PAPERS

Beyond the Network Border: The Emergence of Regional "Meta-Networks" and Their Effects on Dutch Public-Policy Projects

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ABSTRACT

Although network research typically examines whole networks, interorganizational networks are not isolated entities. This study focuses on overlapping regional networks that emerge as an unintentional result of an amalgamation of central governmental projects. We use archival, interview, and social network data and visualize the normally imperceptible meta-networks. Large and centralized meta-networks are found to stimulate goal attainment, while smaller, decentralized meta-networks have higher-quality relations. Both funders and network members who co-implement public projects should make good use of regional meta-networks. Therefore, future research on the determinants of successful decentralized projects should include the dynamics and effects of meta-networks.

KEYWORDS: project networks; network interlocks; network effectiveness; public-sector regionalization

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INTRODUCTION

Regional networks have become a popular means for the Dutch central government to translate national ambitions into regional policies and actions. These networks often consist of a select number of regional actors, which has led to the emergence of "regional meta-networks." Many network scholars study networks as if they are isolated entities. However, networks tend to overlap with one another and are, therefore, often parts of larger entities. This article explores the emergence and effects of these regional meta-networks on their component networks, around the key question: How can regional meta-networks affect the dynamics and effectiveness of their underlying component networks?

First, we define what regional meta-networks are and how they emerge. Then, several strands of literature are reviewed that led to the specific research questions about how meta-networks may affect their underlying component networks. The subsequent section details the mixed-methods approach taken. The empirical findings contribute to the theoretical notions of temporary organizations, project networks, and network systems—specifically, in the public sector in which notions of embedded networks are relatively new. By illustrating how meta-networks may affect the dynamics and effectiveness of their underlying component networks, this article also offers a new angle on the notion of network effectiveness. We conclude with a discussion of the findings, practical implications, and recommendations for future research.

How Do Regional Meta-Networks Emerge?

More and more public-policy issues in the Netherlands are being addressed by regional collaborative networks.[1] The Dutch central government purposively stimulates the emergence of regional collaborative networks in order to translate national-level ambitions into effective regional-level policies and practices. In recent years, many regional collaborative networks have been developed around various public-policy issues, including issues in the public-policy area of education and employment, such as school dropouts, youth unemployment, and lifelong learning. Although these specific governmental

[1]The term *regional* refers to an informal governance layer between local governments (of which there are 431 in the Netherlands) and provincial governments (of which there are 12).

projects are developed by different governmental departments, the regional networks they stimulate tend to involve a limited set of organizations—schools, local governments, social security providers, and firms—all of which are represented by a limited set of individuals. The network contexts are finite; hence, these individuals keep "bumping into one another." We label this kind of occurrence with the taken-for-granted overlap of networks a "regional meta-network." This can be defined further as an informal, long-term network consisting of actors who, in varying constellations, form advisory committees and working groups for various public-policy issues through temporary, issue-specific component networks.

The Relevance of Regional Meta-Networks

Meta-networks acknowledge the fact that distinct networks may, in reality, be intertwined. We assume that these networks can affect—reinforcing or impeding—one another's performance. The regional collaborative networks studied in this article are facilitated and stimulated by the central government. The overall regional objectives are determined in different centralized departments. These departments are traditionally predominantly interested in the results of their own, narrowly defined policy objectives. They tend to overlook the possibility that their policies and objectives are affecting other departments. Because regional meta-networks imply that a limited set of individuals participate in multiple governmentally induced regional networks, these individuals may play a crucial role in connecting the various policy objectives that are developed by the rather fragmented central government units—either because these actors can easily identify conflicting objectives or because they are able to combine and strengthen practices that are developed in formally distinct networks.

For example, a network whose purpose is to reduce the number of school dropouts may reinforce but also impede a network that aims to reduce youth unemployment. The networks reinforce each other in the long run because preventing school dropouts is likely to lead to fewer unemployed youths. In the short run, however, the networks' objectives may clash. Schools receive a significant financial reward when they reduce their number of dropouts, which implies that schools are less likely to enroll youths with a high risk of dropping out. However, the youth unemployment network has an objective to lead unemployed youths to work or back to school, and thus encourages schools to enroll high-risk pupils with complicated problems.

Theory

Extant Concepts Similar to Meta-Networks

Although the network theory usually regards the whole network as the highest abstraction level, the so-called meta-networks are also acknowledged by the literature. The notion that networks are part of larger entities is not new in the private-sector literature. Some industries operate largely or fully in project mode. Instead of having large enterprises, these industries consist of changing cooperative constellations of individuals or small firms. Well-known examples include cultural fields, such as the movie, television, and music industries (Faulkner & Anderson, 1987; Peterson & White, 1981; Windeler & Sydow, 2001); the construction sector (Eccles, 1981); and regional economies and industrial districts (see Powell, 1990, for an overview). Although these industries appear, on the surface, to be highly dynamic and flexible, scholars have found that they have a strong tendency to prefer recurring collaboration and stability (Faulkner & Anderson, 1987; Peterson & White, 1981). Based on prior successful relations, they form dramatic patterns of partner inclusion and exclusion (Faulkner & Anderson, 1987). Eccles (1981) also found such stable and continuous patterns, and believed that they were sufficiently systematic as to deserve the label *quasi-firms*.[2] Sydow and colleagues (Manning & Sydow, 2008; Windeler & Sydow, 2001) came to the same conclusion more recently when studying the television industry in Germany. They found that subsequent interorganizational projects depended on the viability of longer-term, more sustainable networks, which they named "project networks." Hence, overarching networks of temporary constellations (i.e., meta-networks) are a well-known phenomenon in industries that are characterized by the use of a project mode, although they may not always be readily visible to outside observers (Peterson & White, 1981).

