about structural characteristics relating to the governance (membership, board characteristics, and voting mechanisms), age, staff, budget, and tasks of 40 European regulatory agencies and networks. The data covers all regulatory regimes in Europe including utilities (energy and telecommunication), health, medicine, chemical products, food, aviation, fisheries, postal services, transportation, security, judicial cooperation, and environmental issues.

Our results are consistent with previous findings, which show that regulatory agencies and networks actually do co-exist in Europe. In fact, our analysis of structural characteristics shows that, beyond labels, regulation in Europe is undergoing a process of hybridization and orchestration that must be acknowledged by all economic, social, administrative, and political players both within and outside the EU.

This process is critical of our times and must be studied and recognized for many reasons. First, as regulation begins to determine economic and social activities of any kind, practitioners need to know who is regulating that sector or industry. More importantly, they need to delve more deeply, increasing their awareness of how and through which mechanisms a particular agency or network decides which regulatory tasks should be carried out at the European level and which at a national level. Such decisions impact the professionalization of certain agencies and networks. In addition, many European regulatory devices have been established by mandate, in contrast to voluntary devices, encompassing national regulatory agencies, which have generally been created from a bottom-up process. This contrast makes it a challenge to understand regulation complexity.

Second, it is widely recognized that non-market strategies—defined as coordinated actions undertaken by firms in public policy arenas—are becoming increasingly relevant (Baron 1995; Bonardi, Holburg, and Vanden Bergh, 2006). The current governance framework (Emerson, Nabatchi, and Balogh, 2012) assumes a more cooperative relationship between private and public actors. In this exchange, regulation and information flows are pivotal. Regulatory decisions and activities affect and have important consequences for firms and companies. Economic, corporate, and social agents must consider that, beyond the state's traditional redistributive role (Lowi 1964; Majone 1997), where the flow of resources can be identified, regulation defines arenas in which

interests are confronted, and the costs and benefits are much more difficult to track (Levi-Faur, 2011a). Thus, actively managing the regulatory environment requires an in-depth knowledge of the regulatory activities carried out by European players at various administrative and political levels.

This discussion proceeds as follows. First, we briefly summarize the developments and trends in the widespread use of regulatory agencies and networks all over the world. Next, we focus on the case of the EU, reflecting on the existence of both agencies and networks in the European regulatory landscape. Finally, we consider the tasks these regulatory agencies and networks are performing.

3.2. Present-day Shifts in Governance and Regulation

Our world is networked (Castells, 2001). The dynamics of business, social, and economic interactions revolve around interdependences, which determine the nature of exchanges and the mechanisms needed to govern them (Hillman, Withers, and Collins, 2009). In parallel, modern organizations of all kinds are becoming more complex, challenging traditional responses to corporate, social, and policy issues (Farazmand, 2002).

Two intertwined features define today's reality. On the one hand, the trends of regionalization, internationalization, and globalization are unstoppable. On the other hand, regardless of whether you are a company manager, politician, social activist, or common citizen, the problems you encounter and tackle will be complex (Rittel and Webber, 1973), and not easily bounded by regional or national borders.

In this scenario, the old hierarchical system in which state authorities governed civil society from the top down no longer exists (Mayntz 1998). Previously, policy formulation and implementation fell into the exclusive realm of governments; now, non-state actors

play an active and central role in these activities (Rhodes, 1997). In addition, the state is no longer considered omnipotent or capable of unilaterally resolving societal problems; it must therefore establish a more balanced relationship with corporate and social actors (Mendoza and Vernis, 2008).

Regulation and regulatory activities have not been immune to these changes and challenges. Nowadays, the regulatory role of the state, in its relation to private sectors of society, is diverse. Its responsibilities range from creating rules (on its own or by delegation), to monitoring them (for example, through investigation or sanctions). The tipping point is the role of courts in resolving conflicts or offences (Freiberg, 2010).

However, regulatory activities are no longer solely performed by the state. Hancher and Moran (1989) have noted the existence of the so-called "regulatory space." The image of a regulatory space makes it possible to illustrate the interplay between traditional norms and legal rules with other frameworks in the design, implementation, and even enforcement of regulations, in which private and autonomous actors have an active role. The contribution of private actors to governance and regulation has been analyzed from the perspective of de-centering (Black, 2001; Scott, 2004; Parker and Braithwaite, 2003; Gunningham, 2009). As Wolf (2006) signals, private actors make issue-specific contributions to governance (identifying problems, providing information, articulating rules, implementing initiatives, monitoring conduct, and carrying out arbitration and sanctions) as well as more general contributions, such as when they help to avoid negative externalities or support common societal goals. As mentioned, some of these activities are identifiable with regulation (as is the case with authoritative decision-making or accreditations), a capacity that not long ago was an exclusive property and prerogative of the sovereign state (Cutler, Haufler, and Porter, 1999).

Following Freiberg (2010), we argue that regulation is a pervasive activity inherently related to power, influence, and control. It represents the way in which power, influence, and control are used to achieve compliance with agreed-upon behaviors that otherwise would not be observed. This comprehensive view of regulation assumes that diverse mechanisms can be used to implement regulatory activities, either individually or complementarily, in all social and economic policy arenas and all human activities and relationships. As an illustration, Gunningham and Grabosky (1998) propose the following categories for regulatory activities: "command and control," self-regulation, voluntarism, education and information, and economic methods and markets. Others, such as Parker and Braithwaite (2003), cite co-regulation, corporate compliance systems, incentive-based systems, authorizations, and third-party accreditations in relation to standards.

Some of the activities related to this broad concept of regulation (including rule-making, accreditation, research activities to inform policy, information diffusion, sanctioning, authorization, standard-setting, and cross-border interaction management) have, over the last decade, increasingly been delegated to autonomous regulatory agencies. Jordana, Levi-Faur, and Fernández-i-Marin (2010) show the global diffusion of these agencies over recent decades (from fewer than five per year created before the 1980s, to more than 20 per year between 1996 and 2002). The authors argue that regulation by autonomous regulatory agencies has become the dominant governance model, at least in the advanced capitalist economies, in most social and economic sectors.

The increasing number of regulatory agencies is also related to the emergence of the paradigm of New Public Management, which requires public services to be restructured both vertically and horizontally, and scales back government (Christensen and Laegreid, 2011). For decades, regulatory activities in Europe have been ideologically linked to an active government role in shaping the economy (Levi-Faur, 2011a). Establishing

regulatory agencies with strong autonomy and professional values represents a paradigmatic shift. However, as counterintuitive as it may appear, the initial attempt to deregulate (in order to devolve autonomy and control to other economic and social agents), underlying the New Public Management reforms has resulted in new hyper-regulation, fragmentation, and turf-wars among public organizations (Christensen and Laegreid, 2011).

At the same time, at the international level, globalization has prompted a need for the multilateral provision of goods and services, requiring transnational and global regulatory agreements (Levi-Faur, 2011b; Mattli and Woods, 2009). Nowadays, special purpose organizations coordinate regulatory activities that supersede national or regional boundaries in an increasing variety of domains. These organizations constitute not only a political challenge, since they aim to harmonize regulatory practices in countries whose interests and constituencies may collide, but also a public management novelty, as the OECD has pointed out.

Although there are evident shifts towards globalized governance, national governments and national sovereignty still play a dominant role. This has positioned networks of regulatory authorities as means to achieve inter-organizational transnational coordination (Kahler and Lake, 2009). Networked forms of regulation perform three basic functions (Slaughter 2004): information-sharing, rule harmonization, and cross-national enforcement of regulatory policies. As the next section will show, the functions of EU regulatory agencies and networks seem to be affected by the fields in which they operate; this has direct implications for their governance structures.

3.3. EU Regulatory Agencies and Networks

Recent decades have witnessed an impressive spread of regulatory agencies throughout Europe (Gilardi, 2005). The emergence of the "regulatory state" (Majone, 1997) also known as, "regulatory capitalism" (Levi-Faur 2005), has led to the foundation of national regulatory agencies across countries and sectors. According to Majone (1997), since the 1970s, there has been a shift from the positive, interventionist state to a regulatory state. This shift can be explained by increasing international competition and economic and monetary integration within the EU, as well as by governments' strategic choices since the 1970s, which have led to new styles of policy-making and "more complex standards of legitimacy and methods of accountability" (Majone 1997, 163).

While the 1970s, 1980s, and 1990s were characterized by the creation of independent or semi-independent regulatory agencies at the national level, the Europeanization process of the 1990s and 2000s favored the establishment of EU agencies and networks (Levi-Faur, 2011b). These EU networks and agencies, created in the sectors of energy, transport, environment, finance, health, and justice, aim to deal with regulatory issues at the EU level.

Regulatory agencies are responsible for implementing EU legislation at the national level. As noted by Coen and Thatcher (2008), the many difficulties that national regulatory agencies face when implementing EU regulations led to the establishment of formal and informal networks of regulators. In this study, we take into account two important institutions that have recently appeared: agencies and networks (Levi-Faur, 2011a; Coen and Thatcher, 2008; Majone, 1997).

The foundation of EU agencies implies: first, that national governments delegate part of their sovereignty to EU institutions, and second, that the European Commission delegates

responsibility to independent, professional institutions (i.e., EU agencies). Thus, national governments delegate part of their sovereignty to these supranational regulatory bodies. EU agencies are comparable to mandated public networks, where a legislative superordinate actor—in this case the EU—may impose coordination and collaboration on various actors obliged to participate (Rodríguez et al., 2007; Isset and Provan, 2005; Moynihan, 2009). EU agencies are established through EU law, which also determines their functions and tasks. They are "hybrid bodies that link the EU and national levels…namely the Commission and national regulatory agencies" (Coen and Tatcher, 2008, 52). Following Levi-Faur's characterization (2011b, 813), we define an agency as "an administrative organization with a distinct, formal identity, an internal hierarchy, functional capacities, and—most important—at least one principal."

In contrast to EU agencies, voluntary networks are an effort to "harmonize the fragmented institutional landscape" (Levi-Faur, 2011b, 811). Voluntary networks are defined as a set of stable relationships of "a non-hierarchical and interdependent nature which link a variety of actors" (Levi-Faur, 2011b, 813). The main feature that distinguishes EU agencies from EU networks is the mandated party (i.e., the European Commission), which is not present in EU networks.

This study takes into account 40 regulatory agencies and networks. Our sample is based on Lev-Faur's 36 regulatory regimes (Levi-Faur, 2011b) and on the European Union's official list of decentralized agencies. More specifically, we include 29 out of the 34 EU decentralized agencies and 11 out of the 51 networks cited in Levi-Faur's study. In this chapter, we analyze the governance structure characteristics of these organizations. Although regulatory networks and agencies could be expected to have different governance mechanisms, we analyze the top decision-making structures of each

organization without taking into account the label used to identify them (i.e., authority, agency, or network).

In our enquiry, we use one of the ideal types of network governance identified by Provan and Kenis (2008), the "Network Administrative Organization," focusing on the unit deliberately created to govern the organization. Only those networks with NAOs were included in the sample. We have not included organizations under the direct control of EU-level institutions.

The figure below illustrates the emergence of agencies and networks. Although one regulatory agency was founded in 1975, it was not until the 1990s, and particularly since the beginning of the 2000s, that the establishment of agencies and networks really took off.

Figure 3.1. The number of EU Agencies and Networks
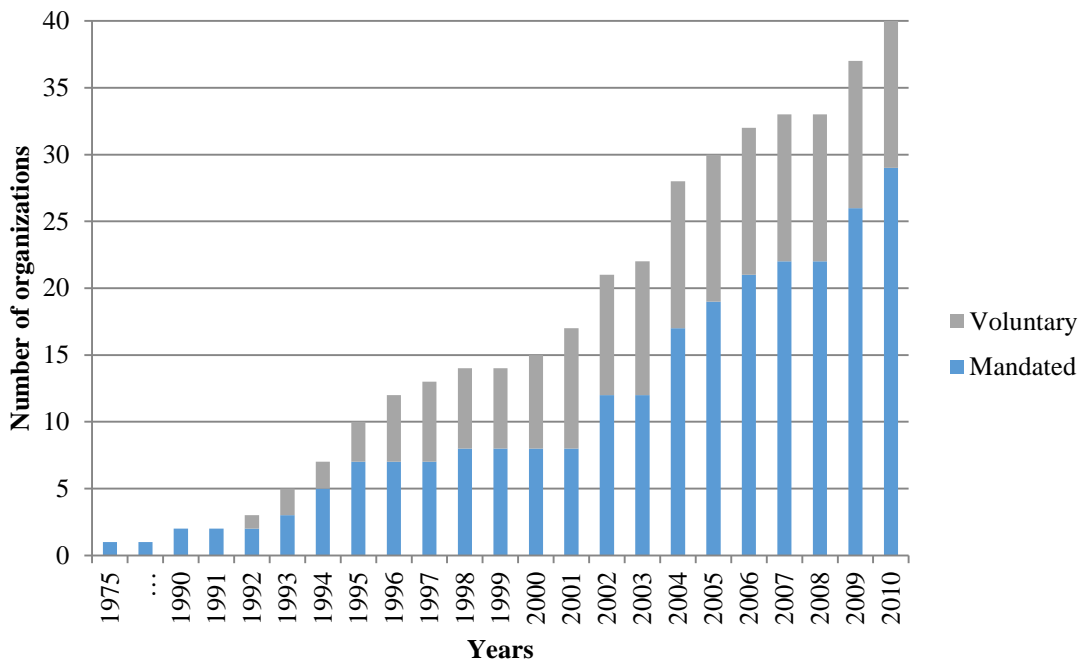
Source: Authors' own compilation based on an original dataset

Research into the organizations captured in this study reveals how EU agencies and networks are organized to accomplish goals. First, each agency or network holds a plenary meeting at which representatives from national regulatory agencies come together to discuss its main guidelines. Second, most agencies and networks have a management or executive committee—elected during the plenary meeting—to monitor the implementation of the plenary guidelines. Third, most of the organizations have an office or secretariat responsible for daily management. In addition, almost half of the agencies or networks have working groups or expert committees that deal with specific issues and policies. Finally, most of these organizations have a chairperson and an executive director, regardless of whether they are agencies or networks.

Figure 3.2. The Governance Structure of EU Agencies and Networks (%)
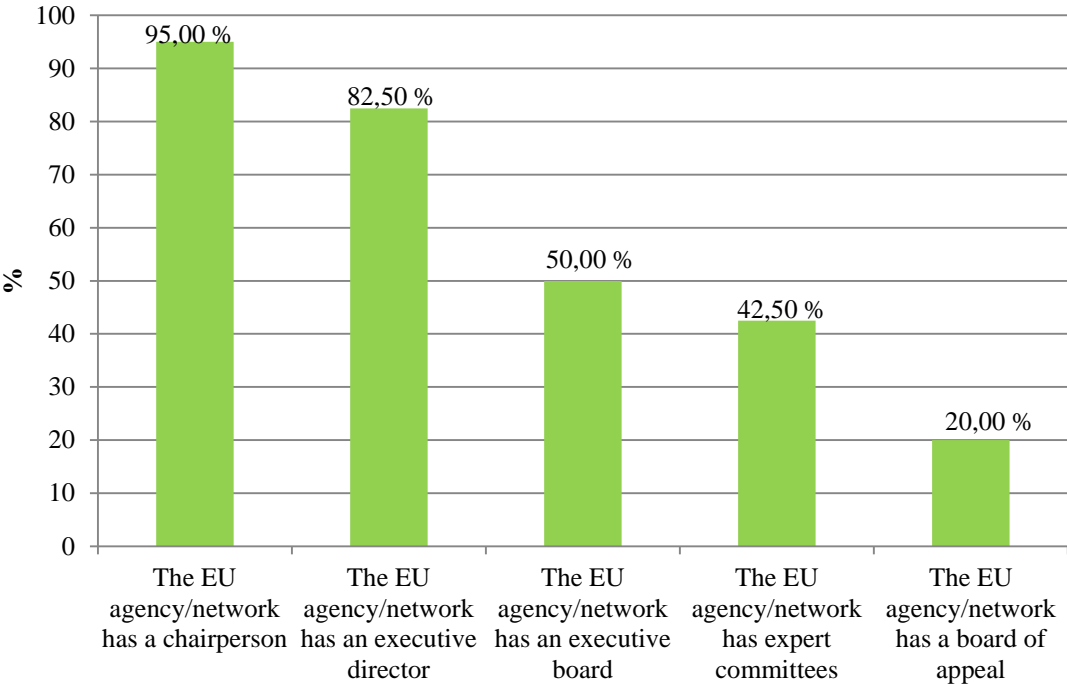
Source: authors' own compilation

Although Levi-Faur (2011b) describes the modes of governance used by EU networks as less hierarchical and more open and collegial than those of EU agencies, our empirical data show that the main difference between voluntary and mandated networks is that only the EU agencies have expert committees and boards of appeal.

The presence or absence of a board of appeal relates not only to the nature of the organization (i.e., whether it is an agency or a network), but also to the sector in which it operates and (as discussed below), with the functions of the network. A high level of market integration seems to correlate with the establishment of a board of appeal. In this vein, we found that agencies in the economy and finance sector (i.e., banking, insurance, and harmonization of internal markets) were more likely to have boards of appeal.

The creation of the EU internal market has increasingly generated a new agenda. Upwards delegation to the EU, weak as it may be, reduces national governments' ability to shape and implement policies, thus constraining the extent to which national authorities can directly influence economic, social, and environmental activities. At the same time, businesses and social actors are obliged to operate in a larger and far more distant market, in which the Europe-wide activities of regulatory agencies and networks play a crucial role harmonizing rules, standards and norms, and fostering economic liberalization. However, market integration needs to be balanced with market correction initiatives that tackle, at the European level, urgent demands, crises, and complex social, economic, and environmental issues requiring a supranational response. Regulation also serves as a tool for achieving this aim. Although it is more difficult to reach a consensus on market correction initiatives than on market integration policies, regulatory networks and agencies play a role in both.

We found variation in the decision-making systems established; this has clear implications for how agencies and networks function. In particular, agencies and networks that make decisions using a simple or reinforced majority are expected to be more efficient and effective, as they can react rapidly to uncertain environments, quickly developing advice, and proposing the necessary regulations and sanctions. Thus, when governance boards need consensus in place of a simple or reinforced majority, the risk of stasis increases (Greenwood and Webster, 2000). Given this situation, most of the governance boards of agencies and networks included in the sample make their decisions based on a simple or reinforced majority; only 7.5% of the networks use unanimity procedures (see Figure 3.3).

Figure 3.3. The decision-making systems used in governance boards
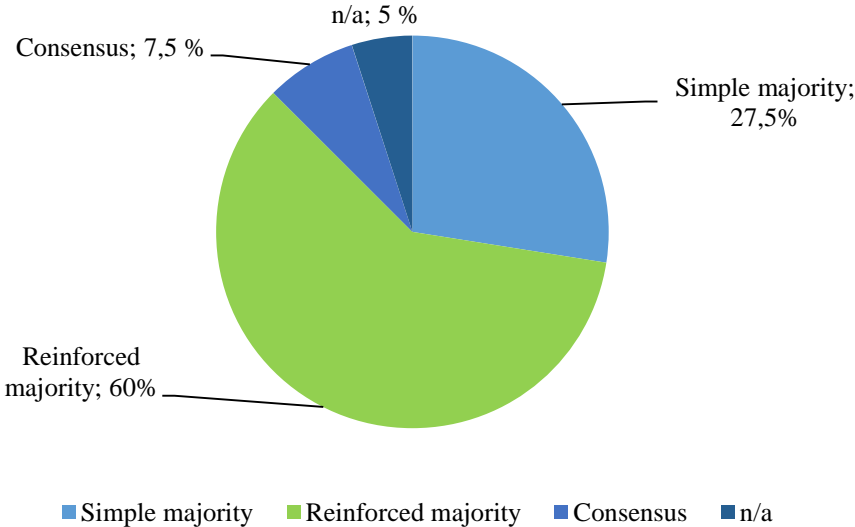
Source: authors' own compilation

The picture changes significantly when we look at the decision-making system established in the executive boards. As Figure 3.4 shows, most of these bodies make decisions through a unanimous vote of their representatives. Although this may hamper

effective decision-making, it can also produce stronger positions, which are more easily defendable in EU institutions and across the member states.

Figure 3.4. Decision-making systems in executive boards
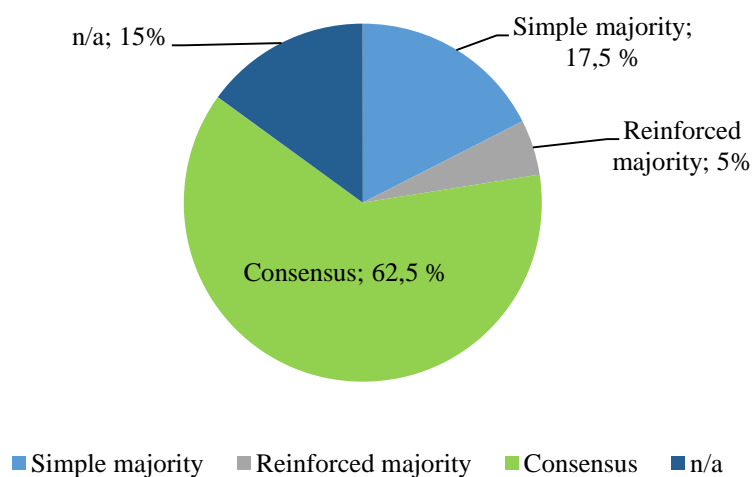
Source: authors' own compilation

In addition, it is worth noting that agencies and networks coexist within the same sectors. Thus, when a more formalized agency is established under the mandate of the European Commission, voluntary networks do not dissolve. Instead, voluntary networks continue to gather NRAs and/or IRAs in order to share information and, in some instances, to provide information to EU institutions. The co-existence of both mandated and voluntary regulatory devices raises interesting questions: are they substitutable (and therefore, in the long run, likely to disappear?) or are they meant to perform different roles, allowing regulatory authorities to interact freely without constraints?

The tasks carried out by EU agencies and networks differ in accordance with their nature and the sector. Slaughter (2004) identifies three basic functions of agencies and networks: information-sharing, rule harmonization, and cross-national enforcement of regulatory policies. In a similar vein, and focusing particularly on EU regulatory networks, Coen

and Thatcher (2008) distinguish regulatory networks along a "soft–hard" continuum, which goes from coordination to drafting secondary legislation at the EU level.

Our empirical analysis of 40 regulatory agencies and networks shows that all of them at least share information. However, as presented in Figure 3.5, there is more variation when it comes to performing tasks such as providing advice, conducting research, proposing rules and regulations, offering training, imposing authorizations to NRAs, conducting joint operations, sanctioning members who do not comply with agreed commitments, and carrying out campaigns.

Figure 3.5. EU agencies/networks and tasks
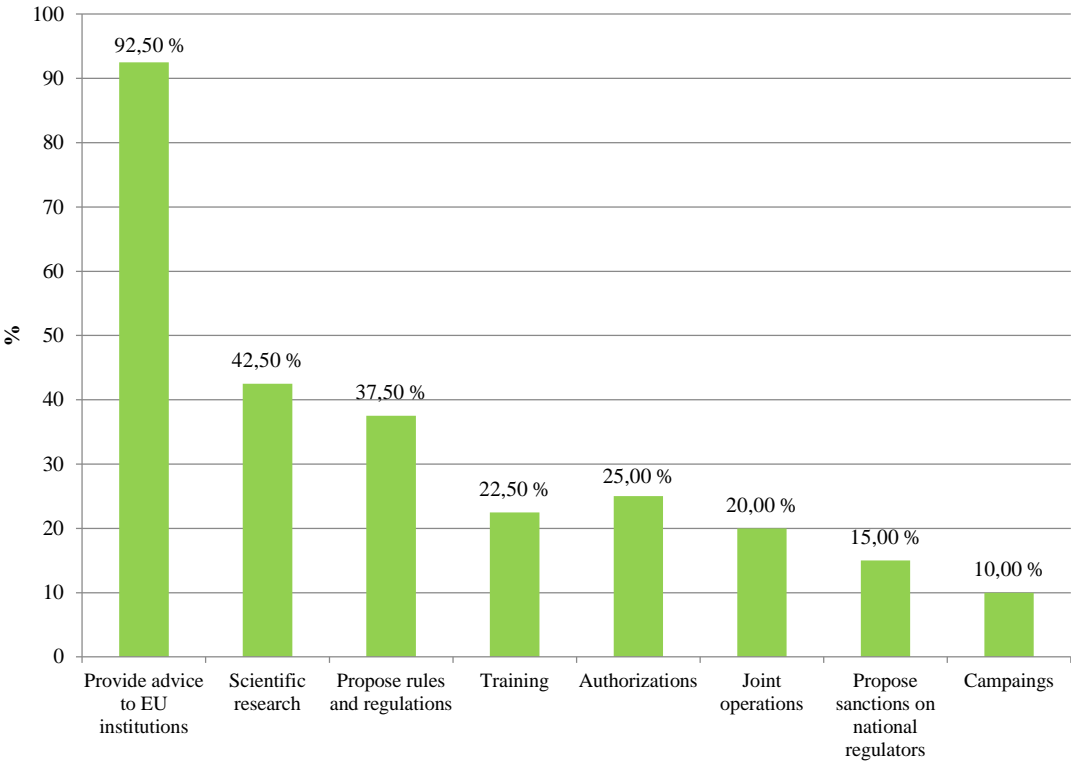
 Source: authors' own compilation

Following Coen and Thatcher's (2008) continuum, we can state that "proposing sanctions on national regulators" and "being able to determine authorizations with direct implications for EU businesses" are at the end of the continuum and can be labeled as

"hard" functions. None of the voluntary regulatory networks have the capacity to carry out these functions. More importantly, only 10 out of the 29 EU agencies have the capacity to impose authorizations.

As noted above, the tasks and functions of EU agencies reflect their organizational structure. Except in two cases, EU agencies with boards of appeal are able to produce authorizations. Even more importantly, the three EU agencies able to sanction national regulators also have boards of appeal.