Also, the private-sector literature alludes to the notion of "regional cluster networks."[3] Regional clusters are defined as geographic concentrations of interconnected and cooperating (but also competing) firms (Porter, 1998). Such clusters may be connected to other, similar clusters elsewhere, creating what are called cluster networks (Schlüßler, Decker, & Lerch, 2013). Cluster networks differ from meta-networks in the sense that the clusters do not necessarily overlap: Their actors are only active in one cluster. Cluster networks emerge—deliberately rather than serendipitously—as the result of clusters seeking collaboration with one another for the purpose of accessing markets, attracting public funding, enhancing innovation, or stimulating regional economic development. Cluster networks tend to be quite institutionalized and may even be formally managed by a cluster administrative organization that facilitates the cooperation between the clusters—analogous to Provan and

[2]A *quasi-firm* can be defined as a loosely coupled arrangement, created to achieve long-lasting cooperation among actors for joint, strategic purposes (Luke, Begun, & Pointer, 1989).
[3]Note that in this context, *regional* refers to large geographic areas, including transnational or even transcontinental areas, whereas in our Dutch context, the term *regional* refers to a geographical level that is between the local and provincial levels.

Milward's (1995) Network Administrative Organization (Schlüßler, Decker, & Lerch, 2013).

The notion that networks may overlap and interrelate has only been noted fairly recently in the public sector. Rethemeyer and Hatmaker (2008), for example, found that what appeared to be distinct networks were actually interconnected through a few network managers and termed them *component networks*. They referred to this larger entity of interconnected networks as the "network system." Ysa, Curtó, and Esteve (2010) used the term *network portfolios* (an adaptation of the private-sector concept of alliance portfolios) to refer to the embeddedness of multiple networks in a larger system.

Finally, the notion of regional meta-networks can also be found in regionalist literature. For example, Gulati and Gargiulo (1999) explain that when two local governments collaborate with each other, but also have agreements with other local governments, these embedded relationships may accumulate into an overall regional structure of collaborating entities over time. Such a regional structure is said to reduce transaction costs as more information becomes available and a reputation for reciprocity and trust is built. Similarly, Boogers, Denters, and Sanders (2015) suggest that overlapping or interconnected networks at the regional level will help local governments create stronger ties and ongoing interactions.

Summarizing the above, the notion that networks may overlap and function as larger entities that may, in turn, affect what goes on in the individual networks has been noted across the various literature genres. However, little systematic research into the precise emergence, and especially the effects, of such meta-networks has been reported. We will draw from these and other literature types to formulate the research questions in the next subsections.

Factors That Stimulate the Emergence of Meta-Networks

The Dutch central government guidelines leave it largely up to each region to decide which actors to include in a policy-implementation type of network. As a consequence, meta-networks may differ from region to region, and their dynamics may depend on specific regional characteristics, including institutional, historical, cultural, and social factors (MacLeod, 2001). Literature on regionalism offers several factors that may play a role in stimulating regional collaboration in general, and in the formation of regional meta-networks in particular (see Table 1).

Institutional factors include the size of the region, the homogeneity of the actors, fixed regional borders, and the presence of a regional-level public institutions. The fewer the municipalities that comprise a region, the more likely it is that they will be alike (that is, homogeneous with regard to demography, power, and means), and the lower the collaborative transaction costs, the more likely that regional collaboration will be successful (Ansell & Gash, 2007; Emerson et al., 2011; Feiock, 2007). Fixed regional borders can be expected to enhance regional collaboration, as they require repetitive collaboration among neighboring municipalities, and thus lower the transaction costs involved in building trust and commitment. Fixed regional borders also increase the prospect of future collaboration, thereby constraining opportunism (Miller, 1992). Lastly, the presence of a public institution with some regional-level authority is likely to facilitate regional collaboration and the establishment of regional meta-networks. Such a public institution does not have to be a permanent, regional authority, but rather some form of institutionalized collaborative effort from local governments that will help regional collaboration with other public and private actors (Hamilton, 2002). In regions that lack such a public institution, regional collaboration will depend on the willingness of local public leaders to work with other public and private organizations to address social issues at the regional level.

A second regional collaboration factor concerns a region's history and culture. A region with a history of cooperation and economic hardship is associated with more intensive regional collaboration (Ansell & Gash, 2007; Emerson et al., 2011; Feiock, 2007; Ostrom, 1990). Municipalities and private-sector organizations in regions that have gone through economic hard times become dependent on one another. Conversely, regions that have experienced more prosperous times can stimulate the emergence of strong, independent cities. More generally, the urgency of regional collaboration (because of, for example, shared problems, resource needs, opportunities, interdependence, uncertainty, or a crisis) affects the likelihood that a regional meta-network will emerge.

Third, a regional meta-network consists of individuals; hence, social or human-touch-type factors may play a role. Examples of such factors include

Type	Factor	Sources
Institutional factors	Size of the region; homogeneity of actors; fixed regional border; presence of a regional-level public institution	Ansell and Gash, 2007; Emerson et al., 2011; Feiock, 2007; Hamilton, 2002
History and culture	History of cooperation or conflict; history of economic hardship; incentives for regional collaboration	Ansell and Gash, 2007; Emerson et al., 2011; Ostrom, 1990; Feiock, 2007; Hamilton, 2002
Social factors	Right people are involved; trust; commitment; shared beliefs; shared problem definitions; frequency of contact	Ansell and Gash, 2007; Emerson et al., 2011

Table 1: Factors that may stimulate the emergence of a regional meta-network.

having the right people at the table, whether people trust one another, whether they are committed, whether they interact frequently, and whether they have shared beliefs (Ansell & Gash, 2007; Emerson et al., 2011). In sum, these and other regional factors may determine the shape and dynamics of a meta-network. This leads to the first research question of this study:

> *Q1. What specific regional factors affect the emergence and dynamics of regional meta-networks?*

The Effects of Meta-Networks on Component Networks' Relations and Future Expectations