Like its organizational structure, an EU agency's sector appears to influence its capacities and functions. On the one hand, agencies that operate in the economy and finance sectors, alongside the ACER (the Agency for the Cooperation of Energy Regulators), have "hard" functions, and are able to sanction national regulators. This list is expanded when we take authorizations into account: agencies within the medicine, aviation, and chemical sectors also have this capacity. On the other hand, 13 out of the 29 agencies do not have any "hard" functions (i.e., they do not propose rules and regulations, authorizations, or sanctions). Instead, they focus on providing advice, scientific research, training, and, in some instances, coordinating joint operations (particularly agencies that deal with security and policing issues). The same is true for the 11 networks included in the sample: their functions cannot be considered "hard," as they mainly involve sharing information, providing advice, and externally lobbying the EU.

From our analysis, the tasks and functions regulatory agencies and networks perform vary; they are sometimes related to the level of or need for market integration, and sometimes to the salience and sensitivity of different economic and/or social sectors. In fact, while some think that regulation is linked to neo-liberalist views that undermine the welfare state (Majone, 1994), others propose a social engineering role for regulation (Zedner 2006). The EU case illustrates this tension, as shown by the number of regulatory

devices and the tasks they perform in all areas of European policy. Moreover, as mentioned, when delegating regulatory tasks to European-wide networks and agencies—a shift initially triggered by the need to harmonize and coordinate activities in order to ensure the free movement of people and goods in Europe (market creation and integration)—it is important to guarantee, at the same European level, regulatory devices and practices that avoid negative externalities and execute the market correction activities that society demands.

3.4. Conclusions

The EU regulatory system is not fixed, as Levi-Faur has noted (2011b, 826): it is "constantly changing and reinventing itself in order to keep pace with Europeanization, liberalization, and market integration." In addition, economic, social, and environmental crises can shape the universe of agencies and networks in the EU. EU regulation, a pervasive activity nowadays, is carried out partly by regulatory agencies and networks. This was apparent during the last economic crisis, which furthered the establishment of new agencies in the economic and finance sector and strengthened the capacities of old ones. Regulatory activities in the EU help to create an integrated market while at the same time preserving and safeguarding the common good. In other words, regulatory activities shape markets, but also correct them.

As upwards delegation to EU institutions continues, the role of European-wide regulatory agencies and networks is crucial. Social and economic activities of all kinds depend to some extent on the activities performed by regulatory agencies and networks. Whether these activities merely share information or actually establish norms, authorize activities and/or sanction non-compliance, private actors must enrich their knowledge not only of what is being regulated, but also of how it is done and by whom. This chapter offers a

brief overview of the tasks that agencies and networks currently carry out at the European level when it comes to regulatory activities. More importantly, we briefly describe the characteristics of these organizations in terms of governance structure and decision-making mechanisms.

In a governance framework, the horizontal interaction between public and private actors is pivotal. Exchanging information and resources between social and economic agents requires a high-quality and in-depth analysis of the nature and characteristics of those public and private organizations, in order to determine how economic and social activities are to be performed in our societies.

Chapter 4:

At the Core of Networks and Collaboration: Interdependence in Public Management

This chapter was presented at a Public Management Research Conference
held in Korea in June 2014.

Abstract

This chapter develops a theoretical model on the antecedents and consequences of interdependence in public management collaborative settings. A systematic review of the interdependence construct in top peer-reviewed public management journals shows that, while the construct is widely used in our field, the literature shared definition or method of operationalization and does not analyze its effects in depth. After exploring and categorizing the ways in which public management scholars have understood the concept, we develop a framework that sheds light on associations among antecedents and consequences of interdependence. The paper ends with suggestions for potential future directions for research.

Key words: interdependence, collaboration, systematic literature review.

4.1. Introduction

Collaboration, in all of its expressions, is becoming the quintessence of service delivery and policy making (Alter and Hage, 1993; Huxham, 2000). Characterized long ago as a society of networks (Castells 2000; Raab and Kenis 2009), modern social, economic and political contexts around the world are better understood when considering the multilayer linkages among decision-makers, stakeholders, and the multiplicity of actors involved in attaining policy goals. The scholarly focus on collaborative governance in all of its various forms is definitely not new. For the last few decades, public management scholars have helped to enhance our knowledge of the collaborative spectrum (i.e., public –public, public–nonprofit, public–private, public–private-nonprofit, partnerships, networks, and joined-up government) both by providing empirical illustrations and by theorizing about these phenomena.

 In this vein, inter-agency collaboration through networks or similar arrangements is commonplace in many policy areas (Hudson et al., 1999; Agranoff and McGuire, 2003). Governments and for-profit/non-profit organizations engage in public–private partnerships to provide infrastructure, welfare services, and urban regeneration programs among others (Osborne and McLaughlin, 2002). Last but not least, co-production and co-creation initiatives channel citizenship and public agency collaborations into public service design and implementation (Voorberg, Bekkers and Tummers, 2014). In this scenario, public value is not achieved by single actors in isolation (Isett et al., 2011), but result from the combined interactions of those with the capacity to decide, those who possess the necessary resources, and those who are interested in a particular issue. Underpinning this statement is the idea of interdependence as a theoretical construct.

Our scholarly community has transposed, extended, and developed a concept drawn from organizational design and organizational studies. On the one hand, the literature on

organizational design relies on the concept of interdependence—generally, task interdependence (Mintzberg, 1973; Thompson, 1967)—to determine organizational structure. On the other hand, interdependence lies at the core of Resource Dependence Theory (RDT) (Pfeffer and Salancik, 1978; Hillman, Whiters and Collins, 2009), whose tenets explain why organizations interact with their environments to reduce uncertainty and to control the resources they need to succeed.

To date, when it comes to interdependence, the literature on public management is blurred. The concept is defined contingently in accordance with the setting of each study; a nuanced and collectively agreed understanding of the construct is missing. As our review shows, although interdependence is frequently mentioned in our field, it is rarely empirically assessed or operationalized. It encompasses multiple explanations and is tackled from different theoretical backgrounds. Thus, our main aim is to shed light on how the construct of interdependence has been used, defined, and operationalized in the field of public management. More specifically, our research questions are as follows: According to the literature, what are the antecedents and consequences of interdependence? If the construct has been operationalized, how has this been done?

The chapter carries out a systematic review of the use of the construct interdependence in public management literature. Following recent similar contributions in our field (Isett et al., 2011; Turrini et al., 2010; Provan, Fish, and Sydow, 2007; Voorberg, Bekkers, and Tummers, 2014), this literature review has the following structure. First, a brief conceptual section explores interdependence, disentangling its theoretical tenets. This is followed by a methods section that details our strategy for reviewing the construct. The third section provides an overview of our findings, derived from an analysis of 217 articles published in top, peer-reviewed public management journals during the last few

decades. We next present a theoretical model based on our findings. We conclude by discussing the model and proposing a series of future developments.

4.2. Interdependence: power, inter-organizational relations, and more.

In order to answer our research questions and to understand both the construct and its use, we execute a systematic review of published work that revolves around the construct of interdependence. We track down the use of interdependence as a theoretical construct in the literature of management and organization studies, back to the second half of the twentieth century. What follows is a brief historical overview, based on seminal articles and papers on dependence, power, resource dependence theory, and inter-organizational relations; these help to explain the theoretical roots of this construct.

In 1962, Emerson's power conceptualization identified patterns of mutual dependence (i.e., interdependence) among individuals (and organizations) as a core element of any relationship. Building on this contribution, Homans's (1950, 1974) and Blau's (1964) Social Exchange Theory based social and human interaction on the reciprocal exchange of rewards. Blau's (1964) contribution extended beyond dyadic relationships, conceiving specific exchanges and rewards as a product of interactions in networks (Bienenstock and Bonacich, 1992, 1997; Cook, 1977, 1982; Cook and Whitmeyer, 1992).

 Thompson's (1967) book, *Organizations in Action* also represents a milestone in the literature on power and interdependencies. Thompson (1967) characterizes and defines three different types of interdependence on the basis of interaction intensity and the linkages required to deliver a certain task. With pooled interdependence, progress is independent among units, and the need for coordination is minimal. In a situation of sequential interdependence, progress is sequential (i.e., to progress, B requires A to finish) and, therefore, a certain degree of coordinative effort is needed. Finally, with

reciprocal interdependence, different units work simultaneously to execute a task, thus implying more complexity and the highest level of coordination.

These studies on power and dependencies were the foundations for Benson's (1975) explanation of why organizations establish inter-organizational linkages. In his classic piece, Benson (1975) defines inter-organizational networks as a form of political economy. In his view, organizations create, maintain, and develop patterns of communication and exchange that they use to acquire and offer scarce resources in a network of power relations. Thus, Benson (1975) draws on a utilitarian view of inter-organizational interaction to explain why inter-organizational relations exist.

Pfeffer and Salancik's (1978) Resource Dependence Theory (RDT) builds on the aforementioned contributions to focus on the interdependence of organizations in a given organizational environment. RDT has been applied to a wide array of inter-corporate relationships, including International Joint Ventures (IJV), strategic alliances, board inter-locks, and networks (Gulati and Sytch, 2007; Rethemeyer and Hatmaker, 2008; Hillman, Withers, and Collins, 2009). In essence, RDT revolves around two core ideas. Organizations are open systems that have at their disposal and possess valuable resources (tangible and intangible). At the same time, to achieve their aims, they need resources and capabilities possessed by other organizations. This imbalance creates uncertainty, which organizations cope with by controlling, accessing or acquiring the required resources (Ulrich and Barney, 1984). Thus, the way in which organizations manage their environments will enhance, hamper, or constrain their performance since they will be more or less well-equipped to fulfill their organizational goals.

RDT tells us that when vital resources or competences are not available, organizations are more likely to establish ties with other organizations (Malatesta and Smith, 2014). Organizational environments are dynamic, since organizations manage their network of

interdependences through a recurrent iteration of interactions that creates new patterns of dependencies. Each new scenario, in turn, affects both inter- and intra-organizational power (Hillman, Whiters, and Collins, 2009).

To sum up, after more than three decades, RDT has been extensively applied, not only to studying mergers and acquisitions, strategic alliances, and other inter-organizational relationships (Hillman, Whiters, and Collins, 2009), but also to the fields of health and social care and public policy (Wry, Cobb, and Aldrich, 2013; Davis and Cobb, 2010). In a way, "RDT has acquired the status of a powerful general metaphor" (Casciaro and Piskorski, 2005: 167). In the introduction to the second edition of Pfeffer and Salancik's book, Pfeffer argues that, because the metaphor is so widely accepted and successful, researchers have not extended or provided sufficient empirical work based on the tenets of RDT (Pfeffer and Salancik 2003). In other words, its popular use as a metaphor—also acknowledged by Hillman, Whiters, and Collins (2009) and Wry, Cobb and Aldrich (2013)—should not deter scholars from empirically exploring and operationalizing the RDT perspective. Such research could provide interesting insights into the situations in which organizations manage complex environments. For instance, Casciaro and Piskorski (2005) encourage researchers to acknowledge the importance of conceptually separating the constituent constructs of the notion of interdependence: power imbalance and mutual dependence. In the same vein, Malatesta and Smith (2014), encourage public management researchers to build on RDT.

Public management scholars are not immune to the popularity of interdependence; the concept has been widely adopted by our community. Two interrelated developments explain this academic interest. First, as societies become more complex, so do the problems facing organizations engaged in the provision of public goods (Rittel and Webber, 1973). Creating public value now, more than ever, requires the establishment of

mechanisms to coordinate, collaborate, and manage organizational interdependences. In response to the interdependence among organizations' interests and goals, collaboration and inter-organizational innovations are commonplace in the public management environment (Mandel and Steelman, 2003; Vigoda, 2002; Hudson et al., 1999; Agranoff and McGuire, 2003). Second, organizational goals are no longer achievable in isolation (Agranoff, 2007). Resource dependencies lie at the core of collaborative efforts in the public management arena (Lundin, 2007). As Huang and Provan (2007) point out, when it comes to public management, resources include not only those which are highly tangible (i.e., funding) but also intangible resources, such as reputation or influence (Alexander, 1996).

This chapter conducts a systematic literature review to produce a conceptual framework that accounts for the antecedents and consequences of interdependence, and facilitates the analysis, measurement, and operationalization of this construct. The following section is devoted to explaining our research strategy when reviewing the literature.

4.3. Methods

Following the research strategy of recent contributions (Isett et al., 2011; Turrini et al., 2010; Provan, Fish, and Sydow 2007; Voorberg, Bekkers, and Tummers, 2014), we explore how our scholarly community uses the construct, "interdependence." Aligned with Voorberg, Bekkers, and Tummers (2014), we base our eligibility criteria on the PRISMA Statement[2] (Moher et al., 2009):

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[2] Preferred Reporting Items for Systematic Reviews and Meta-Analyses. For more information visit: http://www.prisma-statement.org/

- Type of studies: The articles selected should deal with collaboration for the design, delivery, production, and/or implementation of public services and policies.

- Topic of studies: The articles should contain the word "interdependence" in the manuscript (i.e., title, abstract, keywords, and/or full text).

- Type of participants: the subject of study should be collaboration among at least a public agency and any private, nonprofit, or public counterpart.

- Study design: empirical, theoretical and conceptual pieces are eligible.

Only articles published in English in peer-reviewed journals have been included in the search. Papers published between 1962 (when the seminal Emerson piece was published) and 2014 were eligible.

As part of our strategy, we selected a representative set of top peer-reviewed journals in public management, using their impact factors and editorial orientation to capture a landscape overview of the published research on interdependence. The journals we used are as follows: *Public Management Review (PMR), Journal of Public Administration Research and Theory (JPART), Public Administration Review (PAR), Public Administration (PA),* and the *International Journal of Public Management (IJPM).*

Using computerized bibliographical databases and our search criteria, this strategy enabled us to identify 760 papers. These papers were entered into a preliminary database holding relevant information about the contributions: authorship, journal, year of publication, and title (see Table 4.1).

Table 4.1. Method for systematic literature review

Keyword search in the text	Interdependence OR interdependences OR interdependencies
Databases:	ISI-Web, JSTOR, EBSCO-Business Premier
	Topic/English/article or review
Search criteria	Peer-reviewed journals: PMR; JPART; PAR; PA; IJPM
	Text words/English/articles/full text/reviewed journals
Results	Total no. of articles retrieved: 760

Source: authors' own compilation

Two researchers reviewed the papers and selected the articles, taking into consideration the full manuscript content. To make the selection, the researchers read the papers and decided, on the basis of eligibility criteria, whether the paper was suitable. There were 217 papers dealing with intergovernmental relations, networks and policy networks, contractual relationships, partnerships, and Private-Public Partnerships which, among others, were included in a secondary database. Those not fulfilling the eligibility criteria were excluded. In total, 534 articles were discarded because their use of the construct was not related to our study aim. The secondary database holds information on how the construct has been used and measured. Tables 4.2–4.4 describe the dataset.

Table 4.2. Final dataset by methodology

Journal	TYPE OF PAPER			
	Qualitative	Quantitative	Normative/Conceptual/ Literature Review	Mixed Methods
JPART	15	14	7	3
PMR	17	5	8	0
PAR	46	22	19	4
IPMJ	11	10	5	0
PA	17	2	12	0
TOTAL	106	53	51	7
TOTAL %	48,85	24,42	23,50	3,23

Source: authors' own compilation

Table 4.3. Final dataset by type of collaboration

Journal	TYPE OF COLLABORATION					
	Collaborative governance	Networks	Partnerships	Contracting	Inter-governmental relations	Other[3]
JPART	4	20	4	3	3	5
PMR	4	13	8	2	1	2
PAR	25	34	8	3	11	10
IPMJ	2	10	5	1	2	6
PA	5	11	7	0	0	8
TOTAL	40	88	32	9	17	31
TOTAL %	18,43	40,55	14,75	4,15	7,83	14,29

Source: authors' own compilation

Table 4.4. Final dataset by policy arena

Journal	TYPE OF POLICY				
	Welfare	Economy and economic development	Infrastructure/ Environment	Not specific service /policy area	Other[4]
JPART	11	4	6	7	11
PMR	13	0	4	11	2
PAR	32	10	7	22	20
IPMJ	0	3	6	4	13
PA	10	0	5	12	4
TOTAL	66	17	28	56	50
TOTAL %	30,41	7,83	12,90	25,81	23,04

Source: authors' own compilation

To develop the final categories in which the data is organized, the co-authors coded the articles individually. Later, they tested inter-coder reliability; this allowed reviewers to harmonize the coding procedure and the final list of categories (Miles and Huberman, 1994).

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[3] The category "Other" includes: cooperation for development, specific programs set up in order to respond to crises, interdependence within organizations.

[4] The category "Other" includes papers that simultaneously take into account different types of policies.

These groups helped to categorize papers by their use of the construct of interdependence, and also to develop our findings. The emergent categories selected allowed us to reduce our dataset and to focus on the more frequently used meanings of "interdependence" in relation to collaborative efforts in public management. Table 4.5. provides information on the categories and papers in each category.

Table 4.5. Final list of categories

Categories	Journal					TOTAL	TOTAL%
	PMR	JPART	PAR	PA	IPMJ		
Category 1—General description: Interdependence as a description of the environment in which public organizations and the delivery of public goods and services are embedded	12	11	25	4	6	58	26.72
Category 2—To define networks: Interdependence as a constituent element of networks/specific definition of a network	4	8	12	9	9	42	19.35
Category 3—Driver of collaboration: Interdependence as a driver for collaborations	2	8	26	8	5	49	22.58
Category 4—Resource dependency: Interdependence and its managerial implications	3	9	3	3	4	22	10.13
Category 5 —Element to be managed: Interdependence as specific resources dependencies	3	2	9	2	2	18	8.29
Other[5]	7	3	12	6	0	28	12.90
TOTAL	31	41	87	32	26	217	-
TOTAL %	14.28	18.89	40.09	14.74	11.98	-	-

Source: authors' own compilation

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[5] The category "Other" includes those papers that do not clearly fall or take sufficiently into account one of these categories. Since the goal of this chapter is to present a bold distinction between the different uses of interdependence, we have chosen to exclude them.

4.4. Interdependence: buzz word or sound construct?

This section provides a detailed account of the categories in which the papers were finally grouped. We acknowledge that these broad categories may sometimes overlap. However, for the sake of clarity and in order to provide a more fine-grained analysis, we kept them separate. We have therefore focused on those characteristics that distinguish each category from the others.

4.4.1. Category 1: Public management in the era of interdependence

Our findings suggest that public management scholars use the word interdependence profusely as a general metaphor for modern societies and to explain how public value is created. Twenty-six percent of the papers fall into this category, illustrating the remarkable amount of contemporary literature on the importance of interdependences (Castells, 2000; Ball, Krane, and Lauth, 1982; Pressman, 1975; Radin, 1977). Overall, the papers argue that, in contrast to traditional modes of representative democracy, boundaries among organizations are becoming less clearly defined, while organizations are increasingly more intertwined and interdependent.

This increased interdependence among public, private, and civil society actors underlies a trend that some studies refer to as "horizontal governance." First of all, governments and public agencies depend on community-based exchanges to expand and provide services, while non-public organizations involved in the provision of services rely on government to obtain resources and funding. Second, specific policy areas such as education, where a wide array of policies are implemented through schools, are becoming increasingly interdependent. Last, the papers report on how collaborative organizational forms are increasingly being adopted and promoted by governments (especially in

developed countries, an example being joined-up initiatives in the UK). Overall, our findings suggest that the literature acknowledges interdependence (at least referring to its existence) in the context of a growing need for public and private inter-organizational structures to address the increased complexity of interactions among societal, economic, and political actors.

As for potential explanations, the reviewed literature suggests that actors can no longer achieve individual goals in isolation (Agranoff, 2007). They thus exploit their interdependences (which may be obvious or barely visible) to respond to client demands. As Provan and Sebastian (1998) argue, society asks for network-level outcomes when it comes to public services and policies. In this scenario, the production, delivery, implementation, and even the design of a given policy becomes a matter of collaborative activity. Organizations increasingly have interdependent interests, as the achievement of their goals depends on other actors. Additionally, the exploitation of otherwise dispersed knowledge can improve and create new and innovative ways to provide public services and to increase the legitimacy of a given policy or action.

To sum up, based on contributions in this category, the literature implies that interdependence is an inherent characteristic of modern societies. The multifaceted and complex problems that need to be solved in this new scenario can be more effectively addressed when different interdependent agents (even across sectors) collaborate to develop and implement public policies and services. It is noteworthy that, in general, the papers included in this category neither provide any specific account of the nature of the interdependences to be managed through collaborative activity, nor operationalize interdependence as a variable.

4.4.2. Category 2: Networks and interdependence

Nineteen percent of the analyzed papers use the construct of interdependence to specifically define networks. The papers in this second category are slightly different from some of the contributions in Category 1. The decision to develop an exclusive additional category was based on two factors: on the one hand, contributions in this category deal mostly with networks or/and policy networks. The first category represented all kinds of collaborations in which representation and interdependence were used to characterize, not types of collaboration but environments that foster collaboration in the public sector. On the other hand, the contributions in this category frequently cite previous contributions on networks and policy networks. In this category, we find the following well-known works on networks:

- Kickert, Klijn, and Koppenjan (1997) define policy networks as the strategic response of rational, self-interested policy actors to the need to exchange material and immaterial resources within a public sector fragmented by New Public Management-inspired reforms.

- O'Toole's (1997, 45) definition of networks as structures of interdependences.

- Rhodes' (2000, 61) characterization of networks: "these networks are characterized by interdependence between organizations... there are continuous interactions between network members caused by the need to exchange resources and negotiate shared purposes."

- Koppenjan and Klijn (2004) and Isett and Provan (2005) define networks as a group of goal-oriented interdependent but autonomous actors that join efforts to produce a collective output which no single actor can produce on its own.

In this category, the literature uses interdependence as a defining element of the network concept. With regard to the nature or underlying rationale for the existence of this interdependence, the contributions refer to interdependences among interests in a particular area of public policy. The papers acknowledge that interactions in the public domain are increasing among multiple autonomous yet interdependent nodes. However, the majority of the contributions neither specifically assess interdependence within the network nor operationalize or characterize it.

4.4.3. Category 3: Let's collaborate: interdependence as a driver of collaboration

The third set of papers (twenty-two percent) refers to interdependence as a driver of or prerequisite for collaborative endeavors. Overall, the contributions do not provide specific definitions of the construct; instead, they use interdependence to describe the situation or scenario leading to collaboration. Thus, papers in this category use interdependence to explain why collaboration emerges: organizations that choose to collaborate are interdependent to some extent or embedded in a network/environment of interdependences (Thomson and Perry, 2006). They do not provide any information about the specific nature of interdependence (i.e., resources, goals, or competencies) or about the consequences of these interdependences.

In this category, some authors refer to the concept of mutuality (Powell, 1990), which describes situations in which shared interests create mutually beneficial interdependences to achieve a goal that surpasses any individual objective. Intriguingly, some authors point out that this situation can create a virtuous cycle, in those participating in a collaborative endeavor come to perceive themselves as interdependent, thus creating a sense of shared-fate that fosters new collaborative interactions. Indeed, Larson, Rottinghaus, and Borgen (2002) find that when managers perceive their goals as interdependent, collaborative activities tend to be more successful and sustainable.

4.4.4. Category 4: Resources and interdependence

Category 4 includes papers in which the authors refer unequivocally to the existence of specific resource dependencies among actors participating in collaborations. This category only accounts for ten percent of the contributions analyzed. The authors profusely quote Pfeffer and Salancik (1978), although most of the resource dependences cited are exclusively financial. Building on the tenets of RDT and Social Exchange Theory (Blau 1964), cooperation is seen as a direct consequence of resource interdependence. In other words, organizations involved in the creation of public goods that do not possess or control the resources (financial, staff, information, legal authority,) they need to achieve their goals, are highly incentivized to establish and maintain collaborative ties (O'Toole and Montjoy, 1984; O'Toole, 2003; Krueger and McGuire, 2005). In short, Category 4 articles stand out for analyzing the nature and consequences of specific resource dependencies.

Some authors point out that the amount of resources actually exchanged and the degree of interdependence among actors may affect the benefit achieved through collaboration (Aldrich, 1976; Hanf and Scharpf, 1978; Aldrich and Whetten, 1981; Van de Ven and Ferry, 1980). Aiken and Hage (1968) suggest that, as the number of shared resources increases, decision making processes become more constrained. However, these papers also support the opposite view, arguing that the more resources exchanged (i.e., the more interdependences), the higher the commitment to cooperate.

Organizations tend to exchange resources in a diversified net of interactions that includes both tacit and material resources. Interestingly enough, resource dependences are reported as an inherent part of new government-vendor relationships —contracting regimes, Smith and Lipsky (1993, 43)—in which resource dependencies between public agencies,

nonprofits, and private actors involved in the provision of welfare and other human services are mutual and deep. However, the papers specifically report on the resource interdependences that exist between funders (i.e., public agencies that provide financial resources) and social service providers, although this is characterized as an asymmetric relationship. The type of resources being exchanged (i.e., tangible vs. intangible resources) and the degree to which a given resource is widely dispersed among collaborative partners, influences how centralized or de-centralized the collaboration will become, thus having implications for how collaborations are actually managed and governed.

4.4.5. Category 5: Interdependence and its managerial implications

The literature (eight percent of the analyzed papers) also builds on the idea of interdependence as a contingency to be managed within collaborations. As Kettl (1996, 9) argues, "interdependencies have radically changed the jobs of public administrators, who must now know not only manage the functions of their own agencies but also build critical linkages with others." In fact, interdependence is here considered, reflecting Ansell and Gash (2008), a meta-contingency that affects the collaboration's outcomes.

Studies suggest that managers need to actively manage current and future interdependencies by creating common frameworks and new interdependencies (if necessary), and by building trust. Trust is intertwined with interdependence in this category. As Rhodes (1999) argues, regular resource exchanges may be rooted in trust. At the same time, when interdependences are high, the management of interdependence breeds trust, since opportunistic behavior offers few benefits.

Some of the contributions suggest that repeated interactions relate to the degree of complexity and interdependence in a given task (Thompson, 1967). In fact, this creates

new linkages of interdependence (for instance, in social care, where task complexity is high and the participation of diverse specialists required), shared values and beliefs. Moreover, collaboration will be more successful and sustainable over time if organizations perceive their goals as interdependent (Larson, Rottinghaus, and Borgen, 2002). Trust, time, and interdependence can thus be managed to impact positively (or negatively) on collective goals and outcomes.