To theorize about the possible effects of regional meta-networks on the component networks' relations and future expectations, we draw on several literature genres, including temporary organizations literature, game theory, interorganizational literature, and board interlock literature. Literature on temporary organizations (TOs) pays attention to the social embeddedness of systems in a larger system. A TO is defined as a group of two or more non-temporary organizations (also termed *parent* or *permanent organizations*) that jointly carry out a task, but the duration of this collaboration is explicitly and ex-ante fixed (Janowicz-Panjaitan, Kenis, & Vermeulen, 2009). According to this definition, TOs are temporarily bound and can therefore be viewed as "protective bubbles," isolated in time and space, having no "shadow of the future" nor a burden of the past (Miles, 1964). Other researchers, however, have distinguished between "pure" TO forms and forms that are embedded in past and/or future relations (Bakker, Cambré, & Provan, 2009). Regarding TOs that are highly embedded in time, the literature suggests that past experiences may affect their performance. Trust may have been built during past encounters, during which quarrels may have also occurred. Key players trust others with whom they have worked in the past and who were reliable (Bakker et al., 2009; Das & Teng, 1998). Interorganizational relations literature also advocates prior relations that foster interorganizational and interpersonal trust, commitment, and willingness to collaborate (Bryson, Crosby, & Middleton-Stone, 2006; Mitchell & Shortell, 2000; Weber & Khademian, 2008). Similarly, game theory assumes that individuals adopt cooperative strategies when they meet one another repeatedly in similar, linked situations (Axelrod, 1981; Kreps & Wilson, 1982; Ostrom, 2005) and they develop a "reputation for reciprocity" (Ostrom, 2005). Because this provides credibility in new situations, individuals are tempted to use the reputation for reciprocity by actively approaching these same individuals for new collaborations. Finally, literature on regionalism suggests that the existence of an overarching regional network reduces transaction costs as more information is available and a reputation for reciprocity and trust has been built (Gulati & Gargiulo, 1999).

Several literature genres also suggest that, in addition to prior relations, expectations about working together in the future may affect the current collaboration. Literature on TOs suggests that the shadow of the future may increase network members' commitment to the current collaboration (Bakker et al., 2009; Das & Teng, 1998). When network partners know they will be working together again in the future, they are more likely to adopt cooperative strategies, because partners may be more willing to do one another a favor, knowing they will get something in return (Axelrod, 1984; Powell, 1990). Windeler and Sydow (2001) summarized this as follows:

> Project networks . . . are more than just temporary systems, because every new project is based upon the experiences of collaboration in earlier ventures and are carried out in the face of the shadow of the future. (p. 19)

A meta-network may occur via sequential networks, but also via simultaneously occurring networks in which a set of organizational representatives meet one another around multiple arenas at the same time. In addition to the effects from earlier encounters and the prospect of future ones, the fact that actors interact with one another in multiple arenas, simultaneously, is also likely to affect the relations. Board interlock literature provides a good example of the dynamics that occur when actors meet in various settings. A board interlock occurs when a director sits on the board of directors of another organization, creating a tie between the two organizations (Gulati & Westphal, 1999). The social embeddedness of board interlocks has been found to foster higher trust levels among individuals, reduce uncertainty, and act as a mechanism for interfirm cooperation (Burt, 1983; Koenig, Gogel, & Sonquist, 1979; Mizruchi, 1996).

In addition to stimulating enduring relations, a key challenge for the central government with regard to temporary component networks is to make sure that the measures taken by a network during the funding period will be sustained after the funding ends and the formal network is adjourned. The reason for this need for policy continuity is that social issues are hardly ever temporary; the temporary funding of such networks is meant as an incentive to intensively tackle a specific social issue at the regional level. More specifically, the network itself does not need to be continued, but the client-oriented measures developed by the network should be sustained and integrated into the participating organizations. Although there is little literature on this specific subject, we postulate that regional meta-networks may stimulate the continuation of prior developed measures, because the meta-network members meet in new constellations, which lowers the transaction costs for ongoing adjustments and stimulates social control regarding commitments and agreements made previously.

In summary, regional meta-networks imply that there is recurring collaboration

among their members. Regional meta-networks may, therefore, foster regional actors' cooperative attitude, resulting in trust, commitment, and an expectation to engage in future collaboration. The second research question, therefore, is:

> *Q2. What key aspects of regional meta-networks foster (1) high-quality relations and (2) expected continuation of (the efforts of) the component networks?*

Meta-Network Effects on Component Networks' Goal Attainment

Compared to the effects on relations, less is known about the possible effects of regional meta-networks on their component networks' goal attainment. According to Miles (1964), a TO's goal attainment may be greater compared to a non-temporary organization, because the TO's members are focused on the here and now, forgetting the past and neglecting the future. This suggests that collaborative networks of members who do not have a common past and do not expect to engage in future collaborations may be most effective in terms of goal attainment (realizing temporary shared goals). Following this line of reasoning, component networks that function under an overarching meta-network are associated more with lower goal attainment than networks that occur in a "protective bubble." Other researchers, however, argue that past results stimulate high performance in new settings. Earlier joint achievements may lead to higher trust and, as a result, higher autonomy and discretion over resources, which have been found to contribute to effectiveness (Bakker et al., 2009; Das & Teng, 1998). Similarly, little consensus exists in regionalist literature about the relationship between meta-networks and network effectiveness. Although some scholars argue that an overarching regional network may lead to higher complexity and, as a consequence, to lower effectiveness, others have found that higher complexity is not associated with lower effectiveness per se: Boogers and colleagues (2015) found a positive relation between complexity (that is, the number of distinct networks in a region) and perceived effectiveness. Thus, although the precise direction of the link is unclear, one can say that meta-networks do affect their component networks' goal attainment. In addition, meta-networks can be expected to give a warning that different component networks' goals are being fractious. Rethemeyer and Hatmaker (2008) studied multiple networks in the area of vocational education. To their surprise, they found that certain network managers of what appeared to be distinct networks were interconnected, and that by using the data sets of all networks together, they got a more complete picture of the environment than they did from studying each network separately. Rethemeyer and Hatmaker (2008) argued that network managers should, therefore, have a broader perspective than their "home" network and should be sensitive to any friction between component networks; detecting and removing potential friction in an early stage may foster high goal attainment. This reasoning leads to the following research question:

> *Q3. What key aspects of a regional meta-network foster the attainment of goals in the component networks?*

Methods

Research Design

A comparative case study was conducted on 11 project-oriented networks in four Dutch regions. These regions are referred to below as North, East, South, and West. The four regions were picked non-randomly from a total of 30 Dutch regions; they represented different contextual circumstances—specifically, in their geographical position and their sectoral characteristics (for example, agricultural, industrial, or metropolitan). The 11 component networks were concerned with four central governmental projects in the area of education and employment. The Lifelong Learning (LLL) project was aimed at increasing the overall educational level of the Dutch working population by encouraging adults to engage in lifelong learning activities. The purpose of the School Drop-Out (SDO) project was to reduce the number of pupils who leave school before they obtain their basic qualifications by 40% within four years. The objective of the Youth Unemployment (YU) project was to slow the increase of youth unemployment rates—a result of the economic crisis—in the Netherlands. The objective of the Technology in Education and Employment (TEE) project was to increase the number of students and employees in the technical or technological sectors, where, despite the economic crisis, there were still shortages. These four projects were chosen because of their common interest in education and employment, even though they were induced by different departments of the Dutch central government (the Ministries of Education, Social Affairs, and Economic Affairs).

Data Collection Processes

We collected qualitative as well as quantitative data via three methods: interviews, archival records, and a questionnaire that included collection of social-network data.

Interviews. We interviewed 37 network members across four regions (10 in North, 11 in East, 7 in South, and 9 in West). Fourteen of these interviewees were active at the strategic level of their organization (such as city aldermen, top-level managers, CEOs) and 23 were active at the tactical level (such as policymakers in local governments or schools). The interviews covered four themes: perceived effectiveness of the component networks, collaboration within the component networks, relevant regional characteristics, and experiences (positive and negative) with how one network affects the performance of another. The interviews offered an opportunity to explore in depth the characteristics that mattered for a particular network or region. Each interview took an hour and

a half. Each interview was audiotaped and transcribed in full. The interview data were then coded and analyzed by the main author and two MSc students. Thematically related parts were grouped together using the QSR NVivo 8.0 software package. The coding and recoding was an iterative process, with discussions between researchers.

Archival records. Various official records and reports, mostly provided by the central government, enabled us to assess the degree of goal attainment by the component networks: the extent to which the individual networks realized their predefined, quantitative targets. Because the networks were concerned with four distinct projects, each with its own specific objectives and targets, we compared the goal attainment of each component network to the Dutch national average performance for that particular project. Networks performing at the Dutch national average were given a 3, networks performing within the top 20% of highest-performing networks received a 5, networks performing at the bottom 20% scored a 1, and so forth.

Questionnaire and social-network data. A written questionnaire was used to measure relations and expected continuity, as well as to collect social-network data. The "relations" construct consisted of nine items, measuring frequency of communication and commitment (Cronbach's alpha 0.85). Expected continuity regarding the component networks' activities, after termination of the governmental funding, was measured (Cronbach's alpha 0.86): Regional meta-networks were measured and visualized based on social-network data. The questionnaire asked the respondents to indicate in which networks they were currently or had been active in the past five years. Approximately 100 questionnaires were distributed to both interviewed and non-interviewed network members. Of the returned questionnaires, 37 were completely filled in and 11 only had the social network data filled in. This means that we had a database of 48 respondents for the social network analysis.

Analysis of the Social-Network Data

The response to the question about the networks in which each individual was participating generated a two-mode affiliation network (Borgatti & Halgin, 2010; Wasserman & Faust, 1994). Affiliation data consist of a set of binary relationships between members of two sets of items—in our case, individuals and networks. Such binary data can be written as an N × A matrix with N rows and A columns, where N represents the individuals who are (1) or are not (0) affiliated with A the networks. This original data set was then computed into two distinct matrices: "N × N" and "A × A," using UCINet 6 (Borgatti, Everett, & Freeman 2002). This gave us the opportunity to see how strongly (that is, via how many component networks) individual actors in a given region were interconnected, as well as how strongly (that is, via how many individuals) the component networks were intertwined.

Four indicators of meta-networks were used to measure the relative strength of a meta-network: density, centrality, size, and congruency. Density was calculated dividing the number of *actual* connections in a network by the number of *potential* connections. Centrality usually refers to the position of a single node in a network, based on its number of connections to other nodes. Freeman's degree centrality, however, calculates the *overall* centrality of the network.[4] Meta-network size was calculated according to the number of active actors in a regional meta-network, based on the aforementioned affiliation data. Meta-network congruency, finally, calculated the extent to which the distinct component networks used the same regional delimitations. For example, the East region had identical regional delimitations for each component network, and thus scored 100%. This means that the same municipalities were associated with every network. Meta-network congruency was based on freely available data from the Dutch Ministry of Internal Affairs.

The four regional meta-networks were visualized using NetDraw. As these visualizations will show (Figure 1 in the Findings section), some actors were more strongly intertwined and were more central in the meta-network than others. The general idea is that dense network cores arise as a result of many overlapping communities (Yang & Leskovec, 2014). One could, therefore, argue that the actual meta-network is comprised of the most strongly interconnected actors. In pursuance of finding the difference between the actual core of a meta-network and its periphery, we conducted a core-periphery analysis of the four data sets of interconnected actors.

Findings

In order to get an idea as to what the regional meta-networks looked like, we first present a visualization of them and discuss their variations. We then explain how our meta-networks emerged and what regional characteristics appeared to be responsible for the variations (RQ1). Next, we explore whether and how the meta-networks affected their underlying component networks, in terms of relations and expected continuity (RQ2), as well as goal attainment (RQ3).

Visualization of the Regional Meta-Networks

We found evidence of meta-networks in all four regions, although they varied greatly in type and strength. Figure 1 presents the visualizations of the four

[4]This measure compares a network to the perfect star network of the same size, in which there is one central actor (whose centrality degree is equal to the number of actors, less one) versus many noncentral ones (whose centrality degrees are one). A star network has the most extreme differences in centrality among actors. Freeman's degree centrality thus calculates the degree of inequality in a network as a *percentage* of a perfect star network of the same size. The higher this percentage, the higher the centralization or unequal distribution of connections in the network.