Some papers refer to managerial activities and competences, such as networking and boundary-spanning skills, that become crucial when managing interdependences. The literature suggests that professional and technical knowledge may not be determinant, unlike relational and interpersonal skills. In addition, previous inter-organizational experience, the ability to integrate knowledge from different disciplines, and the ability to learn are crucial when managing interdependencies.

4.4.6. Interdependence as a variable: how do we measure it?

The final section reports our findings on the way in which interdependence is operationalized in the public management literature, one of our main research objectives. As previously mentioned, few qualitative or quantitative contributions included interdependence as a variable in their analysis. Nevertheless, we did find some instances in which authors made an effort to do so.

In our sample, interdependence is usually operationalized as the number and/or importance of interactions among organizations or individuals (i.e., dyads). In such cases, data collection relies on surveys or interviews in which respondents are asked to subjectively report on their interactions (with whom and how often they interact).

Other authors link interdependence to resources; their measures reflect either specific financial or funding dependencies (i.e., state aid versus a diverse range of funding sources) or complementary resources (i.e., various types of clients brought into the collaboration). Saidel (1991) provides a way of measuring resource interdependence through a survey, in which three different dimensions of the interdependence construct are measured using Likert-scales: the importance of the resource; the availability of alternatives; and the ability to guarantee provision of the resource.

4.5. Understanding interdependence: a preliminary framework

Based on this systematic literature review, we would emphasize the need for more research on the specific nature, measurement, antecedents, and consequences of interdependence. As shown, interdependence is taken as a given in most studies, neither broken down into its components (i.e., people, resources, tasks, goals), nor measured in any way that allows the establishment of testable hypotheses regarding its effects.

We used our categories to build a comprehensive framework to better understand the antecedents and consequences of interdependence in public management (see Figure 4.1).

First of all, category 1 (general conditions) and category 4 (resource dependence theory) include research that identifies the antecedents of interdependence, which provide a context conducive to collaboration. Category 4 refers to specific exchanges, while category 1 depicts the general environment in which collaboration emerges. The framework depicts category 3 papers as ones that view collaboration as a general consequence of interdependence or interdependence as a driver for collaboration. From there, the framework distinguishes two specific consequences of interdependence. It presents networks as an overarching consequence of collaborative endeavors (category 2) and notes the managerial implications of interdependence (category 5).

These categories allow us to distinguish two levels of abstraction. At the more general (less specific and detailed) level are categories 1 and 2, which identify interdependence as a general precondition and outcome, respectively. This approach is dominated by the idea of networks as antecedents or results of interdependence. At the more specific level, some authors detail concrete resource interdependences as antecedents (category 4) and explore the actual managerial implications of interdependence (category 5).

Figure 4.1. Interdependence: A preliminary framework
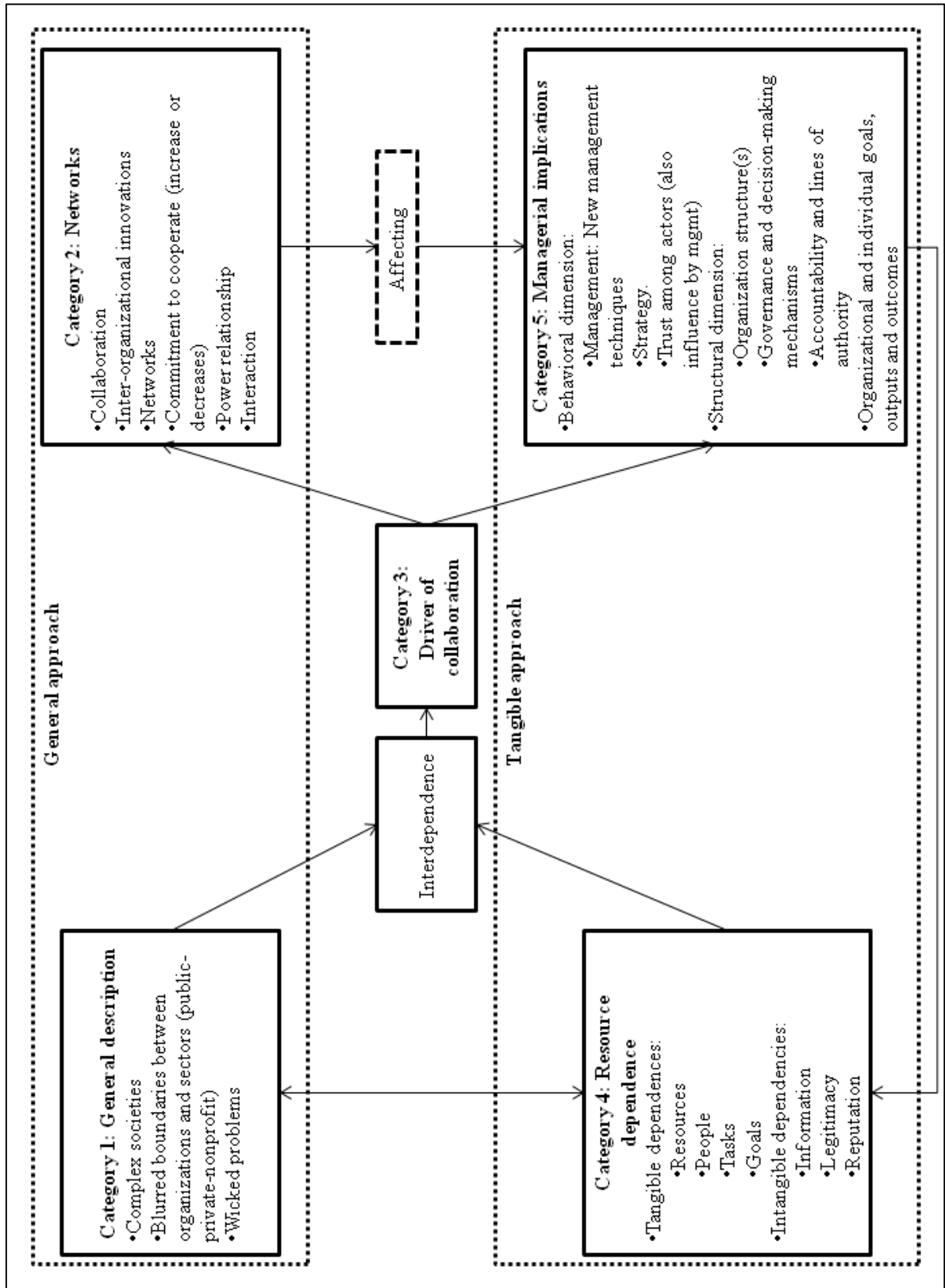
Source: authors' own compilation

The model also suggests that, given certain preconditions, the way interdependences are managed will redefine the landscape of a specific public service or policy.

The framework shows that interdependence (whether or not a formalized collaboration exists) will affect:

- The organizational structure (for both individual actors and the collaboration).
- The governance and decision-making criteria (for both the policy area and the
- collaboration).
- Organizational and individual goals.
- Trust.
- Accountability and lines of authority.
- Strategy.

As interdependence will be mediated and changed, as part of an iterative process (Pfeffer and Salancik, 1978), time, contextual variables, managerial decisions, and trust affect not only the process described above, but also future relationships among actors. This framework suggests the existence of an interdependence loop created by an iterative process, which modifies the power relationships among actors in a given public domain. In other words—how, when, and what type of interdependences are dealt with can change the landscape of a service delivery, policy design, or implementation, generating a new baseline at which new or different interdependent relationships appear.

4.6. Discussion and conclusions

Interdependence is profoundly embedded in our scholarly community's efforts to analyze and study a wide array of inter-organizational innovations (Mandel and Keast, 2008). As a multifaceted construct, interdependence primarily expresses an interconnectedness

among actors, resources, and/or tasks (Blau, 1964; Pfeffer and Salancik, 1978). At the same time, interdependence reflects the networked nature of our world (Castells, 2000). It also enables the enactment of certain institutional arrangements in the public sphere (Rethemeyer and Hatmaker, 2008). Finally, and perhaps most importantly, interdependence is both a cause and a consequence of collaboration and coordination among agencies and organizations (Hillman, Whiters, and Collins, 2009). As we have shown, the literature on public management and collaborations is full of references to such ideas. Thus, our first contribution to the literature is to systematically assess the use of this popular construct. This study aims to disentangle and unravel the meaning of interdependence for our scholarly community.

As our analysis suggests, the construct of "interdependence" is generally used to characterize scenarios involving public management (Castells, 2000; Aiken and Hage, 1968, Rhodes, 1997). As a substantive assumption, the natural consequence of being in an interdependent world is collaboration. In fact, twenty-six percent of the articles we reviewed use interdependence as a general concept. Importantly, our findings suggest that, under the surface, researchers find it difficult to assess the specific context, antecedents, or consequences of the existence, creation, exploitation, or even elimination of the interdependences they discuss. Since the construct is treated as elusive and broad, it is seldom operationalized or measured. The first answer to our research question, therefore, is as follows: interdependence, as a construct, has been used as general metaphor rather than a research variable.

To further develop this finding, we have produced a preliminary framework for the analysis of interdependence that we hope will help future researchers. It takes into account both antecedents and consequences at different levels of analysis. We believe, in line with Malatesta and Smith (2014), that a better understanding of the different kinds of

interdependencies and how they are managed will allow our scholarly community to more deeply understand collaboration, including how patterns of governance and control are established and why some collaborative efforts thrive while others perform poorly. The preexistent conditions for interdependence promote the use of collaborative devices in public sector environments. It will be important to assess whether this is always the case, what types of collaborations can be expected (given certain preconditions), and how these preconditions are modulated or affected by the policy stage, managerial activities, or administrative reorganizations and changes. This applies not only to more traditional collaborative devices in public management, which engage public and private organizations (contracting out, networks, and partnerships), but also to more novel scenarios derived from co-creation, co-production and co-design of public services. It may also shed light on rationale for mandated collaboration.

In light of our findings, we suggest and encourage researchers to enrich and enhance our knowledge by further exploring and defining:

- The nature of interdependence (goals, tasks, human resources, and competencies). Although it is an elusive construct, interdependence must be measured and operationalized through future research.

- The spillovers and consequences of interdependence and how they affect the provision of public services and goods.

- Advice for practitioners on how to better manage and lead in an interdependent environment.

- RDT's links to public management and collaborative projects, using recent examples (Malatesta and Smith, 2014).

We acknowledge the limitations of our analysis. First, due to time and resource constraints, we decided to limit our search to a set of top-tier, peer-reviewed public

management journals. Including other sources, such as books and references to known experts, would surely have enriched this study. Second, the categories included in this analysis may be differently reformulated or regrouped; although we have carried out a systematic analysis, it may have been influenced by nuanced research criteria. Finally, the nature of this chapter precludes us from empirically analyzing the proposed theoretical model or developing a valid scale to measure and operationalize interdependence and endeavor; these are challenges we intend to tackle in the future.

Chapter 5:

The Power Dynamics of Mandated Network Administrative Organizations (NAOs)[6]

This chapter analyzes the role of power in the development and design of two distinct European regulatory networks belonging to two different regulatory arenas: Energy and Telecommunications. We perform a longitudinal case study on both networks, to unveil the role of power dependencies in the design of Network Administrative Organizations.

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[6] Saz Carranza, A., Salvador Iborra, S. & Albareda Sanz, A. (2016). The power dynamics of mandated network administrative organizations. Public Administration Review, 76 (3), pp. 449-462. DOI: 10.1111/puar.12445.

Abstract

In understanding what drives the development of network administrative organizations (NAOs) of mandated networks, we find that power bargaining is central. We execute a comparative longitudinal case study of the NAOs of two policy-mandated networks. The study focuses specifically on the role of power in these developments and concludes that the differences in NAO development arise from power dependencies, in part due to sector characteristics. We propose that mandated networks members' greater interdependence and greater dependence on external non-members, as well as whole-network dependence on external actors, partly determine mandated networks' NAO design. These networks will have larger and more capable NAOs (with more staff), will accept sharing control of the NAO executive with the mandating party, and will have broader responsibilities.

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5.1. Introduction

This study explores how the governance forms of networks, in particular network administrative organizations (NAOs), develops and why. More focused attention on the governance structure of whole networks is critical, since formal network structures are expected to impact policy outcomes (Wonka and Rittberger, 2000). So far, there is very little research on this issue. Apart from a few empirical articles about the governance of networks (Raab, Mannak, and Cambré, 2013) and other interorganizational ventures (Yan and Gray, 1994; 2001), as well as theory by Provan and Kenis (2008), there is no empirical work on the development of governance forms of networks.

We focus on mandated networks, a sub-group of goal-directed networks. Mandated networks are common in the public sector, where a legislative or administrative superordinate actor or a contracting party can impose coordination and collaboration on other actors by creating a mandated network in which members are obliged to participate (Rodríguez et al., 2007; Isett and Provan, 2005; Moynihan, 2009).

Provan and Kenis (2008) propose that the governance forms of networks evolve as a lifecycle. We argue that power bargaining is the key driver behind the development of NAOs, particularly for mandated networks. Modification to the governance of mandated networks often depends on the mandating party, which has the legislative, administrative, or contractual power to impose it, rather than network members. Thus, our research question is: How does power bargaining affect the NAO development of mandated networks? Our research strategy is a longitudinal comparative case study of two regulatory mandated networks. First we explore how the NAOs of the two mandated networks develop over time. We then compare the development of each and identify the sources of their differences. We find that power bargaining, rather than a deterministic

lifecycle process, is central and that differences in NAO development are due to power dependencies, in part because of sector characteristics.

After describing our theoretical starting point—power and the development of the governance of mandated networks— we present our methods and cases. In the findings we analyze both development processes and find a bargaining dynamic around three specific issues. Subsequently, we explain the differences in NAO development in terms of power differences between the networks. We conclude with a discussion of our findings.

5.2. Mandated Networks, Forms of Governance, and Power

5.2.1. The Governance of Mandated Goal-Directed Networks

Network-like forms of organizing have proliferated in the private, non-profit, and public sectors (Isett et al., 2011; Kenis, Provan, and Kruyen, 2009). While networks can be understood as emerging entities developed out of serendipitous interactions among organizations, we focus on goal-directed networks whose inception is driven by pre-set goals (Kilduff and Tsai, 2003; Provan and Lemaire, 2012).

Goal-directed networks are consciously set up as interorganizational mechanisms to reach network-level objectives (Provan and Kenis, 2008). In these networks, collaboration is not always grassroots; it can be mandated by a third party (Siddiki et al., 2015; Brummel et al., 2010) that attempts to impose collaboration on others, whether legislatively, administratively, or contractually (Rodríguez et al., 2007). Public management scholars have long recognized the emergence of mandated service-provision networks enacted through an administrative contracts in the healthcare and social sectors (Graddy and Chen, 2006; Isett and Provan, 2005; Isett and Miranda, 2015). Where not contractually driven, mandated networks can also be created by policy rule-making (legislatively or

administratively) that affects different layers of government and policy players in sectors such as crisis management, homeland security, or transport planning (Brummel et al., 2010; Caruson and MacManus, 2006; Moynihan, 2009). Among these are regulatory networks, which bring together different regulatory authorities (Slaughter, 2004), and act as paradigmatic vehicles to foster policy harmonization and cooperation.

The literature provides a two-fold rationale for mandated collaboration: a powerful third-party non-member might mandate (either contractually, legislatively, or administratively) collaboration among stakeholders and/or other organizations (1) to shape policies or activities (e.g., limit actions, create economies of scale, and simplify processes); and/or (2) when actors do not participate voluntarily if they see collaboration as contrary to their needs or dominant position (Gray and Hay, 1986; Rodríguez et al., 2007; Compagni, Gerzeli, and Bergamaschi, 2011; Moynihan, 2009; Isett and Miranda, 2015).

Mandated collaboration characterizes many public goal-directed networks (Herranz, 2008), and limits a network's autonomous capacity to define or modify its characteristics (i.e., purpose, rules, membership), constraining the enactment of change. Changes to mandated networks might have to be approved externally by the mandating non-member.

Further, the membership of mandated networks is often set by the network's mandate and tends to be obligatory. The mandate determines who is eligible to join in the network. Participation in many mandated networks happens by right rather than as a result of credible commitments (Kelemen and Tarrant, 2011). The network's mandate may also predetermine the distribution of benefits among network members (Grafton, Abernethy, and Lillis, 2011; Caruson and MacManus, 2006), the scope of the network (Compagni et al., 2011), social learning activities within the network (Brummel et al., 2010), and network control mechanisms (Rodríguez et al., 2007).

This study analyzes longitudinally the evolution of forms of governance of mandated networks. The governance form, understood as the combination of mechanisms and institutions enacted to coordinate joint action towards the attainment of network-level goals, is a salient but still under-researched phenomenon (Provan and Kenis, 2008).

The contingent model for ideal types of a network's governance devised by Provan and Kenis (2008) includes three distinct forms. We focus on one of them, the Network Administrative Organization (NAO), an entity "set up specifically to govern the network and its activities (Provan and Kenis, 2008, 236)". In a recent analysis of service implementation networks, Huang (2014) defines a NAO as a distinct third party with whom network members establish ties. The NAO helps to build and direct the network, allocates resources, supports the partners to achieve network goals, and provides a centralized location to perform network activities" (Human and Provan, 2000, 236; Provan and Kenis, 2008).

As an organization, the NAO has an executive body dedicated to coordinating and facilitating collaboration among network members. It also has its own "governance" body, which is where network collective decisions are made by all members. We have chosen to consider this body (often called assembly, meeting, board, committee, or similar) as part of the NAO, although we are aware it is arguable whether this body is part of the network rather than part of the NAO. Figure 5.1 illustrates a network and an organizational view of the NAO.

Figure 5.1. Network and Organizational View of an NAO-governed Network

Network View   **Organizatinal View**
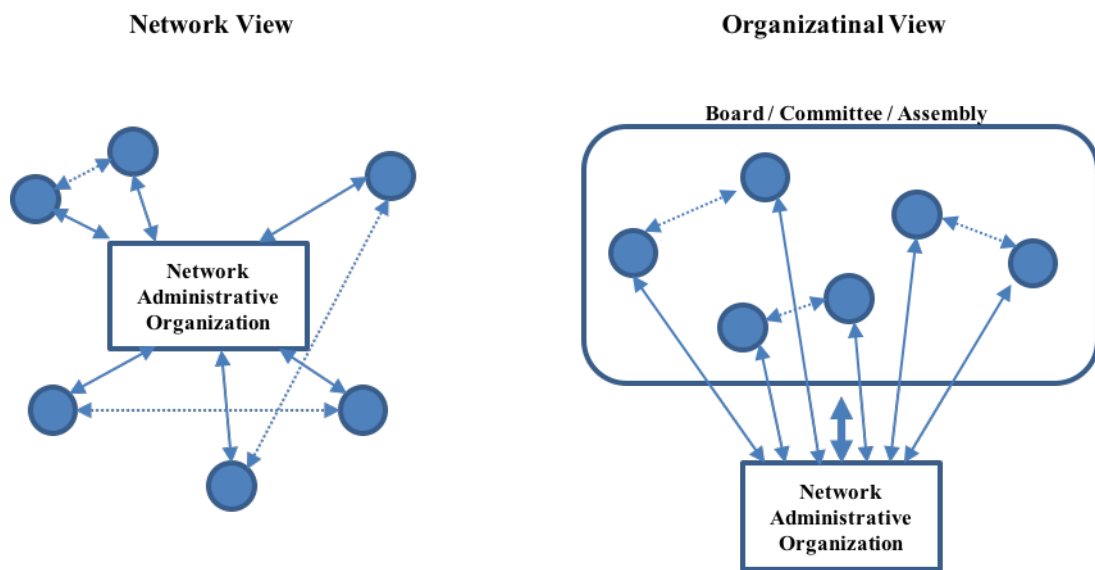
Source: authors' own

Empirical qualitative research on local and advocacy networks (Agranoff, 2007; Ospina and Saz-Carranza, 2010) suggests that the design of NAOs varies in terms of the number of structural components they incorporate (e.g., number of boards) and the characteristics and relationships (e.g., size and roles) of these components. Our research conveys new insights into the role of power in the development of the NAOs of mandated networks and provides a better understanding of these variations.

A power-based approach allows interorganizational relations to be analyzed beyond dyadic and/or transactional exchanges and can enlighten the power dynamics in networks (Malatesta and Smith, 2014). Yet, with the exception of studies by Milward and Provan (1998), Agranoff and McGuire (2003), and Agranoff (2007), power has not received much attention in previous analyses of goal-directed or mandated networks. By definition, power-based explanations seem well-suited to the study of developments in mandated networks. Since members of mandated networks have limited capacity to modify the network, is constrained, ex-ante decisions about the network's governance structure might be crucial to safeguard individual member stakes and align the network's

aims with the aims of members (Neumann, 2010; Dekker, 2004; Bacharach and Lawler, 1981). Recent studies of mandated regulatory networks (e.g., Blauberger and Rittberger, 2014) also suggest that power-based approaches may shed light on variations in network development.

5.2.2 Power and the Governance of Networks

Previous research on interorganizational relations points to the importance of power dynamics in shaping collaborative endeavors (Ospina and Saz-Carranza, 2010; De Rond and Bouchikhi, 2004; Yan and Gray, 1994). In this study, we understand power to be an inherent part of social relations, where "power resides implicitly in the other's dependence [on oneself]" (Emerson, 1962). Thus, the power of A over B is directly proportional to B's dependence on A (Malatesta and Smith, 2014). Power-based explanations of interorganizational sets are appealing (Huxham and Beech, 2008), given that autonomous units with different interests, aims, and resources interact and maneuver to shape the relationship and its outcomes to their advantage, by holding or controlling key resources (Pffefer and Salancik, 1978; Hillman, Withers, and Collins, 2009).

Yan and Gray (1994; 2001), looking at the governance of interorganizational alliances, explore and test an explanation of how partner interdependence affects joint-venture management control. They identify the partners' bargaining power—or bargaining set—in three resource-dependence terms: their level of dependency on the venture's outcome, the availability of alternatives to the venture, and the possession or control of critical resources for the venture. Their results suggest that this bargaining set determines the type and form of the venture's control, through mechanisms such as participation in decision-making on the venture's board, top-management appointments, and rule definition. Bargaining power therefore refers to the interacting parties' ability to shape the contexts in which they maneuver, win accommodations from others, and influence the final

outcome of an interaction (Yan and Gray, 1994; Bacharach and Lawler, 1981). Power and power dependencies (Emerson, 1962) are thus neither constant nor fixed but the result of a dynamic process in which the parties engage, bargain, attempt to overcome uncertainties, and change their environment (Pfeffer and Salancick, 1978; Bacharach and Lawler, 1981). Bosse and Alvarez (2010) agree. In their study of biotech alliances, they find that bargaining power, not just efficiency considerations, explains the outcomes of negotiations about governance mechanisms. In the same vein, the literature has consistently shown that organizational dependencies are closely related to the structure of a collaborative (Gulati and Sytch, 2007; Huang and Provan, 2007; Pfeffer and Salacnik, 1978; Thomson, Perry, and Miller, 2009). In fact, interdependence (whether based on material institutional resources or on social structural processes) creates a new organizational landscape among autonomous network members that has quasi-hierarchical aspects (Rethmeyer and Hatmaker, 2008).

Therefore, it is legitimate to expect power dependencies among organizations (Rethmeyer and Hatmaker, 2008; Lundin, 2007) and dependencies on external parties (Hillman et al., 2009) that also affect the development of governance structures in mandated networks.

5.2.3. The Development of NAOs

This chapter aims to explore the process of NAO inception and development in mandated networks. Van de Ven and Poole (1995, 512) define development as "a change process, i.e., a progression of change events that unfold during the duration of an entity's existence—from the initiation or onset of the entity to its end or termination." Processual analysis (Langley et al., 2013) helps researchers not only to delineate the events leading up to a particular outcome but also to shed light on the change mechanisms underlying a specific development (Dahl, 2014; Ring and Van de Ven, 1994; Van de Ven and Poole, 1995).

The development of the governance form of networks is tackled from the theoretical standpoint of life-cycle processes (Provan and Kenis, 2008). These maintain that change occurs through a set of predetermined stages (i.e., from shared to NAO governance) to reach a final, also predetermined, stage (Van de Ven and Poole, 1995). Provan and Kenis (2008) suggest that, as contingencies affecting choice evolve (i.e., trust density, need for network-level competencies, goal consensus, number of members), so does the form of governance. To the best of our knowledge, the literature has yet to show how such change processes unfold (Provan, Beagles, and Leischow, 2011).

More concretely, in mandated networks, the dynamics are fundamentally political (Rodríguez et al., 2007). In this context, the equation that determines how relations are structured needs to include the interplay of power, partners' interests, and values (Baraldi and Strömsen, 2009; Pettigrew, 1973). In addition to controlling resources and possessing authority, a powerful player will must also enjoy sufficient legitimacy (Hardy, Lawrence, and Philips, 1998).

The literature on interorganizational settings has long recognized the existence of this more convoluted landscape by referring to tensions between single organizations and the collective (Ospina and Saz-Carranza, 2010; Lewis, 2000; Mizrahi and Rosenthal, 1993). Alliance researchers (Das and Teng, 2000; De Rond and Bouchikhi, 2004) posit that partners need to solve a wide array of dichotomies (e.g., competition/control, trust/distrust, design/emergence, long-term/short-term orientations). To date, the literature has not analyzed how these tensions play out in the development of a network's governance form; rather, it focuses on how tensions affect networks or alliances as a whole. Despite some early applications of Emerson's (1962) power theory to the public sector (Perry, and Levine, 1976), to our knowledge, in recent times only Katila, Rosenberger, and Eisenhardt (2008) have applied a dynamic power approach to the study

of forms of interorganizational governance. Their findings suggest that alliance members push for autonomy (attempting to influence value distribution rules, control decision-making, and minimize their subordination to the alliance) while simultaneously valuing the alliance's endeavors.

In theory, the inception of mandated networks and posterior changes to them are constrained by the mandate of the powerful convener, which sets the rules of the game. However, it would be naïve to assume that the mandating party does not face resistance from future mandated network members. In taking a power-based approach, this chapter responds to recent calls to offer a more dynamic and less deterministic perspective on networks, their governance, and the change processes within them (Provan, Beagles, and Leischow, 2011).

Equipped with this theoretical framework, our study addresses the research question: How does power bargaining affect the development of mandated network NAOs?

5.3. Methods

5.3.1. Research Design and Methods

Our study is based on a mixed deductive/inductive research design suitable for generating theory about how the governance of mandated networks unfolds over time. Although we expected power to play an important role in NAO development, we have consciously allowed and looked for other emergent concepts. We have drawn on qualitative data to analyze events and choices made over time (Bizzi and Langley, 2012). The absence of previous empirical research on the role of power in the development of NAOs justifies an in-depth qualitative approach (Greenwood and Miller, 2010). We have carried out a comparative case study to provide a more robust basis for theory building (Yin 2003), as this approach often yields more accurate and

generalizable explanations than single case studies (Eisenhardt and Graebner, 2007). A comparative case study suits the multi-party character of the object of study (Agranoff and Radin, 1991).

5.3.2. Case Sampling

The sampling strategy was purposive (Miles and Huberman, 1994). We based our selection on several criteria, chosen to illuminate the processes we intended to analyze (Walsh and Bartunek, 2011). First, both networks were selected from two regulatory regimes in the EU: telecoms and energy. Second, both had a mandating party that imposed collaboration on others (Rodríguez et al., 2007; Halpert, 1982). Third, their creation pursued similar regulatory coordination goals and they evolved in parallel over time. Fourth, they are similar in terms of membership size (28) and members' institutional characteristics—the members of both networks are independent National Regulatory Authorities (NRAs). Finally, the two regimes have been pioneers in regulatory coordination in the EU.

Our most-similar case research design aimed to maximize the comparability of the cases by controlling for as many dimensions as possible (King, Keohane, and Verba, 1994): geographic context, age, and synchronized policy-making waves. The sectors were similar but distinct and the initial conditions differed slightly—one started off with a small NAO while the other was lead member-governed.

5.3.3. The Cases: Regulatory Networks and the EU

Public goal-directed networks increasingly populate the intergovernmental supranational arena (Slaughter, 2004). Among these transnational networks, regulatory networks (Maggetti and Gilardi, 2014) stand as paradigmatic vehicles to foster cooperation among diverse political actors. Within the European Union, regulatory cooperation among EU institutions and member states has recently been promoted through European NRA networks (Coen and Thatcher, 2008), the final aim of which is to harmonize implementation of the rules. In the following section, we briefly describe the two cases studied.

European Network of Telecoms Regulators. In 1997, different European telecom NRAs set up a voluntary network—the International Regulators Group (IRG)—to be an unofficial forum to share information and best practice. IRG currently includes 33 regulatory authorities from the EU, the European Free Trade Agreement (EFTA) countries, and candidates for accession to the EU. Initially, IRG was governed by one of its members, on a rotating basis. In 2002, the European Commission created the mandatory European Regulators Group (ERG) as an official advisory network (Kelemen and Tarrant, 2011). ERG—one of our objects of study—was in essence IRG, as it had exactly the same members and governance system, but the Commission attended the network's meetings as a non-voting member. But despite the creation of ERG, the NRAs did not disband IRG, which is a voluntary network. In 2009, the European Council and Parliament created legislation that evolved ERG into the Body of European Regulators of Electronic Communications (BEREC). BEREC consists of 27 EU national regulators plus the Commission as a non-voting member. The BEREC Office, with a staff of 18, governs the network.

European Network of Energy Regulators. In 2000, NRAs established a voluntary network, the Council of European Energy Regulators (CEER). At that point, CEER had only 10 members because not all EU national energy markets were liberalized and had independent NRAs. From its inception, CEER was governed by a small NAO.

Soon after, in 2003, the Commission created its own advisory body by mandate, the European Regulators Group for Electricity and Gas (ERGEG)—our second object of study. ERGEG was equivalent to CEER but included the Commission as a non-voting member. Similarly to the response of the telecoms sector to the same action, the energy NRAs did not disband CEER after ERGEG was created. In fact, ERGEG and CEER shared a governance secretariat (NAO). By assessing the implementation of current regulation and proposing future regulation, ERGEG acted as an official advisory body to the Commission in relation to the integration of European gas and power markets.

On July 13, 2009, the Parliament and Council adopted the decision establishing the Agency for the Cooperation of European Regulators (ACER), which replaced ERGEG. ACER is governed by a 40-person NAO.

5.3.4. Data Collection

The data are based on in-depth interviews and documentation. Our interviews combined purposive and snowball sampling (Miles and Huberman, 1994). Initially, we talked to one network member and an NAO staff member who provided access to other central network members and Commission officials (the mandating party) involved in the NAO development process. Through this strategy, we were able to interview 25 informants, including NAO staff (i.e., the network managers/NAO directors heading the NAOs, and others), the mandating party (i.e., Commission officials), and staff from different NRAs (i.e., the equivalent of directors of international affairs—those most involved in

negotiations, who prepare and attend network meetings). Individual interviews lasted 45–60 minutes. Table 5.1 summarizes the profiles of interviewees by regulatory regime.

Table 5.1. Interviewee Profiles

Interviewees	Telecoms regulatory regime	Energy regulatory regime	Total
NRA officers	8 (6 different NRAs)	7 (6 different NRAs)	15
Commission officers	3	1	4
Staff members of mandated network NAO	1	1	2
Staff members of voluntary network NAO	1	0	1
National electricity distributors	-	2	2
Total	13	11	24

Source: authors' own

Although we have focused our analysis on the two mandated networks, we acknowledge the parallel history and intimate connections of voluntary networks in both regimes. For this reason, we have included them as interviewees.

The interviews were semi-structured and elicited descriptions of personal experience. We asked interviewees to narrate how governance mechanisms were designed and why, to identify the most difficult and conflicted moments during the development of these mechanisms, and to explain how conflicts were resolved. A questionnaire based on broad open questions gave us the flexibility to move the conversation in any direction, so as to capture this information broadly and deeply. We also used the interviews to gain access to and familiarize ourselves with the documents have used in our analysis. We stopped sampling new interviewees when we reached a point of saturation (Boeije, 2010).

We analyzed documents proposing and determining the networks' governance forms and procedural rules (i.e., Commission legislative proposals and open consultation reports; the legislative debates among the European Commission, Parliament, and Council; and

rules of procedure and other internal documents relating to the networks). We also analyzed correspondence between the main stakeholders involved in network development. The documents went back to the mid-1990s, allowing us to counterbalance possible interviewee biases, as well as to overcome the limited and imprecise knowledge interviewees might have about the network's early history.

5.3.5. Data Analysis

Two of the authors coded the interview transcripts (Miles and Huberman, 1994). Thereafter, quotes and codes were exported to Excel to organize and further refine them (Meyer and Avery, 2008). For the first stage of transcript analysis, we used three sensitizing concepts: network development, network design process, and conflict and disagreement. From there, we coded the text in relation to key events in the process, basic network activities, diversity and conflict between parties, conflictual issues about NAO design, and differences between the networks' NAOs. In order to avoid research bias, the coders approached the interviews independently and subsequently agreed upon themes, categories, and codes.

In the second stage of analysis, we conducted—using the codes previously developed— a document analysis of every directive, regulation, and formal and informal EU document that directly affected the development of the case studies (see online Appendix: List A1[7]). When necessary, we coded parts of these documents and integrated the respective quotes and codes with our interview data. Thus, the evidence from the interviews was crosschecked and complemented with document analysis, improving the validity and reliability of the findings. Triangulating the documents and interview data enabled us to present richer and more reliable descriptions of each case (Denzin, 1989; Graebner and

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[7] This appendix appears at the end of this chapter.

Eisenhardt, 2004) and to improve internal validity (Yin, 2003; Walsh and Bartunek, 2011). After several coding waves, the final set of codes was produced (Table 5.2). This ultimately led to the narrated findings presented in the next section.

Table 5.2. Code Development

Sensitizing concepts	First set of codes	Final set of codes	Final finding
Network development	NRA vs. Commission	Integration/ Autonomy	Bargaining dynamic among mandated and mandating parties.
	Collaboration		
	Legislators		
	Diversity		
Network design process	Mobilizing	Mobilization	Mandated network members to mobilize to influence mandated network NAO design.
	Facilitation		
	Evaluation		
	Framing		
	Harmonization		
	Compromise		
	Shared diagnostic		
Conflict and disagreement	Decision-making in NAO	NAO characteristics/Network purpose	Key bargaining issues: NAO size, control of NAO, network tasks.
	Strong NAO		
	Limiting the NAO		
	NRA strength		
	NRA independence		
	Telecoms vs. Energy	Telecom vs. Energy	Power differences between sectors: network member interdependence, network members' external dependence, whole network external dependence.
	External dependence		
	Physical dependence		

5.4. Analysis and Findings

In this section, we provide an in-depth analysis of the raw findings extracted from the cases. First, we give the sequence of events, showing that development and changes are not predetermined but rather the result of an iterative process of proposals and counterproposals leading to a compromise between the mandating party and the mandated network members, both of whom push their diverse preferences in relation to the network and its NAO. Second, we find that bargaining revolves around NAO control, NAO size, and network-level tasks. Finally, the comparative nature of our study allows us to

understand not only how power dynamics affect the design, but also how specific power dependencies impact differently the design and development of forms of governance in mandated networks. Our findings suggest that the inception, design, and development of mandated network NAOs are affected by the power dynamics between (1) network members, (2) network members and key stakeholders in their domestic policy regime, and (3) the whole network and its domain. Figure 5.2 illustrates our findings. To make these findings easier to read and understand, Table A2 in the Appendix provides a list of acronyms used in this analysis.

Figure 5.2. A Power-Bargaining Model of NAO Development

Source: authors' own

5.4.1. The development of a network's form of governance: a bargaining process

The analysis of the rich information drawn from the cases allows us to track longitudinally the process of design and development of the mandated networks studied. The original mandate was modulated by several rounds of proposals and counterproposals in a process in which the final result is widely recognized by the actors as a "compromise." A national regulatory officer recalls: "BEREC is a compromise. The Commission wanted a Euro-regulator" (NRA4). In the energy network, the resulting NAO also stands as a compromise among players. As an interviewee stated, "The final design … is a political compromise" (NRA26).

The event sequence of the bargaining dynamic. Figures 3 and 5 show the development of the governance forms of both mandated networks. They depict proposals (dotted arrows) as well as actual developments (solid arrows). It is clear that the tension between hierarchy (or full subordination of NRAs to a European-level authority) and a looser network form is constantly present. This tension is tangible in the decisions and discussions about the mechanisms used to govern the network. As one regulator stated, "Tension between the Commission and national authorities is that between uniform regulation versus jealous autonomy" (NRA10).

Figure 5.3. Development of the Telecom Network's Form of Governance
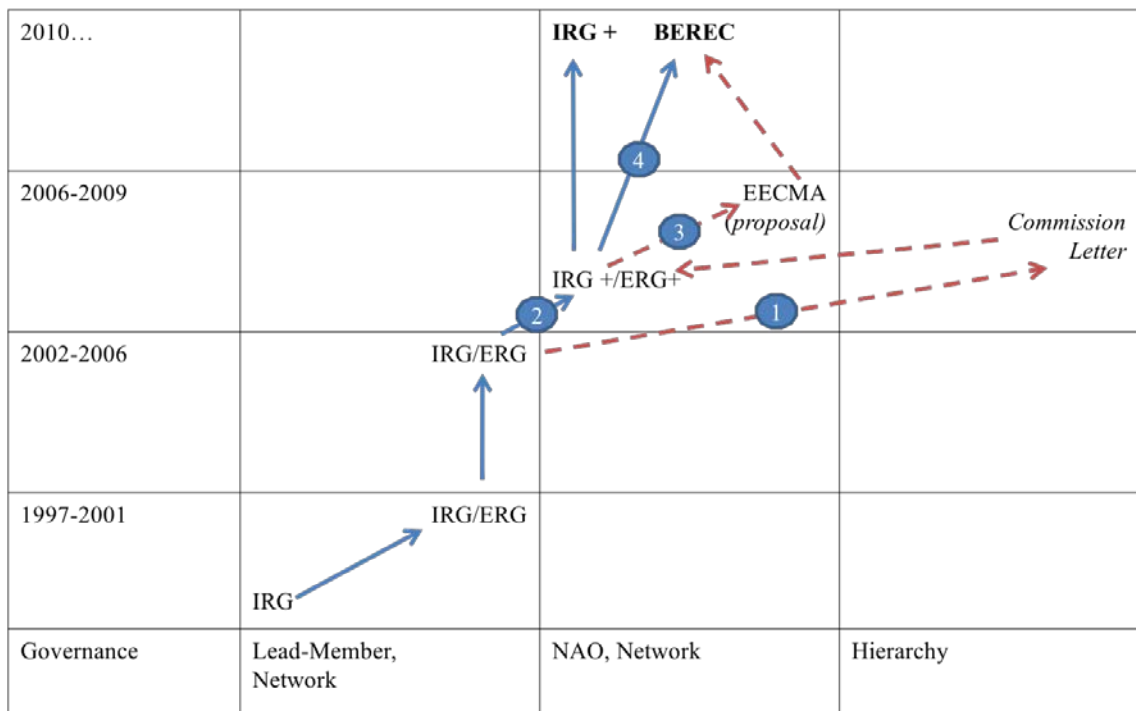
Source: authors' own

In 2006, as a need for further regulatory consistency in Europe's telecom markets escalated, the Commission sent a letter (Figure 5.3, dotted arrow 1) to the ERG, stating that the regulatory diversity in EU telecoms markets was worrisome, and that it considered the ERG's governance a hindrance to regulatory convergence:

> You are aware about the…present lack of consistency [with] regards [to] the application of the regulatory framework [.] The institutional set-up of ERG does not allow it to achieve, even with the best intentions, a consistent application of ...a common regulatory approach to cross-border issues. (26/11/2006: COM to ERG)

The Commission further communicated that it would seek greater powers to be able to overrun some regulations written by NRAs. As the Commissioner for Information Society and Media wrote in a letter to ERG:

> I envisage… to include in the future regulatory framework a clause allowing the Commission to: (1) request that a national regulatory authority replaces an inappropriate measure by a regulatory action that will remedy the competition problem effectively; (2) request a national regulatory authority to undertake an analysis of a market and/or to adopt a remedy within a reasonable timeframe. (26/11/2006: COM to ERG)

The response by the telecoms network was to upgrade its governance structure, setting up an NAO (Figure 5.3, solid arrow 2). By early 2007, this NAO had a four-person secretariat set up in Brussels. In its response to the Commission, the mandated network underscored the strengthening of its governance: "In Bratislava, national regulators agreed to establish a permanent … Secretariat, composed by two to four junior and middle officials seconded by the national regulators" (18/01/2007: ERG to COM).

The national telecoms regulators again restated their opposition to accepting any subordination to the Commission: "ERG maintains its opposition to the

Commission's…proposal of a… 'veto on [national regulations]' …on the grounds of subsidiarity" (02/27/2007: ERG to COM).

The Commission marched ahead and proposed a new mandated network (the European Electronic Communications Markets Authority, EECMA), which was to be governed by a large NAO (Figure 5.3, dotted arrow 3). The proposed governance system was composed of a board of regulators, tasked with making regulatory decisions, and an administrative board, responsible for budgetary and administrative oversight of NAO staff (COM 2007a).

The national regulators would decide on regulatory matters in the Board of Regulators. The 12-person Administrative Board would be composed of six people appointed by the Commission and six by the Council. Both boards would function via voting.

The final mandated network, BEREC, created by the 2009 telecoms legislation (Figure 5.3, arrow 4), is responsible for providing de-facto binding opinions about the decisions of national regulators. As a result of this enhanced responsibility, the mandated network has become far more influential; previously it was merely an information-sharing advisory network. The main difference between BEREC's NAO and EECMA's (the original proposition) is that the national regulators (i.e., the network members) maintain control of the Administrative Board (later renamed the Management Committee),

where the Commission has only one vote out of 28 (see Figure 5.4).

Figure 5.4. The Structure of the Telecom Mandated NAO
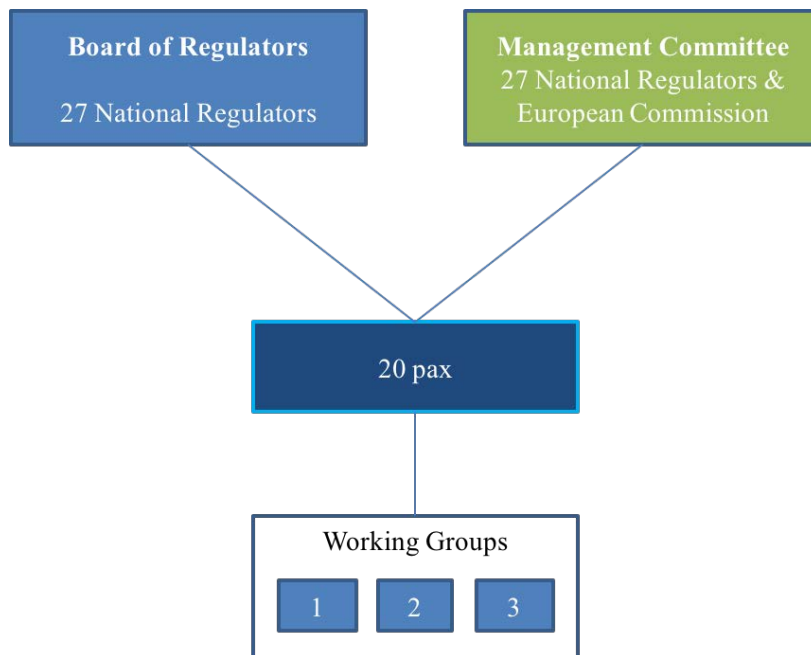
Source: authors' own

Figure 5.5. The Dialectics of Regulatory Networks' forms of governance (Energy)

Source: authors' own

A similar process unfolded in the energy network: in early 2007, the Commission published "An Energy Policy for Europe" (COM 2007) proposing to set up a single European regulator (Figure 5.5, dotted arrow 1).

ERGEG replied by proposing an improved version of itself, the European System of Energy Regulators (ESER), where it would acquire binding responsibilities with respect to cross-border issues (Figure 5.5 dotted arrow 2). "Rather than creating a 'single European regulator,' ERGEG proposed a network model to undertake the functions necessary to fill the 'regulatory gap' at a European level" (NAO28).

The proposed ESER would have had two decision-making boards, one regulatory and another administrative. The former would be composed solely of the national regulatory authorities, while the latter would be made up of representatives from the Commission and the Council (ERGEG, 2007).

Shortly afterwards, the Commission put out its proposal for a revamped mandated energy network to be called Agency for the Cooperation of Energy Regulators (ACER) (Figure 5.5, dotted arrow 3). According to the initial proposal, the Commission would be part of the Board of Regulators and it would be able to give instructions to the director of the NAO (COM 2007c; EC 2009).

At last, in 2009, ACER was created—taking over ERGEG—and had the capacity to set the terms, conditions, and operational requirements for cross-border energy interconnections and settle member disputes (Figure 5.5, solid arrow 4). The mandated energy network now has strong influence over national authorities (i.e., its members) (Article 5, Regulation (COM) No 713/2009). Figure 5.6 shows the final structure of ACER's NAO.

Figure 5.6. The Structure of the Mandated Energy Network NAO
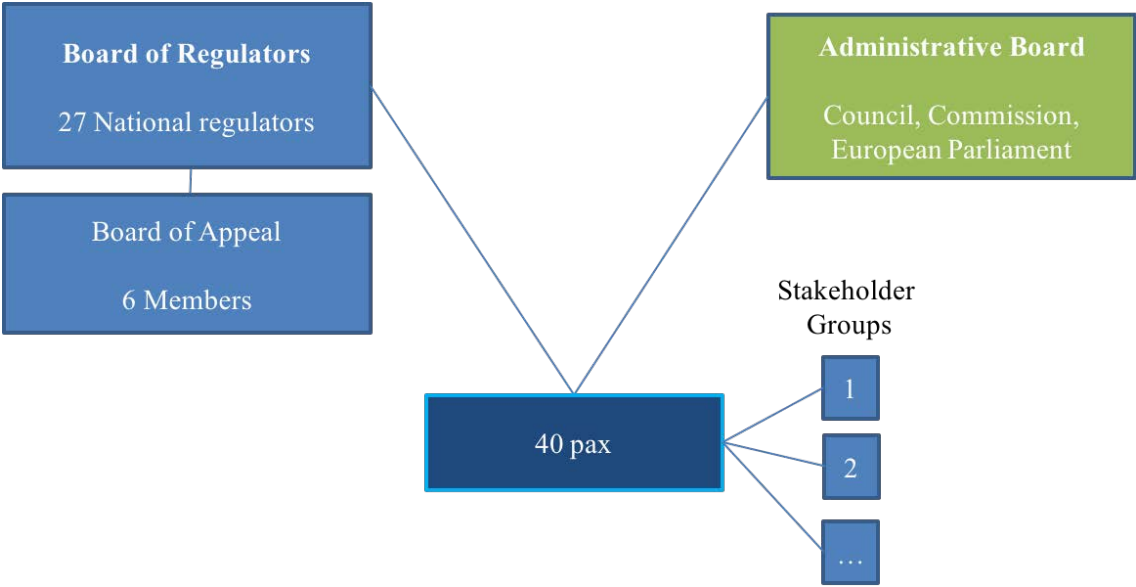
Source: authors' own

Table A1 in the appendix summarizes the event sequence for both networks.

Mobilization of voluntary networks to influence the NAOs of mandated networks Underscoring the bargaining nature of the process, we find that network members (national telecoms authorities) mobilized support in the European Council and Parliament to try to modify the proposed design so that they would control the Administrative Board as well as the Board of Regulators. As one national regulator put it, "National authorities lobbied to remain independent" (NRA1).

The energy regulators also mobilized support for their counterproposal. As a Commission official told us: "[National energy authorities] are very well connected to [the European] Parliament [and they] also lobbied the Council." National regulatory officers agreed: "These connections to the Council and the Parliament" allow national authorities to "monitor the entire [legislative] process" and to "lobby all three powers (Commission, Parliament, and Council)" (NRA29).

Not only did network members mobilize to influence the design of the mandated network NAO, they also used the voluntary network to do so. Thus, as one interviewee told us: "[That] only the Board of Regulators can directly instruct ACER's director (while the Commission cannot) is the result of CEER [voluntary network] lobbying the Parliament" (COM25).

5.4.2. Mandated network NAOs: key bargaining issues

NAO control: members vs. mandating party. In both networks, members tried to increase their own control over the NAO's key units and roles. In BEREC, NRAs managed to reduce the presence of EU institutions on governance boards, while in ACER, NRAs managed to secure unique oversight over the NAO's director-general.

In ACER, the key issue of negotiation was whether the executive director would take directions only from the Board of Regulators. In essence, "differences in opinion among national authorities and the Commission regarded the competencies of the Board of Regulators vis-à-vis the Commission's role. National authorities wanted enough competencies and resources," recalls one of the regulators (NRA26). As another network member stated: "Board of Regulators' responsibilities with respect to the executive director [were] a key issue of debate" (NRA24). Finally, the Council modified the Commission's proposal so that members maintained high levels of control over the NAO's staff and its director. As the legislative transcripts state: "The Council has accepted [that] the Director [has] to act strictly in accordance with the Board of Regulators' instructions" (Council27).

Similarly, with respect to telecoms, an interviewee (NRA12) states: "An important discussion was voting power of the Commission in BEREC. Now, it can only vote in the Management Committee but is only observer in the Board of Regulators." As mentioned,

both boards remain under the control of NRAs since the mandating party, contrary to its initial proposal, is not present on the Board of Regulators and has only one vote (out of 28) on the Management Committee.

The size of the NAO: large vs. small. The size of the NAO was also important for BEREC. When the Commission proposed EECMA in 2007, the eventual size of its NAO was a crucial issue for national regulators, which were wary of the initial proposed size of more than 100 employees. In practice, at the time of our study, the NAO employed 18. As a national officer recalls, "The danger was that the BEREC Office could turn into an instrument of the Commission. Now, there is a balance between the BEREC Office and the national authorities" (NRA10).

Network-level responsibilities: strong vs. weak. A main issue in ACER's bargaining was the responsibilities of ACER vis-à-vis the distribution networks, the European Network of Transport and Supply Organizations, ENTSO-E (electricity) and ENTSO-G (gas). The first Commission proposal gave ENTSO-E and ENTSO-G considerable power, leaving ACER a consultative role (COM, 2007c). The distribution network would have been responsible for defining the guidelines and codes for the gas and electricity transport grids. Discussions related to the power balance between the regulatory network and the two distribution networks. Lord Mogg, Chair of ACER, argued:

> We welcome a number of improvements notably the reinforcement of powers and independence of national regulators, the enhanced role for ACER in the process for developing the EU [cross-border] codes and the fact that the codes, which lie at the heart of an integrated EU energy market, may now become legally binding. It is of course sensible for ACER to ... provide guidance to the ENTSOs [i.e. distribution networks] for drafting the [cross-border] codes, and then to monitor

the ENTSOs in the execution of their tasks in relation to the EU-wide [cross-border] codes and development plans. (CEER, 2007c)

5.4.3 How internal and external dependencies explain the governance form of mandated networks

Our comparative case strategy allows us to understand the role of power dependencies in the process of inception and development of the form of governance of mandated networks. In the cases studied, the end results of the processes (i.e., the development of the networks' governance mechanisms) are quite different. The executive board (Management Committee) of the telecoms network is dominated by national regulators. This is not the case in the energy network. Moreover, the energy network's NAO clearly outnumbers the telecoms NAO in terms of employees. Telecoms national regulators managed to keep the NAO's staff to a minimum.

The opposition from national authorities to the Commission's call for further integration was lower in the energy than in the telecoms sector. All energy-related actors were aware of "structural problems" (COM25) and "regulatory gaps" (NAO28) in the energy market and "all were in favor of an institutional response" (NRA9).