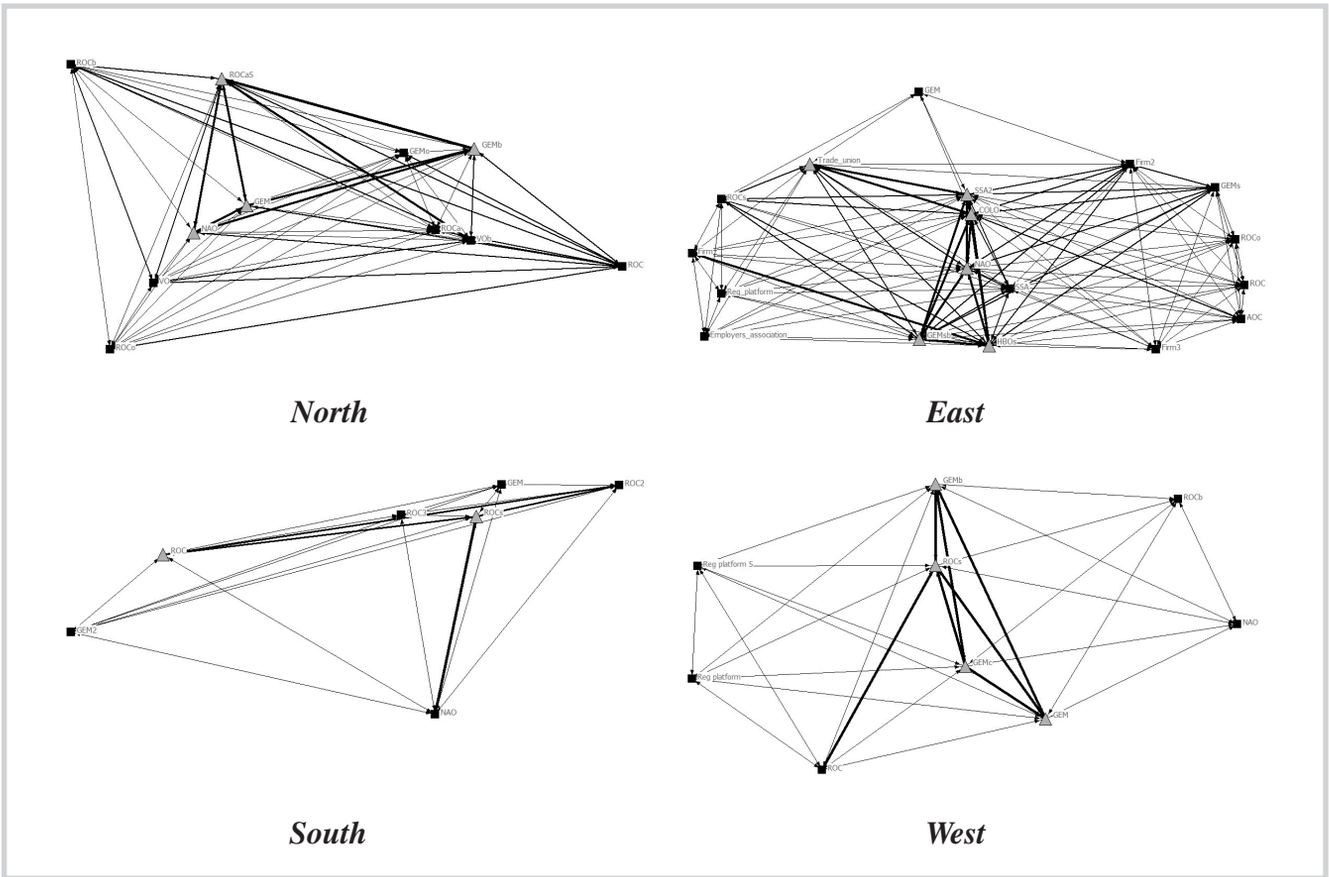

Figure 1: The interconnections among individual network members in regional meta-networks.

regional meta-networks, based on how individual actors were interconnected through the component networks (that is, actor times actor).

The gray triangles in these figures represent the core actors and the black squares are the periphery actors. The cores are generally comprised of individuals who were at a strategic level in their home organizations, such as city alderman, CEO, and top manager. The periphery, on the other hand, is mostly comprised of actors at tactical or operational levels. This hardly comes as a surprise, as strategic-level actors are usually involved in many networks. Table 2 presents the key figures of the core-periphery analysis. Table 3 summarizes the independent variables of the meta-networks: density, centrality, size, and congruency levels, as well as the dependent variables that are used in the quantitative analysis discussed later in this article (relations, expected continuity, and goal attainment). We proceed by briefly discussing each of the regions.

North. North's meta-network was relatively dense and had a low centrality. This means that all the actors were quite strongly intertwined. Both its core (comprised of municipal actors, a CEO of a vocational school, and an NAO) and the periphery had a relatively high density, which confirms that the meta-network was strong across the organizational levels.

East. East had a large meta-network with a rather low overall density and high centrality. Its core consisted of six actors (among others, a CEO of a school for higher education, a city alderman, and a top manager of a social security agency). This core was quite dense, whereas the periphery was much more dispersed. A limited set of central actors thus played an important role in

	Density of the Core (%)	Density of the Periphery (%)	Number of Core Actors	Number of Periphery Actors
North	32	14	4	7
East	29	5	6	12
South	40	21	2	5
West	20	4	4	5

Table 2: Core-periphery characteristics of the four regional meta-networks.

	Overall Density (%)	Overall Centrality (%)	Size (N)	Congruency (%)	Relations (Mean, S.D.)	Expected Continuity (Mean, S.D.)	Goal Attainment (Mean, S.D.)
North	15.6	17.5	11	55	3.89 (.53)	3.45 (.88)	2.3 (.62)
East	10.8	22.8	18	100	3.43 (.53)	3.19 (.71)	3.6 (.81)
South	22.4	12.5	7	87	3.31 (.63)	2.90 (1.24)	3.0 (.71)
West	10.3	26.6	9	83	3.63 (.40)	3.67 (1.04)	3.5 (1.0)

Table 3: Main characteristics of the four regional meta-networks.

connecting the region as a whole. East had the highest congruency level: Every network in that region had the same geographical delimitation, which increases the chance that the same actors were involved in the various networks.

South. South had the smallest meta-network, and only included local governments, schools, and NAO-type organizations, as a result of nonresponses from other actors. This region also had the densest meta-network, which was largely because of its small size: The chance that all actors are interconnected is larger in a smaller network. Indeed, size and density had a strong negative correlation across all regions ($r = -0.91$; $p < 0.001$). The overall centrality in South was low, and, as a result, there was hardly any difference in density between the core and periphery. Because of the limited response from South, we chose to exclude this region from the empirical analysis. However, the qualitative data were still valuable for illustrative purposes.

West. West's meta-network was relatively small, but was surprisingly highly centralized, with a low density. Its core was quite dense, composed of actors active at the strategic levels of their home organizations, while its periphery was highly dispersed. This indicates that a strong meta-network was present at the strategic level, but that this was largely absent at the tactical level.

What Factors Affect the Emergence of Regional Meta-Networks?