We found no such reasoning in the telecoms sector. On the contrary, regulatory officers emphasized that countries have different markets that require contingent regulatory regulations: "National authorities opposed centralization because the proximity to diverse national markets is essential … For instance prices vary all over Europe even in markets [as close as] Austria and Germany, in Germany prices are 10 times those of Austria…" (NRA4).

Our research suggests that the difference in attitudes between those forced to collaborate (i.e., national regulators) has its underlying rationale in the interplay of internal and

external power dependencies among members, the mandating party, and other players in the policy regime.

Reciprocal interdependence among mandated network members. Compared to the telecoms sector, the energy regime has certain specificities that make players converge on a diagnostic and support regulatory integration across Europe. Integrating the energy market, unlike the telecoms market, requires physical interconnections between countries. As interviewees from different regulatory authorities pointed out: "Energy has clear cross-border physical problems" (NRA9), and "energy requires a physical network" (NRA30).

National energy regulators manage the tariffs of international energy transactions, make technological standards compatible, actively manage interconnections—for electricity in particular—and coordinate investments in interconnection from the regulated monopolistic grid and pipeline operators. These connections are physical and far more costly than wave-based telecoms interconnections.

External dependencies of mandated network members. The data suggest that the visions of national regulatory authorities and the Commission coincide far more on the appropriate European policy for energy than for telecoms because national energy authorities are relatively less powerful than their telecoms counterparts. Energy regulators are less independent from ministries (Gilardi and Maggetti 2001) and the energy regulatory regime encompasses more and larger players than that of telecoms. As one energy regulator stated: "The Council represents EU member state governments while national authorities are independent from governments. The relationship can be weird…The Council prefers giving more power to ministries than to [independent] national authorities" (NRA26).

Another interviewee explained:

> National authorities' relations with the Commission are much more antagonistic in telecoms than in energy. [This could] be due to the [difference] in independence of regulatory authorities in each sector. National energy authorities are not as independent from ministries nor do they have as many competencies. Thus, the Commission and regulatory authorities create an alliance. (NRA9)

Energy authorities not only deal with large energy producers, they also have to deal with monopolistic distributors. Their rivalry with these companies, which are powerful public or private monopolies, nudges the authorities closer to the Commission: "This is so because [energy regulators] have to work with the powerful [Transport and Supply Organizations]," reasoned an energy regulator (NRA9).

Whole-network external dependencies. Additionally, the greater will to integrate among energy actors may be due to Europe's energy dependence or, as one interviewee put it bluntly, the "Russia factor." This is related to Europe's dependence on a few foreign external providers of energy (Russia, Norway, and Algeria).

In summary, differences between the NAOs of the energy and telecoms networks may be explained by the degree of external dependence of network members. Unlike their counterparts in telecoms, national energy regulators have greater dependence on third parties and national ministries and have to regulate both private operators and large, powerful monopolistic grid operators. Furthermore, Europe is known to have external overall dependence on foreign suppliers of energy resources. These dependencies, common to all EU energy national regulators, explain why energy NRAs are far more sympathetic to sacrificing NAO control in exchange for network and NAO capacity.

Thus, they have no say in the mandated network's administrative board and they tolerate a larger NAO.

5.5. Discussion

A main finding of this study is that the inception and development processes of policy-mandated networks are far from conflict-free; they do not fit the image of a network in which where one powerful convener sets the rules and mandated members have no choice but to go along with them.

Bargaining power (Yan and Gray, 1994; 2001) refers to an actor's capacity to influence the outcome of a given situation; in our case studies, the given situation was the design of the NAO. The longitudinal nature of our analysis allows us to show how actors maneuver to shape the final design of an NAO. More concretely, we find that over time tension over the design of the governance form of the network is solved by an iteration of proposals, counterproposals, and synthesis process (Van de Ven and Poole, 1995). In fact, the creation and development of an NAO can be seen as a multiple-principals scenario in which the competing pressures and conflicting demands of the principals shape the final relationship with the agent, the NAO executive (Whitford, 2005). It is thus not surprising that the key issue in the negotiations was how the NAO would operate and be structured.

> **Proposition 1a.** The development process of the NAOs of policy-mandated networks follows a bargaining pattern of proposals and counterproposals between the mandating party and mandated network members.

The process studied broadly shows signs of path-dependence, in that a prior event (e.g. a proposal) limits the options available in a later event (e.g., a counterproposal). In fact,

power itself is predicated on situation; that is, dependencies and interdependencies are not only dynamic but also to some extent fostered or constrained by previous events (Pfeffer and Salancik, 1978). However, we did not find path-dependence conforming to the strictest definition of path-dependence analysis— (1) an event that (2) transforms itself in a self-reinforcing dynamic (3) resulting in a lock-in (Schreyögg and Sydow, 2011). A self-reinforcing dynamic resulting in a lock-in does not seem to fit our data.

Our results also clearly show how mandated network members mobilize their structural, relational, and discursive resources (Papadopoulos and Roumpakis, 2013) to influence the design of the NAO. This is in agreement with the literature on advocacy, which predicts organizations will try to influence the policy process whenever the latter affects the opportunities and resources available to them (Buffardi et al., 2014). The tension plays out, as mandated network members draw on their power sources: access to the two ultimate legislative decision-makers—the European Parliament and Council—and build legitimacy through public communication efforts. The mandating party, the Commission, on the other hand, is the only actor in the EU system capable of initiating legislative processes. The Commission also has sufficient legitimacy to publicly scorn a mandated network member. It is thus a game between mandated network members and the mandating party using two key resources, influence and legitimacy (Lundin, 2007; Huang and Provan, 2007).

Mobilizing is a central activity in networks (Agranoff and McGuire, 2001). Our finding, however, contrasts with the network management literature where mobilizing occurs continually throughout the life-cycle of the network (Agranoff and McGuire, 2001). Mandated networks often require an external non-member to modify the network structure (Herranz, 2008). Thus, members of policy-mandated networks are expected to become involved in political activity, in particular during the NAO definition stage, as

the different parties try to establish a governance form where they can maximize power (Pinto, 1998; Sabherwal and Grover, 2010).

Proposition 1b. During the NAO definition stage of policy-mandated networks, members will mobilize to influence the design of the NAO.

While the main interest of our research is the development of the form of governance of mandated networks, NAO design, and how mandated collaboration is structured, on another level the cases also shed light on how the mandated network affects voluntary collaboration among the parties involved. Here, our findings are aligned with Benson's (1975) views on coalition formation. The national regulatory authorities maintain their voluntary interorganizational networks (the telecoms and energy voluntary networks remain fully active to date) and use them to influence the final characteristics of the NAO in line with their interests (Butterfoss, Goodman, and Wandersman, 1993). Our findings suggest that mandated networks do not undermine or hinder voluntary collaborations; however, it is worth noting that such a mandate might well create dissension in a scenario where competition is present and/or interests are not aligned (i.e., individual stakes supersede coalition stakes), (Huang, 2014). However, as Isett and Provan (2005: 162) argue in their analysis of a contract-mandated service provision network, the nature and the environment in which these networks operate have an important "effect on how relationships among its members evolve over time."

Our study also pinpoints the key issues that mandated network members contest most strongly. Boin, Busuoic, and Groenler (2013) suggest that there are diverse ways of distributing coordinating tasks, control, and executive capacities among the NAO and network members in regulatory mandated networks. Yan and Gray (1994) find joint-venture partners bargain to determine participation in decision-making in the venture's board, top-management appointments, and rule definition. We find that the issues most

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contested are control of the NAO executive (i.e., whether it should be fully controlled by members or whether the mandating party should also have some say); the size of the NAO executive; and network-level tasks.

> **Proposition 1c.** The bargaining process of NAO development in a policy-mandated network will revolve around who controls the NAO, NAO staff size, and network-level tasks.

The differing ways in which these issues may be resolved point to a blurred frontier between hierarchy and network in NAO-governed networks. Further conceptualization and research on the limits and boundaries of these two ideal types is warranted. We agree with Moynihan (2008: 206) that "stark differences between hierarchies and networks rest on overstated ideal types, and that governance structures can usefully exist between these two types." In fact, EU meta-governance, with its so-called experimentalist architecture, is widely recognized as an evolving process of hybrid structures (Sabel and Zeitlin, 2008). In the case of European regulation, the tension between a full plenipotentiary superordinate European authority and looser regulatory networks is an ongoing process (Levi-Faur, 2011).

This chapter also specifies how resource dependencies affect the structuring of NAOs. Our findings complement earlier contributions (Huang and Provan, 2007; Malatesta and Smith, 201; Thomson, Perry, and Miller, 2009), which identified trust and the need for network-level competencies as contingent elements that determined the form of network governance (Provan and Kenis, 2008) and the control of joint ventures (Yan and Gray, 1994), respectively.

We conclude that the NAOs of policy-mandated networks are determined in part by the power dynamics between (1) network members, (2) network members and key

stakeholders in their domestic policy regime, and (3) the whole network and its domain. It is well known that interdependence increases uncertainty, thus potentially fostering cooperation between the parties involved (Pfeffer and Salancik, 1978). We have found three types of dependency that affect the power bargaining process around NAO design. First, greater interdependence (in our case studies, this is both physical and financial) among network members increases the size of the NAO (i.e., more capability) but also results in the network being less controlled by its members (Gulati 1995).

> **Proposition 2a**. Policy-mandated networks, whose members have higher levels of interdependency among themselves, will execute more tasks, have larger NAOs, and have NAOs whose decision-making bodies are less controlled by the network members.

Second, the dependency of network members on their national environment will affect NAO design. The pattern of power relationships among national ministries and national regulators prior to the creation of the network differed in the two sectors studied here. In fact, as Yesilkagit (2011) confirms, the creation of the energy sector network represents an opportunity to reduce national regulators' dependence on relevant ministries. Presumably, the latter will be less inclined to contradict the regulatory independence principle or meddle with their national regulators if other national regulators and the Commission are watching. As the network helps to manage these external dependencies better, internal power dynamics are structured accordingly (Aggarwal, Siggelkow, and Singh, 2010; Pfeffer and Salacnik, 1978; Blauberger and Rittberger, 2014).

> **Proposition 2b.** Policy-mandated networks, whose members have higher levels of external dependency on third parties, will execute more tasks, have larger NAOs, and have NAOs whose decision-making bodies are less controlled by network members.

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Third, whole-network external dependency seems to be at play. The need to counterbalance an external threat (i.e., Europe's dependence on third-party countries for energy) favors integration; members value collaboration more highly, believing that participation benefits outweigh participation costs (Foster-Fishman et al., 2001). This external dependency is different from those discussed earlier, in that the entire network is externally dependent, as opposed to each member being externally dependent on its own national ministry.

> **Proposition 2c.** Policy-mandated networks, which are collectively dependent on an external third party, will execute more tasks, have larger NAOs, and have NAO decision-making bodies that are less controlled by network members.

These propositions related to sector-based differences among mandated network NAOs resonate with Gormley's (1986) salience and complexity model (Neshkova, 2014; Koliba et al., 2014), which argues that salience (i.e., an issue of interest to laypeople) and complexity (i.e., an issue requiring high levels of expertise) determine which actors will have the lead in a policy regime. Salient issues will be closely managed by elected politicians, while complex issues will be delegated to specialized bureaucrats. In terms of Gormley's model, the energy sector is more salient than the telecoms sector. According to the Eurobarometer number 81 (European Commission, 2014), energy ranks as the ninth most important issue, while the field of telecoms is not included in the ranking (Wlezien, 2005). As for complexity, network industries, including telecoms and energy, require high degrees of expert knowledge—although according to practitioners interviewed for this research, energy (in particular electricity, as opposed to gas) may be slightly more complex than telecoms. Taking into account the difference in salience, it may be significant that politicians lead the energy sector at the domestic level—this accords with the fact that energy regulators are less independent of ministries than telecoms

regulators—resulting in greater incentives for national regulatory authorities to band together at the European level. Given that we sampled most-similar cases, our research is not well suited to testing Gormley's model. However, this seems a promising avenue for future research on regulatory networks.

5.6. Conclusions

This study addresses the research question: How does power bargaining affect the NAO development of mandated networks? We first show how the design of the governance form of mandated networks is a bargaining process. The cases studied here illustrate how network members struggle to influence the governance form of the network. Until now, the literature has seldom focused on the challenge posed by networks whose inception was driven by a mandate (Rodríguez et al., 2007) determining membership, structure, design, size, task, and/or any other network features.

We must state a caveat regarding our findings. We draw a strong distinction between mandated networks and voluntary collaborations. Mandated networks encompass both contractually "enacted" networks, that is, mandated networks of social or health service providers (Graddy and Chen, 2006; Isett and Provan, 2005) as well as policy-mandated networks that aim to shape, harmonize, or govern a policy activity or regime, such as the regulatory mandated networks studied here, crisis management networks (Moynihan, 2009), homeland security networks (Caruson and MacManus, 2006), and transport planning networks (Brummel et al., 2010).

Our analysis zeros in on policy-mandated networks, which has implications for the transferability (Yin, 2003; Lincoln and Guba, 1985) of our findings to the general universe of mandated networks. Members of policy-mandated networks do not have an exit option (Hirschman, 1970). Hypothetically, at least, members of contract-mandated

networks can opt out by not entering the public contract and so avoid participation in the mandated network (albeit at the great cost of renouncing the contract and the resources drawn from it). Thus, we limit the propositions drawn from our findings to policy-mandated networks.

This chapter drives the emergence of a new set of questions on the nature of NAOs: are there different typologies of NAOs? Importantly, in some service-delivery networks, governance tasks are outsourced to consultants or other for-profit third parties. Thus, are our findings directly transferable to contract-mandated networks (such as service delivery networks) and to other types of goal-directed networks? Is the NAO form in contractually "enacted" networks static, or are participants able to influence the design of governance forms over time? Alternatively, given that the key interest for a public service provider is the public contract, do these providers have less interest in the network itself as long as they receive revenues from the contract? In both cases studied, mandated network members maintained their voluntary networks. Is this to be expected whenever there is a policy-mandated network? Lastly, when it comes to regulatory networks, are our findings transferable to other regulatory contexts outside the EU? Do they inform subnational mandated regulatory networks? These questions may be especially relevant since the oldest existing regulatory network is American - the National Association of Regulatory Utilities Commissioners (Berg and Horral, 2008).

One limitation of our study relates to our decision to sacrifice breadth for depth. Quantitative research based on larger samples will enrich our knowledge of network governance and the design of NAOs. The context of our study—regulatory networks in the EU—may affect the transferability and generalizability of our results. Nevertheless, we believe that our findings serve as a useful departure point for future research.

Appendix

Table A1 Event-sequence table for both networks

	Actor	COM	NRAs	COM	FINAL
Telecom	Event: date	Letter: 06/06	ERG+: 1/07	EECMA: 11/07	BEREC: 11/09
	Description	Proposes setting up a European central authority—or—being capable of vetoing national regulations.	ERG and CEER set up a joint secretariat in Brussels	Proposes a network with a large NAO which would be partially controlled by EU institutions	Network's NAO is smaller than expected and controlled solely by NRAs
Energy	Event: date	Report: 1/07	ESER: 5/07	ACER+: 9/07	ACER: 1/09
	Description	Proposes setting up a European central authority —or—upgrading ERGEG.	Proposes upgrading ERGEG by increasing responsibilities and set decision-making via voting	Proposes a network with a large NAO that would be partially controlled by EU institutions, from whom the NAO's director may take orders.	Only network members can give orders to the NAO's director.

Table A2 Acronyms

Organizations	
ACER	Agency for the Cooperation of Energy Regulators
BEREC	Body of European Regulators of Electronic Communications
CEER	Council of European Energy Regulators
EECMA	European Electronic Communications Markets Authority [proposed, not created]
EFTA	European Free Trade Agreement
ENTSO-E	European Network of Transport and Supply Organizations—Electricity
ENTSO-G	European Network of Transport and Supply Organizations—Gas
ERG	European Regulators Group [for Electronic Communications]
ERGEG	European Regulators Group for Electricity and Gas
ESER	European System of Energy Regulators [proposed, not created]
EU	European Union
IRG	International Regulators Group [for Electronic Communications]
NRA	National Regulatory Authority
Interviewees	
COM	Representative of the European Commission
NAO	Representative of a Network Administrative Organization
NRA	Representative of a National Regulatory Authority

Chapter 6:

The governance of Goal-Directed Networks: An Empirical Analysis of European Regulatory Networks.

This chapter empirically analyzes the factors associated with the structural complexity of Network Administrative Organizations of European Regulatory Networks.

Abstract

In this chapter we answer the research question, "What factors affect the structural complexity of network administrative organizations (NAOs)?" This question warrants further research because there are few empirical studies on the topic. We have designed a quantitative study of the structure of all 37 European regulatory networks. Using Bayesian statistics, we have analyzed the new dataset and tested hypotheses, derived from the literature, about factors that affect the structural complexity of NAOs. We find that networks with rule-setting tasks are strongly related to less complex NAOs, while networks with member-sanctioning and rule-enforcing tasks are strongly related to more complex NAOs. Contrary to expectations, younger and less socially dense networks are mildly related to less complex NAOs. Theoretically, NAO complexity appears to be affected by both the implied uncertainty and the network-level operational requirements of its tasks.

6.1. Introduction

Public goal-directed networks are increasingly popular nowadays (Agranoff, 2007) and have attracted growing scholarly attention (Isett et al., 2011; Turrini et al., 2009). However, despite these advances, some crucial dimensions still remain to be explored (Provan, Fish, and Sydow, 2007). These include network evolution and change, the mechanisms that facilitate the emergence of collaborative outcomes, and how networks are governed. The governance of whole networks (Kilduff and Tsai, 2003) is a key dimension that requires further research, since it affects the success or failure of the collaborative endeavor (McGuire, 2006). Governance encompasses joint decision-making processes, how power is shared within the network, and how collaboration is enforced among members (O'Leary and Vij, 2012). Few scholars have built on the initial work led by Provan (Provan and Milward 1995; Provan and Kenis 2008) in this area. Provan and his colleagues argue that "network governance...is critical for effectiveness" (Provan and Kenis, 2008, 231). Provan and Kenis's (2008) triad of ideal types of governance—shared, lead-member, and network administrative organization (NAO)—represents a sound first attempt to theorize goal-directed network governance. There is still much to learn about the design of the mechanisms and structures introduced to effectively govern, manage, and operate these inter-organizational sets. Only two studies have attempted to test Provan and Kenis's (2008) network governance typology empirically (Kenis, Provan, and Kruyen, 2009; Raab, Mannak, and Cambré, 2015).

In research on goal-directed networks, governance design is a key theoretical and practical gap. Why do goal-directed networks set up different network administrative organizations (NAOs, or central secretariats) to govern themselves? Scholars describe different types of NAOs, some of which make decisions through consensus, others by

voting; some employ eight staff members, others more than 20; some have a single board made up of network members; others have a plenary and an executive board (Agranoff, 2007; Saz-Carranza et al., 2015). Our goal in this chapter is to fill this void in our knowledge of NAOs. To achieve our aim, we study the universe of European regulatory networks.

Scholars studying the EU have researched regulatory networks for at least a decade (Coen and Thatcher, 2008; Kelemen, 2002). However, these small-n qualitative studies have not explored in detail the form of governance, management, and brokerage of these regulatory networks. Instead, they have focused on the political dynamics among member states and European institutions (Bach et al., 2016; Boin, Busuioc, and Groenleer, 2014). We differ from previous studies produced by EU scholars in that we look specifically at the form of network governance from a network and organizational perspective.

Our aim is to contribute to the advancement of existing knowledge on the governance of goal-directed networks, complementing Kenis, Provan, and Kruyen (2009) and Raab, Mannak, and Cambré (2015) by focusing on the NAO. Instead of exploring when or why networks adopt one of the three ideal forms of governance proposed by Provan and Kenis (2008), we have researched how and why NAOs differ in their structural design complexity.

NAOs are purposively designed and set up by network members. The structure of NAOs is highly relevant because, as Greenwood and Miller (2010) assert, structure is a driver for the successful formulation and implementation of strategies. In goal-directed networks, NAO design creates preconditions for attaining the collective aim of the collaborating members. As Provan and Kenis (2008, 233) argued, "there is a rationale for utilizing one form over another and that there are consequences for selection of each form

of governance." Similarly, we assume that there is a rationale for selecting different NAO designs and specific consequences as a result of doing so. By identifying and understanding different NAO structures, we aim to deepen and complement Provan and Kenis's (2008) shared/lead-member/NAO triad.

Our research question is as follows: What factors affect the structural complexity of network administrative organizations (NAOs)? To address it, we have created a new dataset of all 37 European regulatory networks, which are public goal-directed networks composed of European national regulatory authorities.

We find that tasks play a central role: rule-setting networks are strongly related to less complex NAOs, while networks with tasks that require member sanctions and rule enforcement are strongly related to more complex NAOs. Contrary to expectations, we find weak evidence that younger and less socially dense networks are loosely related to less complex NAOs. Weak evidence also points to economy- and finance-related networks being less complex than networks operating in other sectors. Being mandated (rather than voluntary) does not seem to have any significant relationship with NAO complexity.

The first section of this chapter develops our theoretical framework and concludes with a series of hypotheses related to the drivers of NAO structural complexity. Before presenting our methods and results, we provide information about our dataset and the criteria we have adopted to build it. In the final section, we report our results and discuss them in light of previous literature.

6.2. Theoretical Framework

6.2.1. The governance of goal-directed networks

Following Provan and Kenis (2008, 231), we define inter-organizational goal-directed networks as "groups of three or more legally autonomous organizations that work together to achieve not only their own goals but also a collective goal." Scholars have studied several such networks: for example, Agranoff and McGuire (2003) studied economic development networks; Isett and Provan (2005) mental health services delivery networks; and Raab, Mannak, and Cambré (2015) Dutch networks managing crime prevention services.

Goal-directed networks must be governed precisely because they aim to achieve a collective goal (Saz-Carranza and Ospina, 2010) Specifically, the governance of goal-directed networks is "the use of institutions and resources to coordinate and control joint action across the network as a whole" (Provan and Kenis, 2008, 231). Network governance has both a behavioral and a structural dimension (Saz-Carranza and Ospina, 2010)); in this chapter we refer to the latter.

There are three ideal structural forms of governance for whole goal-directed networks: shared governance among all network members; governance by one of the members (i.e., the lead organization); and delegation of governance to an NAO (Provan and Kenis, 2008). Provan and Kenis (2008) also identify the key predictors of network governance forms: namely, trust, the number of participants, goal consensus, and the need for network-level competencies. In essence, low trust, a low level of consensus, a large membership, and the need for network-level competencies all increase transaction costs (Williamson, 1975) related to governing the network, thus making a central broker far more efficient than multilateral coordination and implementation.

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Choosing between two brokered forms—NAO or lead organization—will depend on the number of network members and the need for network-level competencies. When there are high values for both factors, the NAO will be the optimal form.

Two studies have drawn on large or medium N samples in analyzing forms of network governance. Raab, Mannak, and Cambré (2015) have tested which factors contribute to the effectiveness of Dutch-mandated information-sharing networks in the field of crime prevention. They that effective networks have high durability, system stability, centralized integration, and either resource munificence or NAO (as opposed to lead member) governance.

Kenis, Provan, and Kruyen (2009) conduct a meta-analysis of network research and find no relationship between task (whether exploitative/explorative and/or ambiguous/unambiguous) and governance form. However, they find that trust among parties may substitute for an NAO.

This chapter is related to both of these studies but deviates from both in that it focuses on the particularities of the NAO form.

6.2.3. The structure of NAOs

Provan and Kenis's (2008) valuable typology stops short of detailing the variations within each of the three governance modes. It does not point out the differences among NAOs, nor does it characterize an NAO. Yet, empirical qualitative research on NAO-governed networks (Agranoff, 2007) casts light on the components of NAOs' structure and acknowledges the differences among them.

We start our exploration of the structure of NAOs with the traditional definition of an organizational structure: a recurrent set of organizational units composing the organization, relationships between them, the rules affecting behaviors, and decision-making and communication patterns (Galbraith, 1987; Greenberg, 2011; Pennings, 1992). The study of traditional organizational structure is primarily concerned with issues related to the executive component of an organization: aspects such as the number of units (Blau, 1970; Blau and Schoenherr, 1971; Modarres, 2010); degree of departmentalization (Aiken, Bacharach, and French, 1980); specialization (Christensen and Lægreid, 2011); and degree of differentiation (Damanpour, 1987; Hage and Aiken, 1967). However, it is crucially important for research on NAO structure to explore and explain an NAO's organizational apex. This is where network members come together—in a governance board, plenary, general assembly, or equivalent—to make decisions and monitor the NAO staff (Agranoff, 2007; Graddy and Chen, 2006; Rodriguez et al., 2007). Decision-making among the NAO's multiple principals (Miller, 2005) and their relationship with their broker, and with NAO management and staff, is central to its functioning.

Compared to a traditional organization, the governing bodies of the NAO—a plenary composed of network members and, sometimes, an additional "executive" board—are disproportionally important, in comparison with small numbers of management and staff. For example, Saz-Carranza et al. (2015) study four goal-directed networks whose NAO plenary bodies bring together all of their members—ranging from 16 to 164—but whose NAO staff headcounts are 4–19. In other words, NAOs are organizations with oversized apexes in relation to their management and staff.

Given the relevance of the apex in NAO functioning, we build on the corporate governance literature (Bebchuk and Weisbach, 2010; Larcker and Richardson, 2004) and

the limited available knowledge in the field of public and non-profit organization governance (Monteduro, Hinna, and Ferrari, 2011; Hinna and Monteduro, 2010). Corporate governance scholars have identified three relevant levels in organizations: shareholders, corporate directors (i.e., Boards of Directors) and top management (Hermalin and Weisbach, 1998, 2003; Adams, Hermalin, and Weisbach, 2008). The interplay between ownership and management is the key vector driving governance choices (Fama and Jensen, 1983) in for-profit organizations. Business-oriented corporate governance is concerned with the structure and processes that facilitate and determine the relationship between principal and agent (Jensen and Meckling, 1976). Corporate governance determines the power delegated to the agent (Fields, 2007) and the roles played by the board: providing resources, safeguarding accountability, and controlling and monitoring the agent (Davis, 2005).