Patterns surfaced when analyzing the interview data across the four regions, regarding the factors that appeared to stimulate or impede the emergence of regional meta-networks. These were labeled as institutional, cultural-historical, and social factors. Table 4 provides an overview of these factors.

Institutional factors. Three types of institutional factors were encountered that seemed to affect the emergence and strength of regional meta-networks: congruency of regional delimitations, the presence or absence of a regional-level public institution, and organizational characteristics (number and size of organizations). In addition, we discuss the factor "regional size," because this is mentioned in the regionalist literature as an influential factor.

Evidence was found for the idea that meta-networks emerge more easily if regional delimitations are congruent. Dutch regions are not fixed formal entities, as different parts of the central government use different delimitations of what constitutes a region. In East, the delimitations of the various projects were identical, while in North, the regional delimitations varied the most from project to project. When a region is defined by a single delimitation, it is easier to coordinate projects

	Likelihood of Meta-Network Emergence	
Institutional Factors	**Enablers**	**Barriers**
Congruency of regional delimitations	Similar delimitation of all/most projects (high congruency) in the region	Varying regional delimitations (low congruency)
Regional-level public institution	Presence of a regional-level public institution	Absence of a regional-level public institution
Organizational characteristics	Small organizations; heterogeneous municipalities; presence of a single vocational school	Large organizations; homogeneous municipalities; multiple competing vocational schools
Cultural/Historical Factors		
Culture	Tradition of collaboration; "natural network"	Forced collaboration as result of central governmental delimitation of the region
Economic history	History of economic hardship that led to regional collaboration	Prosperous economic history that led to strong, independent cities
Social Factors		
Interpersonal relations	Right people at the right places who advocate regional collaboration	Tribal wars between or within organizations

Table 4: Factors affecting the emergence of a regional meta-network.

across the component networks and, for example, to make use of one another's facilities. So, when a school collaborates with municipality X in the Youth Unemployment project, but with municipality Y in the School Drop-out project, it is much more complicated to use the measures or means of one project for the other one than it would be if the school were dealing with the same municipality regarding both projects. Similarly, literature on regionalism suggests that fixed regional borders add to network effectiveness, as these require repetitive collaboration among neighboring municipalities and increase the prospect of future collaboration (Feiock, 2007; Miller, 1992).

In some regions, regional public agencies functioned concomitantly as an overall coordinative mechanism for multiple networks. Two such agencies in East played a central role for three component networks (YU, LLL, and TEE). A regional platform for employment issues functioned as an overall steering group at the strategic level. In addition, the project leaders for these three networks came from a joint venture among 14 collaborating municipalities in East, thereby connecting them at the tactical level. As the NAO for East explained:

> We are lucky that the three project leaders at TEE, YU, and LLL are on secondment to the same organization and even share a hallway. . . . These three distinct projects have come together because of the regional platform structure.

In the other regions, such agencies were either not present (in North) or did not have an active role in interconnecting the multiple networks (in South and West). Regionalist literature also points to the relevance of having a public institution with regional authority, but explains that their added value is primarily connected to having a regional-level, public sparring-partner role for private-sector actors (Hamilton, 2002). However, we found that having such an institution is particularly valuable for establishing and strengthening regional meta-networks and connecting formally distinct projects.

Finally, various organizational characteristics were found to affect the presence of regional meta-networks: organizational sizes, heterogeneous municipalities, and the presence of a single vocational school. First, the smaller the organizations, the greater the chance that the same individuals will be working in multiple networks together. An organization's strategic level usually contains few individuals, regardless of the size of the constituting organizations. Therefore, the sizes of the organizations mainly affect the emergence of a meta-network at the tactical level. In large organizations, projects may end up as distinct divisions between schools and municipalities. Those divisions mean individuals are not always aware of initiatives elsewhere in the organization, which may lead to double initiatives and confusion about who does what. School representatives in West—the largest vocational school in the four regions—frequently mentioned that their organization's size was a hindrance for bringing about effective and efficient projects. In East, actors within the smaller vocational school were able to coordinate across projects, as someone from East's vocational school explained:

> Every now and then we discover that we are doing similar things at different places within our school. Usually, we notice this fairly quickly and gather people around the table. Youth Unemployment, Lifelong Learning, and TEE are initiatives that have a lot in common. Since there are a limited number of people involved in these projects within our school, they can be connected very quickly.

Second, collaboration between homogeneous, similar-sized municipalities appeared to be more complicated, compared to collaboration between heterogeneous municipalities—that is, a large city and smaller neighboring municipalities. The smaller municipalities in North and West that lacked the means and the people to tackle issues solo accepted the consequence that cooperating with a large city meant giving up some of their own autonomy. Similar-sized regional municipalities, however, tend to struggle for power and are less willing to accept the leading role of one of them. Examples of this were found in South and, surprisingly, in East, where, although regional collaboration was generally described as smooth, there was tension between the two largest cities from the total of 14 collaborating municipalities. The underlying assumption is that if actors—in this case, municipalities—are less willing to collaborate at a regional level, then regional meta-networks are less likely to occur. Our findings contradict regionalist theories that suggest that the more municipalities are alike with regard to demographic homogeneity and power positions, the lower their transaction costs will be and that the regional collaboration will be successful (Ansell & Gash, 2007; Emerson et al., 2011; Olson, 1965).

A factor that is very specific for the context of these education and employment related networks is the number of vocational schools present in a region. Vocational schools played a crucial role in each of the component networks. In the Netherlands, vocational schools operate on a regional level (they are even called "Regional Educational Centers") and regions usually have one or two of those schools. In East, there was a single school for vocational education, which made it very easy for local governments and firms to make region-wide agreements. The other three regions had two vocational schools. These schools often competed for students and did not always agree on how to run projects. As local governments had to make distinct agreements with each of the schools, this led to a division in two subregions. We thus found that having a single vocational school facilitates the emergence of a regional-level meta-network.

Finally, that literature suggests that regional size matters. Because meta-networks emerge when individuals continuously bump into one another, one would assume that they emerge more easily in smaller regions—that is, regions that encompass a smaller geographical area and, therefore, fewer municipalities. Regionalist literature proposes that having fewer municipalities that comprise the region facilitates lower transaction costs and higher effectiveness (Feiock, 2007). However, we did not find such evidence. When we compared the regions with regard to their number of municipalities, West was smallest, with five to nine municipalities, depending on the specific project. South was the largest, with 14 to 21 municipalities. East had a constant number of 14 municipalities across projects, while North varied the most: from 8 to 27 municipalities. One would then assume that West had the strongest regional meta-network. However, we found the opposite: West had, at the tactical level, the least apparent meta-network, because of the fact that the organizations (both municipalities and schools) were significantly larger compared to those in the other regions. This suggests that *organizational* sizes may be more influential on the emergence of regional meta-networks than *regional* size.

Cultural/historical factors. The qualitative data revealed two cultural/historical-type factors: having a history of regional collaboration and, related to this, having a history of economic hardship. The history and traditions regarding regional collaboration determined the current situation and appeared hard to change. Similarly, regionalist literature stresses the importance of having a history of cooperation rather than conflict as a facilitator of regional collaboration (Ansell & Gash, 2007; Emerson et al., 2011), from which regional meta-networks may emerge. Regional collaboration was described in North and East as logical and natural. Respondents in South and West, on the other hand, were particularly critical about regional collaboration. They felt that the region was too diverse to be regarded as a single entity and that "regionalism" was forced upon them by the central government. In response, they subdivided the region, resulting in three subregions in West and two subregions in South. Little cooperation occurred among the subregions. A respondent from South stressed that actors in both subregions do their own thing, including writing monitoring reports that are subsequently stapled together with the front page saying, "Region South." Another respondent from the South vocational school claimed:

> It just doesn't work to form regions in which actors are not already collaborating naturally with each other. Schools and municipalities meet each other at the subregional level, not at the [region South] level. People have been discussing education and employment issues in this manner for years.

A prominent reason as to why some regions had developed a regional tradition, while others had not, was described in terms of the economic history of a region. Regions that had known times of economic hardship, such as North (an overly agricultural region, with high unemployment rates) and East (a result of the ceasing of the textile industry), have resulted in municipalities and firms that have to rely on one another. Regions with economically more prosperous times, such as South (with a strong technical and industrial basis) and West (which includes one of the four largest cities in the Netherlands), have resulted into strong, independent cities. In summary, these two cultural/historical factors were found to accommodate the existence of regional meta-networks.

Social factors. The presence of the right people at the right places was often mentioned during the interviews as a factor that stimulated collaboration at the regional level. In East, for example, an alderman, the CEO of the vocational school, and the director of an agency for inter-municipal cooperation were described as strong advocates for keeping a regional perspective over local ones. Even in South, an alderman of the largest city was described as being able and willing to look beyond his direct interests, and not only "score" in his own city. This was said to be the primary reason why inter-municipal collaboration worked well, despite the historical power struggle between the two largest cities. Indeed, regionalist literature emphasizes social factors that affect the success of regional collaboration, such as involving all the actors who may benefit from the collaboration and getting the "right" people to the table (Ansell & Gash, 2007; Emerson et al., 2011).

Summarizing the above, the four regional meta-networks varied in, for example, size, density, and centrality. We found explanations for these differentiations in terms of various institutional, cultural/historical, and social factors.

The Effects of Meta-Networks on Relations and Expected Continuity

The second research question is whether regional meta-networks may foster relations and expected performance continuity within component networks, as a result of prior relations and the "shadow of the future." Support was found in the qualitative interview data for the proposition that meta-networks foster higher-quality relations. Respondents acknowledged that trust was built more easily in situations with prior relations, resulting in smoother collaboration. As a vocational school respondent from North put it:

> We have become quite a close group. [Name of the network leader] joined later, but [four network members] and I knew each other from previous projects. That makes a huge difference. You can connect with each other more quickly. If there is a problem, we work it out based on trust and transparency. For example, if one of us has trouble meeting his target, we discuss

this as a group and see if someone else can chip in.

Similarly, instances were reported in which prior relations resulted in higher commitment levels. The start-up of the project for Youth Unemployment, which occurred—quite inconveniently—during a summer break, was an example of this. As the NAO from North explained:

> Mobility is quite low in this region, so people tend to be in the same position for a long time. So, you meet the same people over and over again. That works out quite well. For example, last summer, when the central government required the regions to write a subsidy proposal at very short notice during the school holidays, people were prepared to postpone their vacations in order to assist—even though they did not have to. People are just more willing to do that sort of thing when they have a personal relationship, based on prior relationships.

Regression analysis showed a statistically significant model for relations. The regression model (see Table 5) shows that of the four independent variables, meta-network centrality and size have a negative impact on relations ($F(2, 29) = 3.49$; $p < 0.05$). These factors explain part of the variance in relations. So, to some extent, a decentralized and not-too-large meta-network stimulates commitment and contact among regional actors.

Regarding the second part of the research question, the interview data showed some examples of how a regional meta-network may lead to higher expectations regarding the continuity of project-related activities. As the NAO from East put it:

> Because TEE, LLL, and YU are coordinated from a single steering committee, we are able to use our networks to combine the most successful parts of the projects, in order to enable their continuity. For example, both LLL and TEE will ensure the continuance of the new service center for the construction sector.

Lifelong Learning in West provided an opportunity to actually see what remains of a network's legacy after the governmental subsidy ends and the formal project is dismantled. At the strategic level, lifelong learning continued to be on the agenda of another committee. The vocational school respondent from West explained:

> We recently said to each other, since we meet everywhere and there is a thematic overlap, we might as well try to integrate this steering committee [for Lifelong Learning] into the regional employment platform.

The fact that the same organizational representatives who met around Lifelong Learning still met around other topics and in other constellations meant that they kept the issue alive. This case provides some support for the proposition that a meta-network may add to the continuity of a network's valued resources after it is no longer supported by an external party. Such efforts resulted in a business plan for the continuation of the lifelong learning services between 2013 and 2015, including a physical front desk, jointly financed by the network and staffed by all its members. The quantitative data, however, showed no significant relation between regional meta-network characteristics and expected continuity. An explanation may be that the regional meta-network actors reflected on future continuation from the perspective of the specific project: Once the external funding ends, what is the chance that the current actions will be continued by each of the network members separately, rather than considering the possibility of integrating the project with other ones?

In conclusion, we found evidence that meta-networks affect component networks' relations, but cannot verify statistically that meta-networks foster the expected continuity of temporary network endeavors.