This logic also plays a part in public sector and non-profit governance arrangements, since agency issues persist (Cornforth, 2003; Hinna and Monteduro, 2010). However, other issues, such as transparency, compliance, stewardship, and a strong focus on stakeholders are more relevant (Edwards and Conforth, 2003). Since public organizations are concerned with the production of socially valuable outputs and outcomes, their governance aims to incorporate different political standpoints and social preferences into the decision-making process (Hinna and Scarozza, 2015; Blair and Stout, 1999; Rajan and Zingales, 2000). Thus, delegation of strategic decision-making from the board to the agent—the organization's executive component—is limited in public sector and non-profit organizations (Lynn and Heinrich, 2000; Stone and Strower, 1999; Seibert, 2007).

The governing bodies of public organizations are in charge of strategic decisions, in accordance with the distribution of rights and responsibilities (Hinna and Scarozza, 2015;

Baysinger and Hoskisson, 1990; Fields, 2007). This has important implications for the board's involvement in strategy (McNulty and Pettigrew, 1999; Hendry and Kiel, 2004). They must also deal with the challenges that inevitably arise from diverse and even conflicting goals (Wright, 2004). It is noteworthy that these boards are often conceptualized as decision-making groups facing highly uncertain environments (Hambrick, 1994), where the interests of diverse stakeholders must be safeguarded (Hinna and Monterudo, 2016; Tirole, 2001). Thus, the board is designed to pursue and balance the goals of the organization's stakeholders, rather than to focus solely on financial performance or holding the chief executive to account (Ellwood and García-Lacalle, 2015).

Collaborative contexts, and goal-directed networks in particular, experience tension between unity and diversity (Saz-Carranza and Ospina, 2010) because bring together diverse members to accomplish a collective goal. For this endeavor to succeed, the collaborative goals must be acknowledged by all members (Huxham and Vangen, 2000, Agranoff and McGuire, 2001; Ansell and Gash, 2008). However, differences in expectations and visions will hinder agreement and cooperation (Agranoff and McGuire, 2001; Bryson, Crosby, and Stone, 2006). Networks therefore need adequate governance to balance power and to manage, and eventually solve, group conflicts (Jenh, 1997).

NAOs, in particular, face an acute collective action problem, involving a multiple-principals scenario (Miller, 2005) in their governing bodies. Collective decision-making among members of the board(s) is even more important to an NAO than to a standard public or non-profit organization (Agranoff, 2007). Researchers claim that decision-making in networks happens through consensus rather than voting (Agranoff, 2007). However, some networks with deep-rooted democratic and town hall-meeting cultures do

make decisions by voting. In multi-organizational settings with a large number of members—such as European regulatory networks (Salvador et al., 2015) or international governmental organizations (IGOs) (Lockwood Payton, 2010)—voting is often the norm. In NAO-governed goal-directed networks, power imbalances can be compensated for through design (Saz-Carranza et al., 2015).

A NAO's structure must therefore provide a decision-making arena adequate to overcome problems of collective action and cope with the principal-agent dilemma between members and NAO staff, while keeping coordination costs at a minimum. Figure 6.1 shows an NAO prototype with its basic structural units.

Figure 6.1. NAO Prototype (authors' own)
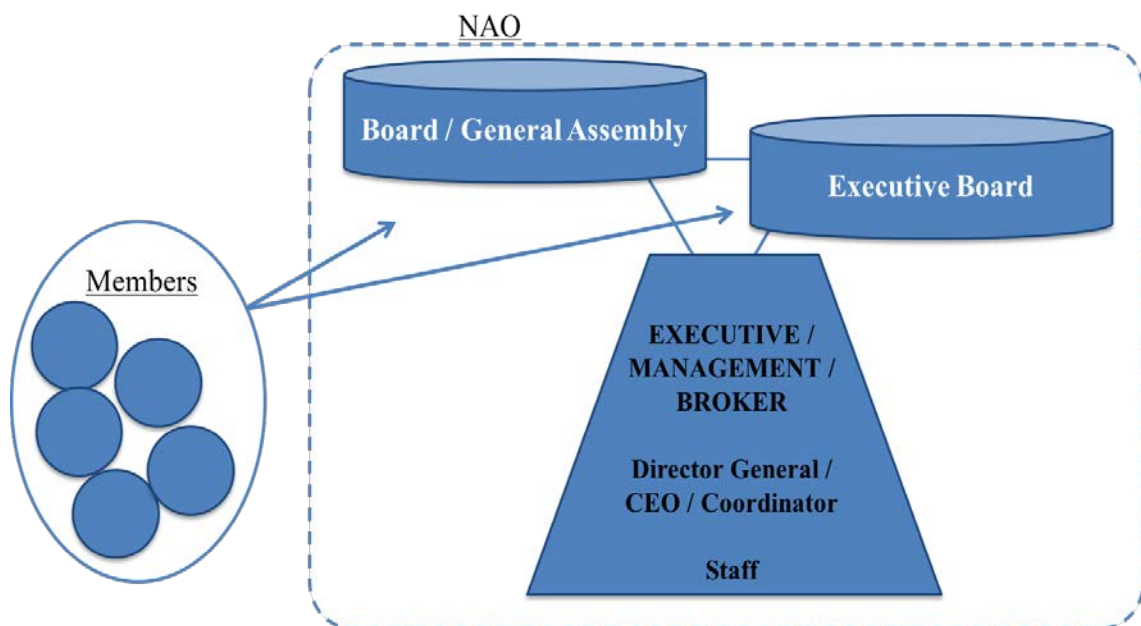
Source: authors' own

Qualitative studies have pointed out the differences in NAO structures (Saz-Carranza et al., 2015). Some NAOs have two boards, others just one. Some have large executive units with tens of staff, while others have an individual broker. Thus, NAOs may be more or less elaborate (i.e., with more differentiated jobs and units, more developed administrative and governance components, and more sophisticated decision-making rules)—just like any other organization (Mintzberg, 1983).

Taking stock of Mintzberg's definition of structural organizational elaborateness (Mintzberg, 1983), we build on Rescher (1998) to develop our conceptualization of the structural complexity of NAOs. In this chapter, "complexity" primarily refers to the quantity and variety of constituent elements in the network's governance structure. Complexity also reflects the degree of elaboration of the rules and norms governing a phenomenon. The complexity score we attach to an NAO apex represents an attempt to operationalize and aggregate these different elements (i.e., the number and type of units and the types of norms used in decision-making processes).

For example, a more complex NAO will have two boards rather than one, non-members on its boards, an appeal board, a director general, and sophisticated decision-making rules—i.e., double majority voting or weighted-voting as opposed to consensus (see Figure 6.2 for extreme NAO models). The key question driving this research—What factors affect the structural complexity of NAOs? —aims to explore these differences among NAOs.

Figure 6.2. Simple and Complex NAOs

Simple NAO
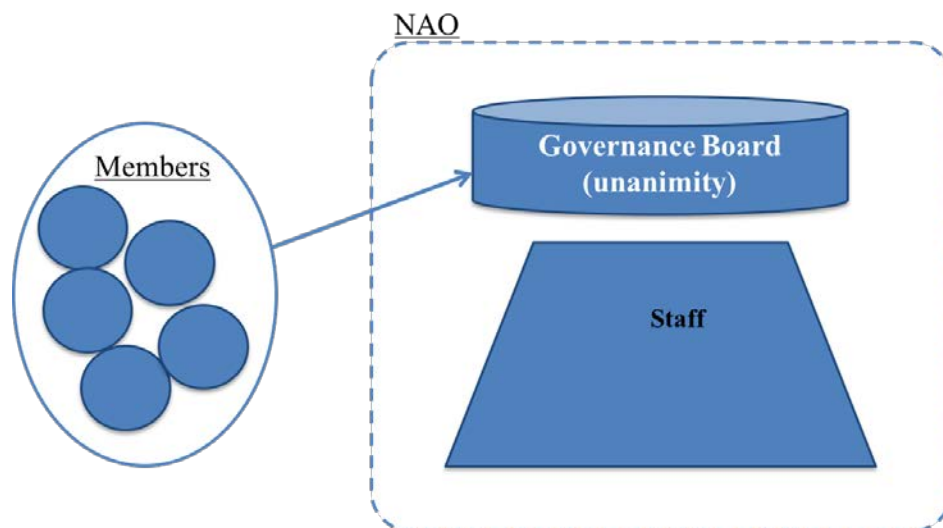
Complex NAO
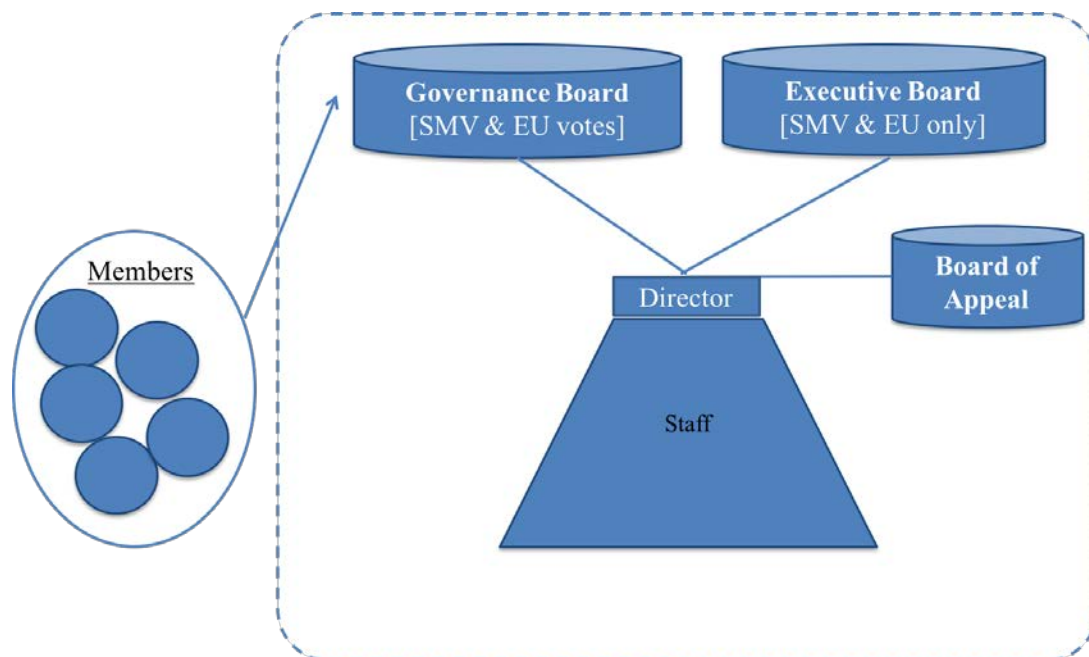
Source: authors' own

6.2.3. Factors affecting NAO structural complexity

We identify four variables (network task, network age, mandated nature of the network, and network density) plus a control variable (sector) that are theoretically expected to be associated with different levels of NAO structural complexity.

Task

Public goal-directed networks are consciously created to achieve specific goals by executing certain tasks (Raab and Kenis, 2009). Complex organizations are, in general, better understood when the study of their structure is linked to the tasks it will execute and its related demands (Lawrence and Lorsch, 1967). Provan and Kenis (2008) also identify network-level tasks as a key contingency factor that affects network governance. The more of these tasks there are, the greater the need for an NAO. Arguably, network tasks are the most idiosyncratic characteristic of goal-directed networks, as compared to serendipitous networks.

Networks can execute different tasks (Popp et al., 2014), and different network tasks can imply different degrees of interdependence among members (Alter and Hage, 1993). While scholars of classical organization have found a relationship between the interdependence of (operational) tasks and organizational structure (Lawrence and Lorsch, 1967), research on inter-organizational relations (mainly corporate joint ventures and networks) has found that interdependences of (network) tasks affect NAO structure. This reflects the fact that network-level tasks have an impact on information requirements, coordination efforts, and transaction costs (Bensaou and Venkatraman, 1995; Dussauge, Garrette, and Mitchell, 2000, 2004; Provan and Kenis, 2008).

Agranoff (2007) identifies different types of public management networks that deal incrementally with exchange, concerted action, and joint production (Alter and Hage, 1993). At one end of this continuum, Agranoff (2007) places networks that only exchange information; at the other end, interagency adjustments that formally adopt collaborative courses of action. In the middle, his typology positions networks that deal with information exchange, exchange resource opportunities, sequence programming, pool client contacts, and produce member services.

Agranoff (2007) finds that networks institutionalize (i.e., have larger and more complex NAOs) as they move along the continuum towards joint production. He builds on the organization-theory work of Alter and Hage (1992), who maintain that the increasing institutionalization of collaborative ventures is based on the interdependencies implied by their purpose. Thus, joint-production networks imply far greater interdependencies than those that simply share information. This logic is used by Provan and Kenis (2008), who predict that networks that require network-level tasks will tend to adopt brokered governance mechanisms such as NAOs or lead-member governance (as opposed to shared governance).

Focusing specifically on regulatory networks, Slaughter (2004) identifies three basic network functions: information sharing, rule setting, and rule enforcement. In a similar vein, and focusing on EU regulatory networks, Coen and Thatcher (2008) place regulatory networks along a soft-to-hard continuum, which runs from coordination to drafting secondary legislation at EU level.

Thus, as the network moves from simply sharing information, toward setting rules, and even enforcing rules to regulate entities, the more complex its NAO is likely to become. (Recall that complexity, in our study, means moving away from the basic model of a

plenary that works by consensus and directly overseeing the executive component of the NAO.) The more tasks an NAO must execute, the more it will require operational capacity, improved supervision by members, and streamlined decision-making processes (i.e., moving away from consensus). Scholars who study international governmental organizations (IGOs) have found that IGOs often use simple majority rules to avoid blockages (Snidal, 1995). If a network can sanction regulated entities or members, then we can expect an appellate body as well.

In addition, more and different tasks might imply greater difficulties in monitoring operational performance (Gulati and Singh, 1998), executing members' strategic choices (Stone, Bigelow, and Crittenden, 1999) and managing stakeholders' competing demands (Stone and Brush, 1996; Green and Griensinger, 1996; Herman and Renz, 1998).

From this, we derive that, at at the very least, all networks involve information sharing. Additionally, some may be charged with jointly producing awareness-raising campaigns, member training, or any other executive tasks (H1a). Regulatory networks may propose or even set regulations (H1b), as well as directly enforcing regulation on third-party entities (H1c). Lastly, networks are capable of sanctioning members if they do not comply with previously agreed commitments (H1d). Thus, we develop four task-related hypotheses:

H$_{1a}$ Networks that perform executive tasks will—ceteris paribus—have more structurally complex NAOs than those that do not.

H$_{1b}$ Networks that set rules will—ceteris paribus—have more structurally complex NAOs than those that do not.

H$_{1c}$ Networks that enforce rules on third-party entities will—ceteris paribus—

have more structurally complex NAOs than those that do not.

H$_{1d}$ Networks that can sanction members will—ceteris paribus—have more structurally complex NAOs than those that cannot.

Age

As time passes and the network evolves, the relationships among members evolve as well (i.e., partner uncertainty decreases and trust is expected to increase). Raab, Mannak, and Cambré (2015), following Van Raaij (2006), point out that in intra-organizational networks, the development of optimal monitoring, accountability, and control mechanisms takes time. Young and old networks therefore differ in terms of the mechanisms used to monitor and lead the network (Hite and Hersterly, 2001; Human and Provan, 2000). Mintzberg (1983) establishes age as a key contingent element affecting the degree of formalization and the implementation of more elaborate structures in organizations. Provan and Kenis (2008) also lean in this direction, expecting the form of network governance to have a life cycle and develop over time, from shared to NAO-governed. In this regard, we expect NAOs to become incrementally complex as they age.

H$_2$ Ceteris paribus, the older the network, the more complex the NAO.

Mandated collaboration

Public goal-directed networks may be mandated by a third party (Provan and Kenis, 2008). As a process, mandated collaboration involves design and implementation stages (Rodriguez et al., 2007). In mandated networks, membership, overall goals, and network governance are not defined solely by network members. During the design phase and prior to formalization, network members and the mandating party interact to establish the network's design and governance structures. Given that membership is obligatory, rather

than voluntary, in a mandated network, future members play an active role in framing the safeguards and collective decision-making rules of the network's governance structures Saz-Carranza et al., 2015). This is because members in mandated networks do not have the option of "exiting" (Hirschman, 1970) the network in cases of strong disagreements. Instead, they aim to maintain some "veto" power by advocating consensual decision-making and minimizing delegation to an executive board or executive director. We thus expect the NAOs of mandated networks to have a less integrated, complex structure.

> H3 Ceteris paribus, the NAO structure is likely to be less complex when collaboration is mandated than when it is not.

Network density

The social relational pattern among network members affects the form of network governance. Raab, Mannak, and Cambré (2015) find that effective networks usually have either high network density or a centralized governance structure, such as an NAO. (The density of a network is a measure of how many connections there are between nodes, compared to the maximum possible number of connections that could exist between nodes: the higher the proportion, the higher the density.) In fact, Provan and Kenis (2008) predict that when trust is densely dispersed among members, they may govern themselves using a shared-governance mode. We expect networks with greater density to have less complex NAOs.

> H4 Ceteris paribus, the less dense a network, the more complex its NAO.

Policy sector as a control variable

The policy sector can affect the form of an NAO for several reasons. First, the policy sector may require a specific amount of coordination from network members. Different but interrelated organizations constitute a policy sector (Bähr, 2010). The interrelations among parties are specific to and characteristic of that policy sector; they depend to a large extent on the interdependencies among parties. Interdependence has been found to be a good predictor of integration in inter-organizational collaborations (Gulati and Singh, 1998; Hillman, Withers, and Collins, 2009; Kogut, 1988; Oxley and Sampson, 2004; Van de Ven, Walker, and Liston, 1979).

Different policy sectors imply different interdependencies. As an illustration, physical operational interdependence among regulators is much higher in the rail and energy sectors than in environmental sectors. In the former, national regulators have to agree on intensive reciprocal investments to build interconnections. Such interconnections are not necessary in the environmental sector.

Policy sectors can also have different levels of political salience (Gormley, 1986). Politicians tend to delegate work to technical experts far less in sectors with greater political salience. For example, public safety (highly salient) tends to be delegated less frequently to technical officers or civil servants than insurance regulation (low political salience). However, this tendency is mediated by the technical complexity of the sector (Gormley, 1986).

Figure 6.3. *Illustration of the hypothesis*
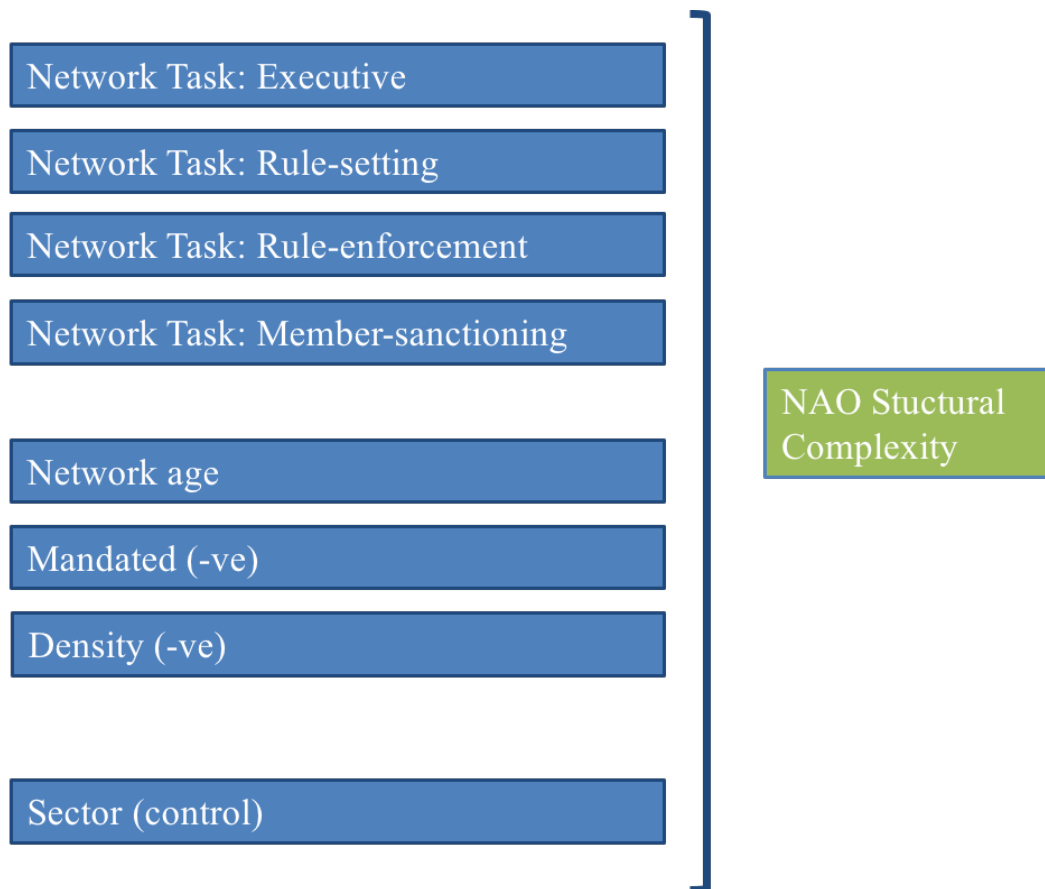
Figure 6.3 graphically illustrates our hypotheses. Other factors that can determine NAO structure. Membership size and diversity among members may have an effect, but our empirical sample based on EU regulatory networks kept both variables constant across the 37 networks.

6.3 Methods

To answer our research question and test our hypotheses we have constructed a new database of all EU regulatory network NAOs. We have used Bayesian statistics to analyze the results.

6.3.1 Sampling

For this study we took into account 37 European regulatory networks. Our sample was based, firstly, on Levi-Faur's (2011) work on European regulatory networks and, secondly, on the European Union's official decentralized agencies' list.[i]

Levi-Faur (2011) maps 36 regulatory regimes:[ii] "Regulatory regimes encompass the norms, the mechanisms of decision-making, the various institutions, and the networks of actors that are involved in regulation" (Levi-Faur, 2011, 811).

Within these regimes, Levi-Faur identifies 28 regulatory agencies and 51 networks. On the one hand, an agency is defined as "an administrative organization with a distinct formal identity, an internal hierarchy, functional capacities, and, most important, at least one principal" (Levi-Faur, 2011, 813). He focuses on regulatory agencies, those that carry out at least one of the four functional tasks of regulation—information gathering, rule setting, monitoring, and enforcement—and excludes agencies that deal with planning, administration of services, distribution, and redistribution (Levi-Faur, 2011). At the same time, he defines a network as "a set of relatively stable relationships of a non-hierarchical and interdependent nature which link a variety of actors" (Levi-Faur, 2011, 813) (cf. Ahrne and Brunsson, 2011, 6; Börzel, 1998, 254; Podolny and Page, 1998, 58).

As Levi-Faur recognizes, it is far from straightforward to determine whether an institution

is an agency, a network, or something else. Nevertheless, his definitions suggest that NAOs may fit his (2011) definition of agency. An NAO, according to our definition, has a distinct identity, an internal hierarchy, functional capacities, and principals. In this study, we have distinguished between a European-level agency and an NAO on the basis of the unit's relationship with its principals. When the organization has a governance board that incorporates all network members—in other words, all national regulatory agencies or units that are members of the network—and makes decisions collectively, via consensus or voting, we consider it to be an NAO.

Conversely, when the organization's principals on the governance board are delegates from a European-level institution, such as the European Commission, the European Parliament, and/or the Council of the EU, we then consider that organization to be a European-level agency. Similarly, if the EU agency is accountable solely to the Commission, the Council, or the Parliament—as opposed to the network members collectively—then we do not consider it an NAO.

The official EU list includes 32 decentralized agencies. Again, we ignored those that did not fit our definition of a network and/or did not incorporate regulatory members. Thus, from Levi-Faur's (2011) 28 regulatory agencies and 51 networks, and the EU's 32 agencies, our dataset came down to 37 networks. More information on how we constructed the sample, including a table with key information about all of the networks studied, can be found in the Appendix.

Our sampling criteria were as follows:

- Following our characterization of NAOs, the units considered in this study include national network members that are, collectively, the top decision-makers.

- Networks had to be regulatory in the sense of bringing together national regulatory authorities. The network itself may not have regulatory functions; it may simply share information among members, but these members must themselves be regulators. Thus, networks whose members are executive agencies, such as national vocational training centers, were not included. Importantly, some of the NAOs studied also carried out executive tasks, in addition to their minimal regulatory task requirements. However, we were unable to ascertain what percentage of the staff was dedicated to brokering the network as opposed to carrying out executive tasks. We will take up this issue again in the discussion section.

- Our sample included only active networks; it excluded agencies or networks that had finalized their mandate or no longer existed for various reasons.

We ignored terminology when selecting our sample. The diversity of terms and definitions in circulation prevented us from using names or terms as selection criteria. We named the entities studied agency, network, body, office, center, authority, foundation, institute, college, council, unit, group, conference, committee, and platform. Provan, Fish, and Sydow (2007, 480) acknowledge that goal-directed networks may be called partnerships, strategic alliances, inter-organizational relationships, coalitions, cooperative arrangements, or collaborative agreements. As the Appendix shows, some of these NAOs depart from the ideal type proposed by Provan and Kenis (2008)—employing 100 staff members and having complex oversight structures. However, these authors do not specify the characteristics of the ideal type. The variations among NAOs are precisely what we explore in this study, adding a layer of nuance to Provan and Kenis's (2008) shared/lead-member/NAO triad. We acknowledge that the most complex NAOs approach

the fuzzy boundary of the hierarchical ideal type.

It is worth noting that the 37 European regulatory networks included in our analysis bring together different types of actors. This reinforces our assumption that the 37 cases are independent and identically distributed and enables us to use a pooled variance model, as described below. More specifically, 13 regulatory networks have independent national regulatory agencies as their members, 24 networks incorporate both independent national regulatory agencies and national ministries in different proportions; only one regulatory network is composed exclusively of national ministries. Moreover, depending on the sector and policy area in question, we find that independent national agencies and national ministries are significantly different when it comes to capacities, resources, and size. As an illustration, even though the European Regulators Group for Postal Services and the European Banking Authority include only independent regulatory agencies, their members come from different policy areas and their resources and capacities are highly divergent. Importantly, membership overlap among the 37 European regulatory networks only occurs with the seven mandated regulatory networks that also have parallel voluntary networks (see Table A1 in the Appendix).

6.3.2 Data collection and coding

Our research began with data collection, which involved identifying and codifying the data (Boyatzis, 1998) and carrying out a statistical analysis of the resulting database. Each network's statutes and legal documents became sources for the database we were constructing. We supplemented these sources with publicly available information from organization websites, and directly contacted the organizations if their information was unclear or unavailable. Thematic analysis, a method of identifying, analyzing and reporting patterns or themes within qualitative sources of data (Boyatzis, 1998; Braun and

Clarke, 2006), was well-suited to our research goals. Previous studies have indicated the robustness and suitability of this method of analyzing the broad and complex topic of governance (Dooley, 2007; Cicon et al., 2012). Data collection was completed during the second semester of 2012; the information included in our database refers to 2011.

Building on previous research and the literature of corporate governance, we codified a total of 16 NAO structural characteristics (i.e., outcomes).[iii] Most variables were codified as binary (i.e., zero signifying absence of the characteristic; 1 its presence). The dataset also contained information about the number of seats on the governance board, budgets, staff numbers, and categorical information about the policy sector each organization belonged to (see Table 6.1).

Table 6.1 *Structural Design Items Included in the Analysis*

Binary items
1. Observers on the governance board
2. The NAO has an executive board
3. Observers on the executive board
4. The NAO has an appeal board
5. The NAO has a chairperson
6. The NAO has an executive director
7. The executive board appoints the executive director
8. The executive board/executive director approves the budget
9. The executive board/executive director approves the WP
10. Governance board voting rule based on simple majority
11. Executive board voting rule based on simple majority
12. EU presence on the governance board
13. EU presence on the executive board
14. The EU has the right to vote on the governance board
15. The executive board is not a reduced version of the governance board
16. Expert committees

Source: authors' own

During the data collection period, we also coded independent variables that our

hypothesis suggested could be potential drivers of NAO complexity. Thus, we collected data relating to tasks (binary indicator); age (i.e., years passed since the first institutionalized collaboration—irrespective of any change in name); the network's mandated or voluntary nature (binary indicator); and policy sector (categorical indicator). Two researchers coded tasks based on the networks' statutes and founding regulations. Both researchers coded all of the networks and checked for inconsistencies in a second round, to strengthen the reliability of the codes. Table 6.2 provides a list of the indicators used as covariates or independent variables.

In relation to age, we counted the years passed since the first institutionalized collaboration. This is important for mandated networks, which do not evolve organically but are created and transformed legally. Mandated networks can be refounded and artificially reset to age zero by the mandating party. This is the case with telecoms: ERG (with a simple NAO) was created mandatorily in 2001 and later refounded as BEREC (with a much more complex NAO) in 2009. To be able to capture the temporal effects in these cases, we used the creation of the first mandated network as the founding date.

The most relevant operationalization of our independent variables was network density. We followed the proxy logic of Raab, Mannak, and Cambré (2015) in measuring network density indirectly. They use network plenary formal meetings as a proxy for network density: i.e., the more plenary meetings, the more relationally dense they assume the network to be. Similarly, we operationalized network density as a binary indicator—high vs. low—but only for the mandated networks. We coded as high density those mandated networks that existed alongside equivalent voluntary networks. Our rationale was that members of a mandated network are more densely interconnected if they voluntarily set up a network before EU institutions mandated the creation of an official regulatory

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network. Thus, we coded regimes in which the mandated network had an equivalent voluntary network incorporating the same national regulators as 1 (i.e., high density).

Lastly, for our control variable, we used three policy sectors: justice and security, economy and finance, and "other" (services, health, energy and transport, environment, employment, social affairs, and culture). This classification was derived from the data. We tried several different categorizations, but these three groupings consistently emerged.

Table 6.2 *Covariates Included in the Analysis*

LABEL
Task: propose sanctions on national regulators
Task: authorizations
Task: set rules and regulations
Task: executive capacities (research, training, joint operations or campaigns)
Age
Mandated without a voluntary network in domain [low network density]
Mandated with a voluntary network in domain [high network density]
Sector: justice and law
Sector: economy and finance
Sector: others

6.3.3 Data analysis

We perform an encompassing analysis in a single model with two parts: measurement and explanation. Measurement is based on item response modeling technique. We use our binary outcomes (whether a certain institutional characteristic of the NAO's structure is present or absent) to estimate a score of "structural complexity" based on the number of characteristics each organization has. But instead of adding up all the characteristics

and counting the raw number, we employ a more refined measure using item response theory. Developed in psychology, item response models allow us to generate a score of "structural complexity" that gives different weights (or discrimination) to each of the characteristics. So instead of assuming that the significance of each characteristic is equal to its score, we let the model estimate the discrimination, based on the number of NAOs that have such a characteristic (difficulty) and their relative position in the final score (discrimination).

Formally, we are interested in ξ_n, which represents the structural complexity score of each NAO (n) in a standardized scale that has, by definition, mean 0 and standard deviation 1. The two-parameter (α for discrimination and β for difficulty) logistic model for data on n NAOs that have a different set of X characteristics (1 having the characteristic *j* and 0 not having it) can be expressed as follows:

Equation 1

$$logit\ (X_j)=\alpha_j(\xi_n\text{-}\beta_j)$$

Once the scores are obtained we explore their associations in the second part of the process using a mixed linear model against a set of covariates based on our variables (task, age, mandated, density, and sector, see Table 6.2). Our main goal is to explain the structural complexity score based on the NAO's set of common covariates. The second part of the formal model describes the association between the structural complexity score and the covariates X by means of the θ parameters, which are our ultimate parameters of interest.

We use Bayesian inference following Gill and Witko (2013) for several reasons. First, the ratio of available data to hypotheses is low (37 organizations and seven variables plus a sector identification), and Bayesian inference is especially suited to such an endeavor. Second, we incorporate the uncertainty of the scores obtained in the measurement part to the associations with the covariates through a transparent process. This strengthens our confidence in the results, as we do not rely on the organizations having a simple value for their structural complexity; instead, we assume that our uncertainty about their positions is passed on to the inferences about the parameters of interest. Third, we do not have to rely on the null hypothesis test to report our confidence in the hypothesis. Our data are drawn not from a sample but from the entire universe of European regulatory networks, making assumptions of repeated sampling unnecessary and not having to rely on the "flawed" and "arbitrary" null hypotheses significance test (Gill and Witko, 2013, 4 & 8). Finally, Bayesian inference allows us to "systematically include [...] previous information, both qualitative and quantitative" (Gill and Witko, 2013, 4) as formal priors, which we do in one of the three models used. No evidence of non-convergence is found in the chains, according to formal and visual Markov Chain Monte Carlo (MCMC) convergence tools: this implies that inferences from the parameters can be extracted safely.

Equation 2

$$\xi_n \sim N(\mu_n, \sigma)$$
$$\mu_n = C\theta + \gamma_S$$
$$\sigma \sim (0, 1)$$
$$\theta \sim (0, 10)$$
$$\gamma_S \sim N(\mu_\gamma, \sigma_\gamma)$$
$$\mu_\gamma \sim (0,1)$$
$$\sigma_\gamma \sim (0,1)$$

Each NAOs score on complexity (ξ_n) is explained by a linear combination of the covariates (*C*) and their effects (θ), which are the relevant parameters of interest. The equation for the explanatory model can be read as follows: the matrix of outcomes for each of the NAOs (N) is distributed normally with a systematic component μ and standard deviation σ. μ is a linear combination of the covariates (Cθ) plus a varying intercept (also known as random effect) for the three sectors. The last five lines in Equation 2 are the non-informative priors necessary for the Bayesian set-up. In the case of the model with informative priors, we use priors for age and network density, as they are the only variables that have been empirically tested previously. We use rather strong informative priors in both cases, where age is a priori expected to have a positive association with complexity (Hite and Hersterly, 2001) and network density a negative one (Raab, Mannak, and Cambré, 2015). The priors are normally distributed with mean 1 and −1, respectively, and standard deviation 0.5, giving only around five percent probability of having an association the reverse of that found by previous research. Continuous variable age is standardized to half standard deviation to be able to compare its effect directly with the binary variables.

6.4 Findings

6.4.1 Item response modeling

Using the 16 structural characteristics included in our analysis (see Table 6.1) we developed a structural complexity score for each NAO. Structural complexity refers to the number of governance units an NAO has, in addition to a governance board (executive board, appeal board, executive director, and expert committees), who approves the budget and working program, appoints the executive director (regardless of whether the board departs from unanimous decision-making or simple majority voting), and whether the

mandating party—any EU institution, in essence the Parliament, the Commission, or the Council—is present and votes in the governance unit. The aim was to identify the relationship between the contingent elements we included in the analysis (i.e., age, tasks, mandated nature, network density, and sector) with each network's complexity score.

Figure 6.4 shows the median of the estimated discrimination value, along with the 95 percent credible interval. The median value of the parameters indicates how strongly the inclusion of that item increases (or decreases, if negative) the complexity of the NAO. High discrimination means that the indicator conveys more information about the complexity of an NAO. As the figure shows, the best single indicator for providing information about whether an NAO has high or low complexity is whether the NAO's executive board appoints the executive director.

The most highly discriminating parameters are the executive board appoints the executive director; the executive board is not a reduced version of the governance board; and the existence of observers at the executive board. These parameters convey a great deal of information, giving an NAO a high or low score in the latent trait of complexity.

At the opposite end of the non-discriminating parameters, we find that the EU has the right to vote on the governance board. This item does not convey any significant information that enables us to calculate whether the NAO will be complex or not.

By applying the discrimination scores to the items characterizing each NAO, the model produces scores for the estimated latent complexity of the NAOs. Figure 6.4 shows the median of estimated complexity along with the 95 percent credible interval. Recall that this score has an arbitrary scale restricted to having a mean of zero and a standard deviation of 1.

Figure 6.4 *Networks ranked according to their NAO complexity*
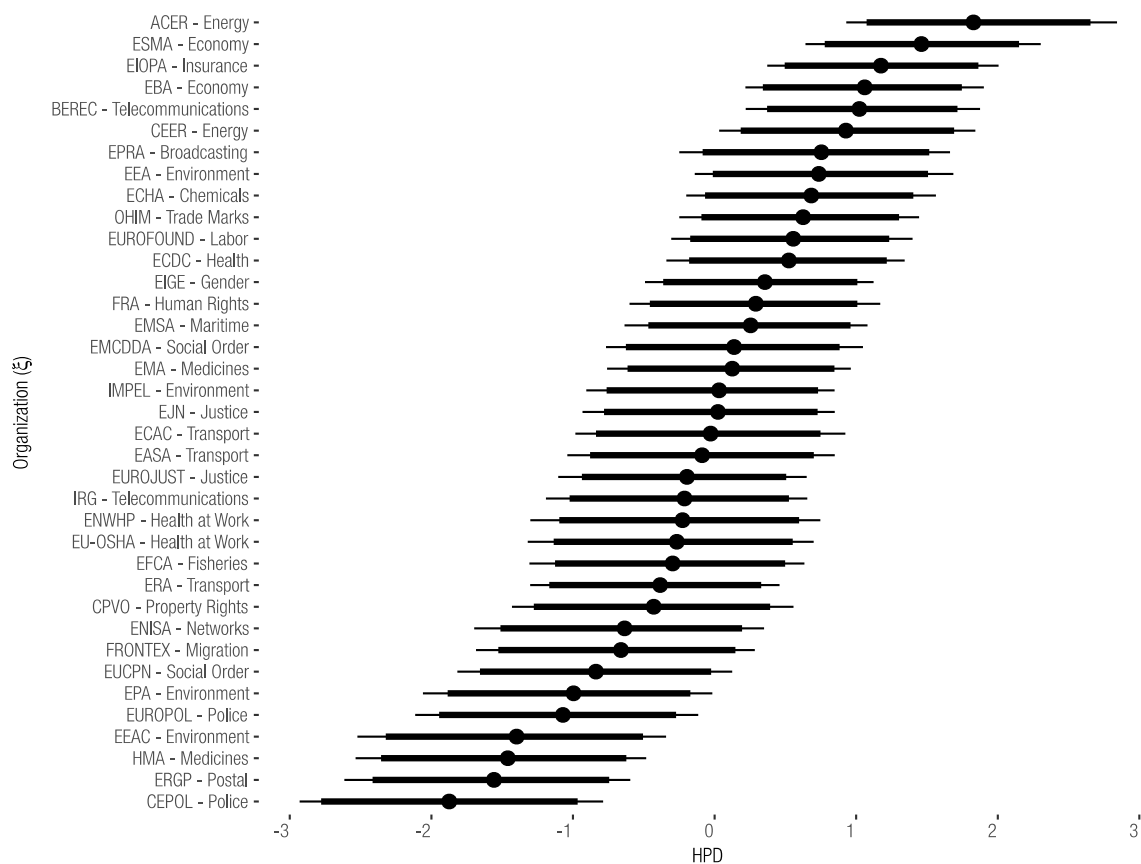
There are four NAOs with substantially higher complexity, namely the Agency for the Cooperation of Energy Regulators (ACER), the European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authority (EIOPA), and the European Banking Authority (EBA).

According to our analysis, the most complex NAO by a significant margin is ACER's governance structure. ACER has a two-tiered structure with a plenary (the Board of Regulators) and an executive board (the Administrative Board).

The Board of Regulators includes a senior representative from each of the European national regulatory agencies and one representative from the EU Commission, the mandating party. However, the Commission does not vote on the governance board. The executive board's central role in the governance structure of ACER is notable: the

executive board is in charge of supervising the administrative and budgetary activities of ACER, and of appointing its director. Interestingly, this second board is not a reduced version of the plenary but a significantly different structure, whose members are appointed by the EU institutions.

ACER's structure is completed with an appeal board. This third board, composed of six members selected from senior staff at national regulatory agencies (i.e., the network members), decides independently on appeals presented by national regulatory agencies, individuals, or legal entities.

Decision-making in ACER is not by consensus or unanimity. Both the Board of Regulators and the Administrative Board act on a two-thirds majority of members present. The Appeal Board decides by qualified majority.

At the other end of the scale, the European Police College (CEPOL) is the least complex NAO, significantly simpler than the rest. CEPOL is governed by one governance board that comprises the head of each national police college. The governance board gives strategic guidance and also decides on the budget and work program. Its decisions are made by a two-thirds majority. Figure 6.5 illustrates the structure of both CEPOL and ACER.

Figure 6.5 *Organigraphs*
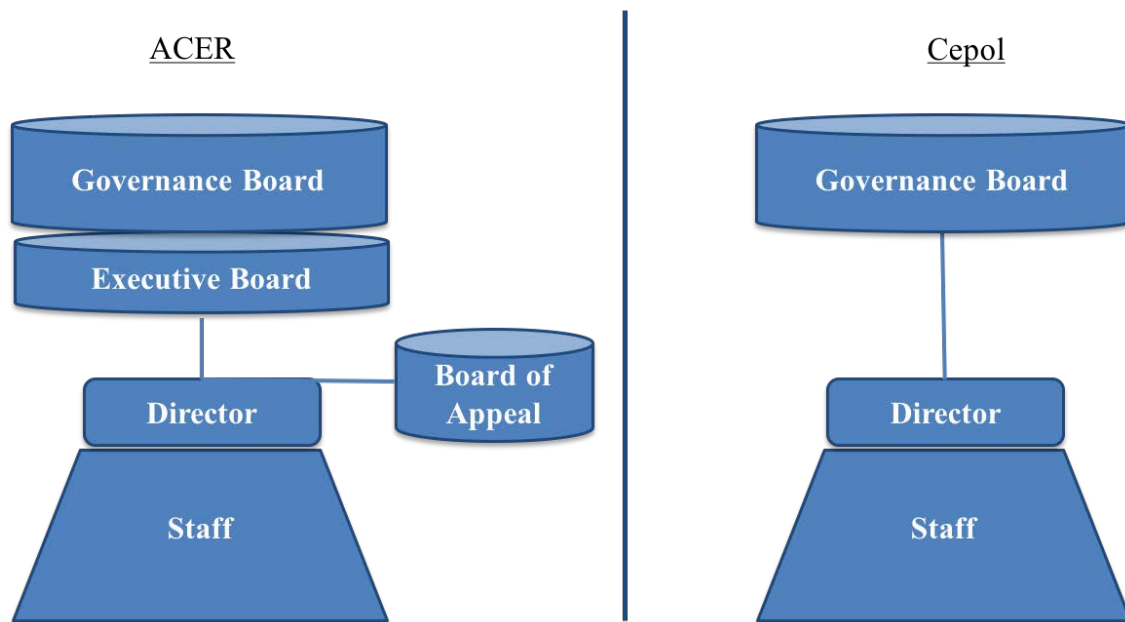
Source: authors' own

In classical or frequentist statistics, hypotheses are either accepted or rejected. In Bayesian statistics, researchers directly report their degree of support (see Gill and Witko, 2013, 8–9). Figure 6.7 shows the values for the θ parameters in equation 2. The full model includes all variables, whereas the restricted model includes only the variables that, in the full model, show values above or below one inter-quartile range (0.6745 standard deviations) away from zero on the absolute scale. The dots represent the median of the posterior density and the thick and thin lines correspond to the 90 and 95 percent credible intervals (or highest posterior densities). Given that all variables have been standardized, the values of the parameters are directly comparable. Table 5.3 reports similar information, namely the probability that every hypothesis is true, given the data and the model, in a one-tailed test (vs. the two-tail intervals shown in Figure 6.6).

In all model specifications, the strongest effect corresponds to the network task of rule-setting. It is strongly related to NAO complexity, albeit negatively—contrary to our

expectations. We find moderate support for the other two network tasks: authorizations (i.e., rule-enforcing) and (network member) sanctioning are both associated with higher complexity. Age and network density are both weakly associated with network complexity (93 and 86 percent, respectively). However, they are negatively correlated, contrary to our hypothesis.

With regard to the varying coefficients that account for sector differences in complexity, the results (see Figure 6.7 and Table 5.3) show that the lowest level of complexity corresponds to NAOs in the economy and finance sector, followed by the justice and law enforcement sector. The remaining NAOs have higher complexity. NAOs in the economy and finance sector are less complex than NAOs in other sectors by 0.6±0.57, which indicates that, although there may be a systematic difference, we do not have enough variation in the data (too few organizations in the sector) to make a strong claim.

Figure 6.6*. Results per Parameter (Contingency) on NAO Complexity*
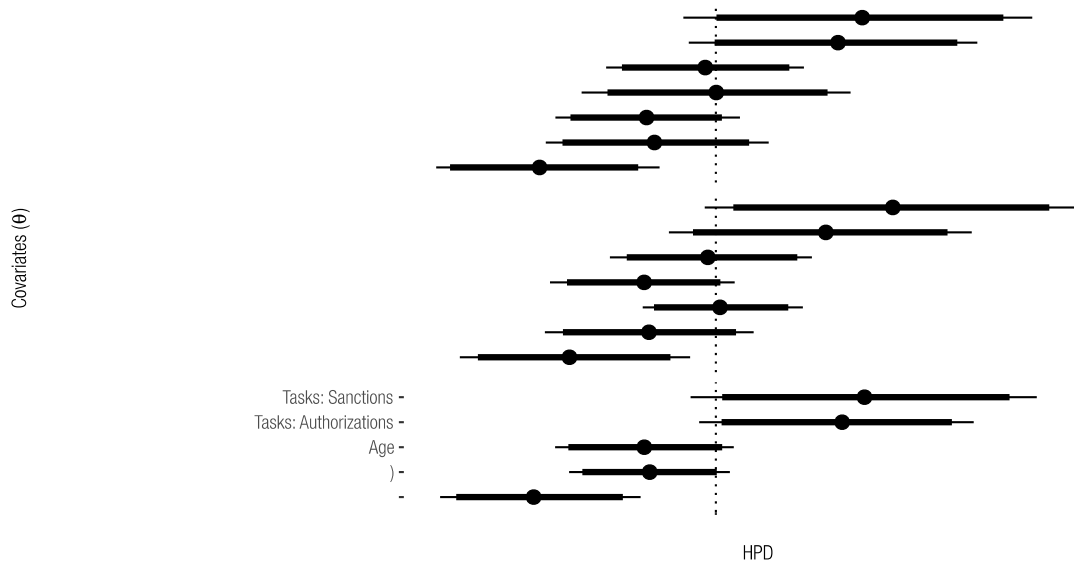
Source: authors' own

Figure 6.7. *Varying Intercepts (γ)*
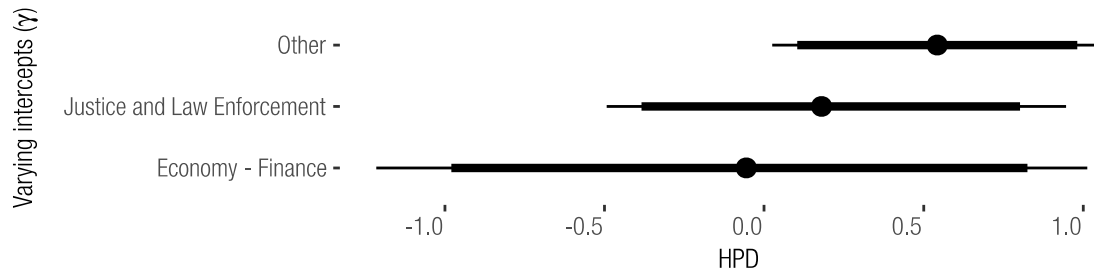
Table 6.3 *Summary of Results (probabilities of hypotheses being true, according to the posterior distributions of the parameters θ and γ)*

Hypotheses				Support
	Full	Full priors	Restricted	
1a: networks that perform executive tasks will have more structurally complex NAOs than those that do not	0.41	0.44		No
1b: Networks that set rules will have more structurally complex NAOs than those that do not.	**0.0023**	**0.01**	**0.001**	Opposite effect. Strong
1c: Networks that enforce rules will have more structurally complex NAOs than those that do not.[ix]	0.95	0.92	0.96	Yes. Moderate
1d: Networks that can sanction members will have more structurally complex NAOs than those that cannot.	0.95	0.97	0.96	Yes. Moderate
2: The older the network, the more complex the NAO.	0.067	0.54	0.062	Opposite effect Weak.
3: The NAO structure is likely to be less complex when collaboration is mandated than when it is not.	0.51	0.062		No
4: The less dense a network, the more complex the NAO.[x]	0.14	0.095	0.053	Opposite effect. Weak

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Control: sector	..	.		
Economy and finance is less complex than others	.. 0.87	. 0.89	0.88	Yes. Weak
Justice and law is less complex than others	0.65	0.75	0.64	No

Source: authors' own

This basic model has an explanatory power of 25 percent (residual standard deviation [RSD] of 0.754). The restricted model has an explanatory power of 28 percent (RSD of 0.72). Figure 6.8 shows which covariates are related to NAO structural complexity.

Figure 6.8. *Graphical Representation of Hypothesis' Support*
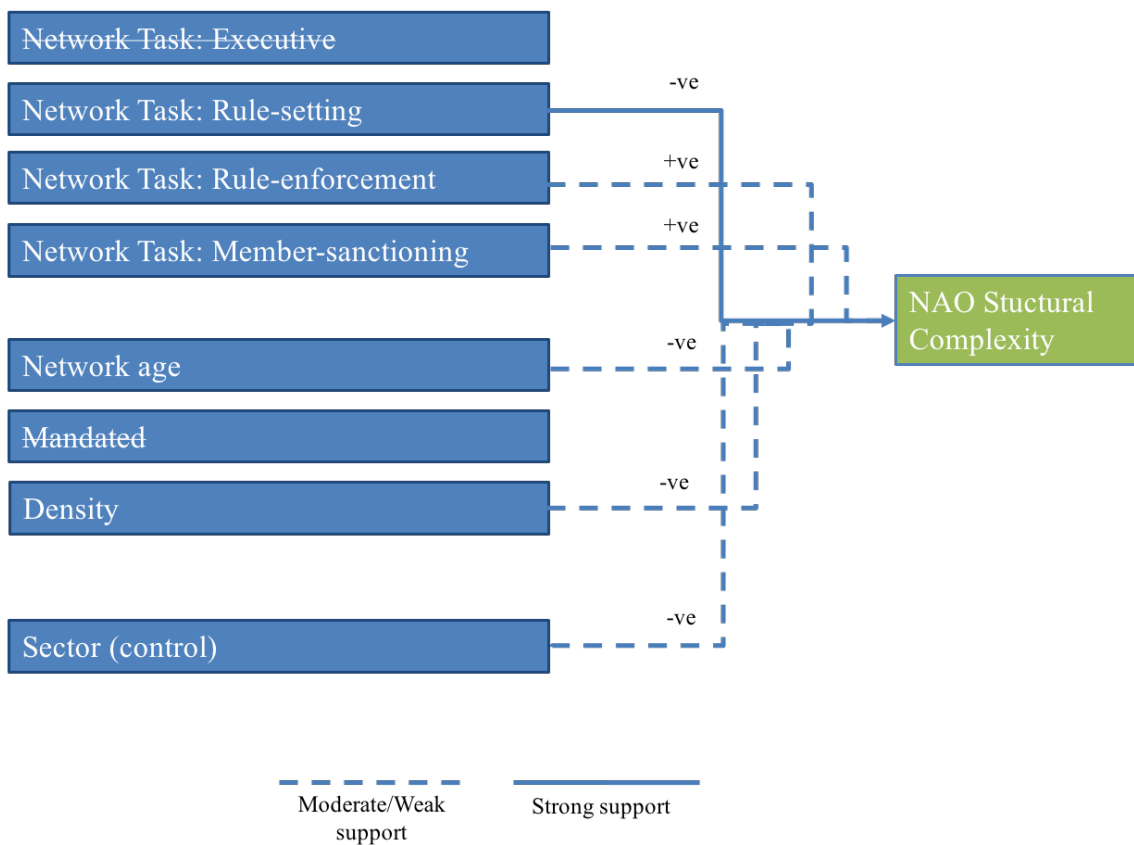
Source: authors' own

6.5 Discussion

Network tasks and NAOs

Among our first four hypotheses (H1a–d) related to tasks, rule-setting has a significant (albeit negative) effect on NAO structural complexity. Rule-enforcing and member-sanctioning both have a strong positive effect, while, in the case of non-regulatory executive tasks carried out by the network, we find no relationship to less complex NAOs. One explanation for this is that different logics are at play. Our definition of NAO complexity implies that more integration and fewer control points are available to individual members. Our findings suggest that network members prioritize control over tasks with uncertain outputs, such as rule-setting: members want to control and avoid negative rules. Following Agency Theory, a network member tends to value its own control points in situations of uncertainty or contract incompleteness (Hooghe and Marks, 2014; Lake and McCubbins, 2006), both of which could affect it adversely. When the uncertainty or incompleteness involves the behavior of fellow members or the broker (i.e., the agent, in this case the NAO executive), members typically guard their capacity to block decisions (Hooghe and Marks, 2012). They will try to maintain a "veto" power by advocating consensual decision-making in networks where new rules can be designed, more so than in networks that merely implement regulations.

Recall that the boards of public organizations are collective decision-making arenas where different viewpoints, political preferences, and values interact (Hinna and Scarozza, 2015). This is even more the case for NAO boards, due to the diversity of members represented. For this reason, members in public networks tasked with rule-setting—where collective decision-making impacts the adoption of each new rule—will want to retain maximum control. Information-sharing and executive and enforcement tasks involve far fewer options and a narrower span; for this reason, they represent a much

lower threat or risk to members.

In the case of regulatory enforcement (i.e., measured via authorizations) and member-sanctioning, uncertainty is low and the rules are understood. Moreover, once the rules that regulate entities and members have been set, authorizations (rule-enforcement) and member-sanctioning become routinized activities that require operational capacity. This is particularly true for regulatory enforcement—perhaps the most operationally intensive of the three regulatory tasks (rule-setting, enforcement, and member-sanctioning). The four most complex NAOs are all tasked with delivering authorizations for regulated entities and sanctioning members.

All in all, coordination and organizational prerogatives drive NAO complexity whenever there is relatively low uncertainty about outcomes. Conversely, the cautious attitude of members will prevail in settings with uncertainty (rule-setting).

We find no effect for non-regulatory executive tasks. This is because our sample was made up of regulatory rather than executive networks, where non-regulatory executive tasks are secondary in importance.

Age

We find weak evidence that age has a weak negative effect on the structural complexity of a network. The top five most complex NAOs all belong to networks whose history of collaboration is average to short, starting between 1997 and 2004; the first network studied was set up in 1955 (the European Aviation Safety Agency). In relation to traditional organization structure, classic contingency posits that organizations grow more complex over time. This aligns with Provan and Kenis's (2008) proposal that the development of goal-directed network governance of evolves as a life cycle. Even in an

extreme case, where our prior information gives only a five percent probability of age being negative, no association seems to exist. The regulatory nature and context (i.e., EU) of the networks included in our analysis may well offer an explanation for this finding. European-level regulatory networks are an evolving phenomenon, in which the organizational and policy domains interact, resulting in an ongoing redefinition of the European Regulatory Space (Levi-Faur, 2015); more integration seems to occur in areas where coordination efforts are more recent.

Isomorphism (Frumkin and Galaskiewicz, 2004) also seems to be at play, since the five networks redesigned on or after 2009 all have important similarities and highly complex NAOs. Qualitative and anecdotal evidence from the Commission indicates that the energy-sector ACER design was proposed first; from there, the model was used as a starting-point for mandated regulatory networks in the fields of securities, insurance, banking, and telecoms (ESMA, EIOMA, EBA, and BEREC, respectively).

Network density

Low relational network density mildly and negatively relates to NAO complexity. This result is not in line with a major premise of network theory, whereby relational informal density and formal centralized coordination are substitutes (Kenis, Provan, and Kruyen, 2009; Raab, Mannak, and Cambré, 2015). One possible interpretation is that, to integrate and pull strongly to an NAO, members require a minimum amount of prior trust, given that our conceptualization of complexity requires simple majority voting. Thus, mandated networks without sufficient network density will not have complex and integrated NAOs.

A second explanation may be methodological. Arguably, our measure of network density cannot be proved, since it reduces our sample significantly: we compared mandated networks from regimes with an equivalent voluntary network (involving the same

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network members) to mandated networks from regimes without voluntary networks. This reduced our sample to 26 mandated networks, out of which only seven mandated networks coexist in a regime with an equivalent voluntary network.

Policy sector

We found weak evidence that networks operating in the economy and finance sector will tend to have less complex NAOs compared to other sectors. It would seem reasonable for members of relevant and important sectors like economy and finance to try to retain control—thus avoiding pooling decision-making—if it were not for the fact that the justice and law sector has no association with more integrated networks. Justice and law networks deal with an even more sensitive issue in terms of sovereignty than economy and finance. This is probably one of the areas in which the least European integration has occurred.

Networks operating in the economy and finance sector tend to have less complex NAOs compared to other sectors, despite the second, third, and fourth most complex NAOs belonging to the economy and finance sector (ESMA, EIOPA, and EBA) ranking, respectively, 2, 3, 4 and 11 in terms of complexity. These four are all tasked with rule-setting, which, according to the model, is the variable most strongly and positively related to complexity. One way to explain this apparently contradictory result is that, all things being equal, a network that brings together economy and finance regulators will have lower complexity, as complexity is driven by dimensions other than sector.

Mandated

Although the top five most structurally complex NAOs belong to mandated networks, whether or not a network is mandated does not affect NAO complexity. In fact, the least

complex NAOs, CEPOL and EUROPOL, are also mandated. This contradicts previous qualitative research (Saz-Carranza et al., 2015), which proposes that mandated networks will have more complex NAOs, since members will negotiate and try to include safeguards (for example, an appeal board) for themselves, given that the members of mandated networks do not have an "exit" clause.

6.6 Conclusions

This chapter is a medium-N analysis of NAOs. The aim of our study is to go beyond Provan and Kenis's (2008) shared/lead-member/NAO triad by identifying and better understanding the different NAO structures.

In essence, we find that network-level tasks strongly affect NAO design. Networks with rule-setting capacities have less complex NAOs, while networks with member-sanctioning and rule-enforcing tasks are mildly related to more complex NAOs. We also find that younger and less socially dense networks are mildly related to less complex NAOs. Our measures for NAO sector and being mandated do not seem to have any meaningful relationship with NAO complexity. Theoretically, what seems at play with NAO complexity is operational capacity and the management of uncertainty.

The need to reduce uncertainty seems to push regulatory networks toward less complex NAOs, where members retain control and veto points. An uncertainty reduction strategy for rulemaking seems to operate here; to avoid negative outcomes, network members retain individual control, veto points, and do not delegate decision-making to a board. This might explain our finding that networks tasked with rule-setting have less complex NAOs.

Alternatively, the most cumbersome regulatory task is supervising regulated entities.

When networks take on such tasks, they need to delegate to a large and complex NAO. Networks capable of member-sanctioning will require the necessary safeguards, such as a board of appeal (see Figures 2 and 6).

6.7 Limitations and future research

EU regulatory networks have specific characteristics that affect the generalizability of this study. International regulatory networks are more politically sensitive than service provision (Isett and Provan, 2005) or economic development (Agranoff, 2007) networks, the traditional subjects of research on public management networks. Further testing is still needed to confirm Provan and Kenis's (2008) and Agranoff's (2007) propositions that structure increases in complexity as more interdependent tasks are assumed by the network.

We have not been able to disentangle causality relationships in this chapter—our methods do not allow it. This would be another avenue of future research. Do tasks drive structure or does NAO complexity drive network task adoption?

While items were identified based on the definition of complexity drawn from our literature review, the IRT-derived index is specific to this study. Further studies using alternative measures of complexity, or replicating ours, should add nuance to our knowledge of NAO complexity.

Overall, 37 networks are far from being an optimum sample size. Studies using larger samples of networks are needed.

Likewise, our density indicator is not an ideal measure. Moreover, the indicator we used reduced our sample significantly. Further research could focus specifically on the density/structure relationship in NAOs.

Finally, Provan and Kenis (2008) draw on classical transaction cost economics (Williamson, 1975), particularly when predicting that networks with more members (i.e., with higher coordination costs) are best governed by an NAO. Unfortunately, we were not able to analyze the effects of membership or diversity, as these were fairly consistent in our sample (one member per EU member state or associate state). Future studies might redress this.

As the world becomes more fragmented and interrelated, the relevance of goal-directed networks will continue to increase. This form of governance will be used to coordinate public action. It is thus fundamental to understand how these networks can best be governed. This research is an initial building block in understanding this crucial topic better.

Chapter 7:

Conclusions

The design of Network Administrative Organizations: the role of strategic interdependence and outcome uncertainty avoidance

The overarching research objective of this thesis was to reveal the factors associated with different configurational designs of Network Administrative Organizations. The literature on the governance of goal-directed networks is heir to Provan and Kenis's (2008) seminal contribution. As we have already highlighted, their model not only stands as the paradigmatic theoretical framework for understanding and empirically analyzing network governance, but also represents the stepping stone for our work in this Ph.D. thesis. Surprisingly, given the remarkable presence of goal-directed networks as relevant players in the delivery of public goods and policies, little empirical research has been done to further develop Kenis and Provan's (2008) model. Our work contributes to the literature by providing an empirical answer to the following research questions:

Does design of Network Administrative Organizations associate to certain factors that can be empirically examined, or is it just the result of idiosyncratic variables that only allow understanding the phenomenon on a case-by-case basis?

In either case, which factors play a role when deciding on NAOs?

Does the interplay of power and/or uncertainty help to explain the appearance of NAOs?

The findings included in Chapters 4, 5, and 6 of this Ph.D. thesis contribute to the literature by advancing our knowledge of the governance of goal-directed networks and more specifically of NAO-governed public goal-directed networks and their design. We are contributing to the literature on public-goal directed-networks by empirically identifying two specific factors associated with the design of Network Administrative Organizations. On the one hand, we propose that strategic interdependence is associated with NAO design-linked decisions. "Strategic interdependences" refer to the expected impact of a goal-directed network's role within the external organizational environment (i.e., individual organizational domain) of each individual member (Pfeffer and Salancik, 1978; Lawrence and Lorsch, 1967), as well as in the new interdependent organizational

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environment (i.e., encompassing each of the new individual organizational domains and the joint goal-directed network's organizational domain). On the other hand, we empirically identify that outcome uncertainty linked to the tasks and operational capacity of the network is a crucial factor associated with NAO design-linked decisions. In both cases, NAO design mirrors the decision-blocking capacity that network members are willing to retain and execute.

A better understanding of the rationale underlying the structure and mechanisms enacted to govern goal-directed networks through a Network Administrative Organization not only helps to advance the theory, but also has managerial implications and political relevance, in this case, as we deal with the specific subset of European regulatory networks. In this section, we provide an integrated discussion of our findings and their implications.

7.2 Implications for theoretical knowledge

Nowadays, inter-organizational relations permeate public management (Klijn, 2005). This realization reflects the interdependent environment in which public agencies and, more concretely, goal-directed networks provide the public goods essential to their organizational goals. Resource Dependence Theory (Pfeffer and Salancik, 1978) points out that, whenever possible, organizations manage dependencies by trying to harness and control the dependent situation, in which an agent has the discretion to act in a way that affects the interests of other agents. The public management literature has built extensively on the concept of interdependence. However, in line with Malatesta and Smith (2014), we hope that a more fine-grained approach to the construct will help researchers in the public management arena to better understand the antecedents, nature, and consequences of interdependence, and to apply it as a variable in their own empirical

investigations (Malatesta and Smith, 2014). Our first theoretical contribution helps to bridge this gap. In Chapter 4, we develop a framework on interdependence in public management contexts. In line with Pfeffer and Salancik (1978), the framework signals the existence of an interdependence loop (i.e., an iterative process) that affects present and future relationships among actors, modifying their power relationships. As we argue, "how, when, and what type of interdependences are dealt with can change the landscape around a service delivery, policy design, or action, thus generating a new baseline where different or new interdependent relations appear." Based on the five different categories in which we have grouped the literature reviewed (i.e., Interdependence as a general description; Network; Driver of Collaboration; Resource Dependence Theory; Managerial Implications), the framework illuminates different stages and moments of interdependence that are connected and have differentiated structural and contextual consequences. More concretely, we argue that consequences embrace the organizational structure of the collaboration—the governance decision-making criteria, individual and organizational goals, trust distribution, accountability mechanisms, and overall collaboration strategy. In this vein, the framework may serve as a first step toward acknowledging how the organizational environment is modulated by both exogenous variables (i.e., the policy stage) and endogenous variables (i.e., managerial activities and administrative reorganizations). The findings reported in Chapters 5 and 6, regarding the role of interdependence and uncertainty on the design of network administrative organizations, partially build on this rationale.

In response to our research objectives, the main theoretical contribution of this Ph.D. thesis is to show how NAO design is driven by network partners' attempts to manage their external organizational environment to avoid outcome uncertainty (i.e., generated by the public-goal directed network). According to our findings, they do so by defining

and consciously designing the structural characteristics of the Network Administrative Organization. The requirement for a negotiated environment (Cyert and March, 1938) is not new in the literature; in fact, our findings link to the broader literature on Resource Dependence Theory (Pfeffer and Salancik, 1978) signaling that coordination among organizations is a natural response to individual organizations' need to create a more stable and controllable context.

In line with these arguments, Chapter 5 empirically contributes to the literature on goal-directed networks by investigating and showing how the agencies confronted with a newly created mandated goal-directed network react by attempting to define the new network's steering mechanisms' (i.e., Network Administrative Organizations). Analyzing longitudinal cases sheds light on the degree and type of interdependences that influence the design of the NAO through the power bargaining dynamic. Concretely, we identify three main interdependence sources: a) the members' dependence vis-à-vis their proximate environment (in this case their relationship to national ministries or other relevant stakeholders in the policy arena); b) the interdependence among network members (based on shared public goals or planned regulation); and c) the interdependence between the new public goal-directed network and its external environment (i.e., the role assumed by the network in the wider policy context and expectations regarding this role). The findings suggest that, due to these interdependences, network members envision Network Administrative Organizations differently. Network members anticipate their situation once the goal-directed network is fully operative and modulate delegation to the network administrative organization in terms of operative capacity (NAO size), control (the decision-power balance between members vis-à-vis the mandated party or a potential powerful convener), and the network-level responsibilities assumed (strong versus weak capacity). Larger Network

Administrative Organizations, which carry out more tasks and are less controlled by network members, are associated with financial and physical interdependence and external dependences, both at the members' and the whole-network level. In the cases analyzed, power dependencies related to structural problems and regulatory gaps act as a centripetal force in favor of integration. In fact, the creation of a public-goal directed network generates a new organizational environment in which a new player, the network, assumes a network-level goal, partly subsuming the interests of individual members and generating a new dependence scenario. As our research shows, network members, even when they are in a position of weakness (e.g., mandated public goal-directed networks) don't stop trying to control the source of their different dependences. These attempts and their consequences mirror the design of NAOs, as Chapters 5 and 6 show. In the specific case of mandated networks, the competing pressures and conflicting demands of their multiple principals (Miller, 2005) shape the final relationship with the agent (i.e., the NAO). Network members mobilize their power sources by using their structural, relational, and discursive resources. As Chapters 3 and 6 illustrate, existing voluntary networks are not dismantled when a mandated network is created. Rather, network members maintain them as a source of influence. Strategic interdependence is actively managed both at the mandated-network level and at the voluntary-network level. On the one hand, NAO design is contested and negotiated via the voluntary network. On the other hand, voluntary networks offer individual organizations a looser space in which to coordinate political influence over other stakeholders, including the mandating party and the NAO itself.

In Chapter 6, we empirically address the challenge of establishing the factors associated with different typologies of NAOs. It is important to highlight that, although previous qualitative studies on Network Administrative Organizations (Saz-Carranza, 201) have

observed different typologies of NAO, these configurations and the factors that determine them have so far been overlooked by the scholarly community. This Ph.D. thesis contributes to bridging this gap.

Network Administrative Organizations act as external brokers to public-goal directed networks, introducing a new source of power dependence within a given policy realm. As Moyhihan (2008) mentions and we argue, the boundaries between a hierarchy and a network blur, when it comes to NAOs. Public goal-directed networks as popularly seen as flexible, unstructured, and low-bureaucratic mechanisms that provide public goods; according to our findings, this is not the reality of NAO-governed networks.

The contributions in Chapter 6 develop a more fine-grained insight into the rationale underlying the design of Network Administrative Organizations, based on the network members' attempts to control interdependences and avoid outcome uncertainty by using the network's governance mechanisms. From our empirical analysis of the subset of European Regulatory Networks, we are able to show how the level of complexity of Network Administrative Organizations differs. Complexity is linked to the number of structural characteristics a given NAO, in the form of decision-making bodies and collective decision-making instruments and mechanisms.

Our findings regarding the design of NAOs tie in with contingency theory (Burns and Stalker, 1961) one of the most influential approaches for determining how organizations are designed. Contingency theory builds on the idea of fit to suggest that structure must fit contingencies as organizations achieve efficiency (Donaldson, 2001). The literature reports multiple contingencies (Drazin and Van de Ven, 1985; Gresov, 1990) while goal-directed management scholars have identified contingent elements linked to the selection of different modes of network governance (Provan and Kenis, 2008). Our findings

suggest that uncertainty avoidance tied to network expected outcomes is a key contingent element in the design of Network Administrative Organizations.

Pfeffer and Salancik (1978) define uncertainty as an organization's capacity to anticipate and accurately predict the future state of the world. According to our findings, as shown in Chapter 6, the design of NAOs belonging to regulatory public goal-directed networks is strongly associated with the expected impact of network tasks on individual members. Together with the role of power bargaining and interdependence in the design of NAOs, this finding is one of the most important theoretical contributions of this Ph.D. thesis. We contend that the literature of public goal-directed networks, and, more specifically, the literature on network governance, would benefit from introducing members' uncertainty avoidance strategies as a key determinant.

Provan and Kenis (2008) include trust, a multidimensional construct somehow related to uncertainty and risk (Noteboom, Bergen, and Noordehaven, 1997; 2002) as a contingent element to explain the selection of various network governance modes. In our view, while trust density helps to partially overcome uncertainty associated with a partner's or agent's behavior, it remains a substantial non-predictable and non-controllable factor which stems, as our research highlights, from the functional content and tasks assumed by the public goal-directed network, and the outcome derived from these tasks. Our findings tie in with the literature on organizational theory, which acknowledges the uncertainty associated with tasks (Barnard, 1938; Burns and Stalker, 1966; Thompson, 1967; Galbraith, 1977). Task uncertainty has many causes, including task features: time to completion; ambiguity about the means and end; interdependence among work units needed to complete the task (Benson and Venkrataman, 1995; Holmström and Milgrom, 1991). Inter-organizational scholars also point out that alliances and other collaborative inter-organizational agreements create a tension between relational risk (the likelihood

and consequences of unsatisfactory collaboration) and performance risk (the expectation of changes in the market or possible damage to partners) (Das and Teng, 1999). Designing network governance structures therefore entails a trade-off between trust and control mechanisms to retain flexibility and boost the network's chances of success (Das and Teng, 1998). Our findings are aligned with those of inter-alliance governance scholars who argue that partners tend to negotiate complex contracts to govern strategically important collaborations (Rouen, 2004). In this situation, partners tend to anticipate contingencies and to design mechanisms to safeguard themselves from unforeseeable outcomes. As a consequence, they are willing to bear the burden of more complex structures and provisions. Governance costs, in accordance with the tenets of Transaction Cost Economics points, must be aligned with exchange-hazards.

The networks studied in this Ph.D. thesis assume different regulatory tasks, ranging from mere operational-executive tasks to a larger responsibility for rule setting, implying different degrees of outcome predictability. According to our findings, when the network assumes the power to set new rules, thus increasing the degree of uncertainty in the policy environment, NAOs tend to be less complex. In other words, uncertainty avoidance is associated in our study with NAOs that are more controlled by members, with fewer decision-making bodies (i.e., boards) and decision-making processes constrained by members through veto power. In public goal-directed networks, the collective-decision making role is salient; when confronted with outcome uncertainty (where the rules must be designed rather than just implemented) network members prefer to maintain their veto power by advocating consensual network decision-making. At the same time, tasks with a narrower span, such as information-sharing or executive tasks or enforcement, are seen as being a lower threat or risk. The underlying rationale links to the tasks' outcome uncertainty, which makes it difficult to define and/or measure desired outcomes

(Tomkins, 2001; Buvik and Andersen, 2002; Prendegarst, 2002). Thus, when exchange-hazards are perceived as high, NAO design becomes more complex. Overall, the complexity of Network Administrative Organizations reflects decisions made by partners to clarify the rights, obligations, and processes used to achieve network and individual goals.

The shadow of the future, as Fearon (1998) points out, afftects Network Administrative Organizations in two ways. While future benefits and expectations may facilitate and encourage long term cooperation, partners are also more willing to bargain in order to establish by design mechanisms to govern the network. The design of the NAO and its level of complexity link to decisions-makers' preference for a certain, predictable, and stable organizational environment (DiMaggio, 1988; DiMaggio and Powell, 1983; Pfeffer and Salancik, 1978; Zucker, 1977).

7.3. Managerial and policy implications

The findings in Chapters 4, 5 and 6 reveal managerial implications for practitioners. Overall, this Ph.D. thesis analyzes the processes (i.e., power bargaining) and factors (i.e., strategic interdependence and outcome uncertainty) associated with NAO design.

First, the findings provide a rationale for the existence of different NAO configurations and a process-based explanation of their development. Organizational structure is a popular topic that focuses the attention of managers and consultants involved in designing and redesigning organizations (Birkinshaw, Nobel, and Ridderstrale, 2002; Burton, DeSanctis, and Obel, 2006; Gulati and Puranam, 2009; Siggelkow, 2002; Siggelkow and Rivkin, 2005; Turner and Makhija, 2012; Wasserman, 2008). In this regard, this dissertation measures organizational structural complexity by analyzing different

governing bodies, their relations, and the collective decision-making procedures found. This measure offers detailed information on the structure of public goal-directed networks, which could be valuable for designing or choosing an NAO structure.

Second, the findings of this dissertation illustrate the competing interests that emerge from the design of public-goal directed network governance structures. Practitioners, managers, and consultants must understand the bargaining power dynamics affecting participation in the decision-making process and the overall definition of NAO governance mechanisms. As seen in this Ph.D. thesis, some issues are more contested than others, since members try to stabilize their organizational context through diverse ways of distributing tasks, maintaining control, and assigning executive functions among network members and the NAO. This is particularly true in the case of mandated networks. The mandate may create dissension; even when there's a powerful convener mandating the network, network members will mobilize their resources to contest aspects of the NAO structure, including its executive control, size, and network-level tasks. Thus, policy makers establishing a policy-mandated network should expect political activity during the NAO design phase before implementation. Mandated network members should focus their mobilizing efforts on the mandating party during the formal NAO design stage.

Third, practitioners and policy makers should give serious consideration to the role of uncertainty avoidance and strategic interdependences in the design of NAOs: these contingencies affect design and may play a critical role in determining the extent to which a network is able to achieve a collaborative advantage. The form of governance of goal-directed networks does seem to affect network effectiveness or performance, as Provan and Milward's (1995) seminal empirical work shows. The underlying assumption is that a certain organizational configuration (Mintzberg, 1983; Miller, 1987, 1990) will

establish a foundation for achieving network goals more efficiently in a given setting. After decades in which public networks have emerged as an effective way of tackling hard issues, scholars in the field now see the need to assess network effectiveness in order to enlist broad public support for this approach (Turrini et al., 2009). The final configuration of an NAO reflects its members' uncertainty avoidance tactics, thus providing useful information about who holds or retains power over specific issues. This is particularly important, not only for managers of public goal-directed networks, but also for the network's stakeholders and interest groups. All involved practitioners should assess the interdependencies of mandated network members and their dependency on external non-members to understand which members will be willing to give up full control over the NAO executive. In this regard, our findings may be of relevance for practitioners aiming to lobby European Regulatory Networks because they convey useful information about the multilevel institutional context that constitutes the European Regulatory Space. For politicians, practitioners, and citizens, it is of utmost importance to track who has the power and ability to design, establish, and enforce regulations in different domains.

Last but not least, practitioners, policy makers and managers should be aware of the blurred edge between vertical hierarchy and networks in NAO-governed networks, and specifically in European Regulatory Networks. These are situated by design in a continuum of hybrid organizations, in which control, decision-making power, integration, and operational capacity are the subject of ongoing debate. In the specific case of the European Regulatory Space, the so-called European experimentalist architecture reflects the different approaches to organizing regulation across the European Union and promoting coordination between national governments, EU institutions, and other relevant stakeholders.

7.4. Limitations and further research

The limitations of this Ph.D. thesis open up additional avenues for further research on the governance of public goal-directed networks and, more specifically, on the design of Network Administrative Organizations. Firstly, this dissertation focuses on a specific set of public goal-directed networks, regulatory networks, within a specific political and geographical context, the European Union. The extent to which our findings are generalizable and transferable to other typologies of public-goal directed networks (e.g., service delivery networks), and other regulatory spaces is a question that warrants further investigation. Secondly, this dissertation's methodologies have established an association among contingent factors and NAOs, for which the causality is still to be explored. Future research may disentangle the causation, revealing the antecedents to NAO design. Thirdly, this study focuses on the structural design features of Network Administrative Organizations; future research should include deeper analyses of specific governance mechanisms and provisions, such as public goal-directed networks's boards relations vis-à-vis the executive component of Network Administrative Organizations. Fourthly, while we have examined the governance mechanism of these networks, investigating their accountability measures and established mechanisms could advance our understanding of the way in which public-goal directed networks are governed. Last but not least, a promising line of future research could establish the relationship between different degrees of complexity in NAO design and the effectiveness and performance of the network.

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