The Effects of Meta-Networks on Goal Attainment

The third research question is whether meta-networks lead to higher goal attainment for component networks, as a result of early detection of friction as well as opportunities for creating synergy. Various concrete examples of how meta-networks led to better results and/or higher efficiency were given in the interviews. The added value of regional meta-networks was illustrated, such as making use of other networks' data sets or developing joint instruments and interventions, which were, according to respondents, supposed to lead to higher effectiveness in each of the component networks:

> I certainly think that being involved in both projects is mutually beneficial. If something that was developed around the project of Youth Unemployment collided with School Drop-Outs, I would notice that immediately. And we make use of each other's instruments. For example, we used data on school dropouts for the YU project. . . . Currently, there is a shortage of coaches for youths that have a high chance of dropping out. So, we have sought YU

	Relations	Goal Attainment
Centrality	−0.51	0.20**
Size	−0.82*	0.12*
F-stat	3.49*	10.7***
Constant	6.21***	−3.02*
Adjusted R^2	15%	34%
**p<0.05; **p<0.01; ***p<0.001*		

Table 5: Regression results of regional meta-network centrality and size on relations and goal attainment.

> coaches to step in, since preventing school dropouts also prevents youth unemployment. (Municipality, South)
>
> Many distinct project services are being combined, such as the front desks for Lifelong Learning and Youth Unemployment—especially in the smaller municipalities. (NAO, North)

The regression model for project goal attainment (see Table 5) revealed that both meta-network centrality and size positively affect goal attainment ($F(2, 29) = 10.7$, $p < 0.001$). Together, these factors explain 34% of the variance of goal attainment. In highly centralized regional meta-networks, a few actors are active in many formally distinct projects, while others are only involved in one or two. These few actors, thus, play a major role in connecting the distinct projects—for example, by identifying friction or suggesting ideas that may create synergy across projects. The network theory suggests that communication and collaboration are most effective in centralized networks where few trusted central actors do the coordinating (Provan & Milward, 1995). The same appears to hold for meta-networks; the presence of a few actors with a good overview across projects leads to better results than having many actors being active in many projects. Network density and congruency did not affect relations and goal attainment, which was similar to what Provan and Milward (1995) found with regard to density. In sum, these findings point to the fact that the presence of a few highly active central actors is associated with higher goal attainment for their underlying component networks. But at the same time, such large and more centralized regional meta-networks are also associated with lower-quality relationships.

Discussion

In the project and network literatures, the *whole network* is usually regarded as the highest level one can study. Scholars who study public-sector networks have only recently begun to recognize that networks may be parts of larger entities that have an effect on how networks and their members behave (see, e.g., Boogers et al., 2015; Rethemeyer & Hatmaker, 2008; Ysa et al., 2010). This study shows that formally distinct networks, initiated by different parts of the Dutch central government, actually overlap intensively. Hence, they form what we term a *regional meta-network*. These results suggest that regional meta-networks may foster (1) the rapid emergence of new projects, as a result of prior relations and trust; (2) higher effectiveness within the cooperating component networks, resulting from their ability to make use of one another's assets; and (3) the continuation of a formally abolished component network. This article's main theoretical contribution is that a meta-network offers an extra unit of analysis in the literature on temporary, project-oriented networks. Analyzing meta-networks offers a more complete picture of the factors that affect a network's emergence, dynamics, and effects. Following on from this, when theorizing about public network effectiveness, meta-networks also offer an extra level of effectiveness, in addition to that for the network, the participating organizations, and their clients: effectiveness at the meta-network level. When developing and measuring criteria for effectiveness at the meta-network level, one should consider that although a specific network may be successful, it may impede another coexisting network at the same time. Conversely, well-adjusted networks are likely to contribute to the overall system (in our case, the region).

Implications for Practitioners

Funders, such as central governmental departments, are usually primarily focused on the effectiveness of their own policy objectives, and tend to overlook the fact that the objectives of other departments may affect their own. If practitioners recognize meta-networks as an analytical unit, this will enable them to (1) actively use a meta-network when starting up new networks, in order to increase efficiency; (2) expose situations where the ambitions of multiple networks are not congruent with one another; (3) foster a synergy across networks; or even (4) determine effectiveness criteria at the level of the region at the top of the network level. Using this larger entity deliberately to their advantage may help both regional and central governmental actors make public-sector projects more effective.

Limitations and Future Research

The main limitation of this study is the size of the data set: When interorganizational networks are the unit of analysis, a small sample size is often an inevitable limitation. Despite the small number of returned questionnaires, we feel that combining the three types of data sets (archival and collected qualitative and quantitative data) gives valid insights into network effectiveness. We tried to gain a representative picture by distributing the questionnaires as widely as possible among network members—and also among those we did not interview. However, people who did not receive or return the questionnaire were, by definition, not included in the meta-network.

We recommend four lines for future research. First, this study explores the factors that affect the emergence of regional meta-networks in a qualitative fashion. Future studies can test the factors that we encountered in a more quantitative way.

Second, studies on the effects of meta-networks and similar phenomena are particularly scarce. Future studies could add to this emerging literature in several ways. In addition to studying the effects of meta-networks on their underlying networks (that is, network effectiveness), studying their effects on participating organizations (organizational effectiveness) would also provide valuable insights, for both scholars and practitioners. Moreover, given the nature of the projects in this study (the

public-policy context of education and employment), future research should also study the effects of intertwining networks on effectiveness criteria in other project contexts.

Third, the visualization of a meta-network provides a snapshot: When networks change, the meta-network will change as well. Therefore, an interesting line of research would be to follow the development of meta-networks and the projects they shepherd longitudinally. This can be done by studying (1) how the component networks affect their overarching meta-network, and (2) their inverse relationship. The meta-network's composition will be affected when, for example, new networks arise or old ones end, and when new members enter or extant ones withdraw from the networks. The impact of specific core network members is especially interesting in this respect. The positions and actions of such actors, who have a key role in connecting the component networks (for example, spreading information across networks and combining or aligning project activities), may affect the meta-network. This is especially true if they are aware of their interconnecting role (Schlüßler, Decker, & Lerch, 2013).

And, finally, valuable insights could be provided by studying how a meta-network affects the effectiveness of its underlying component networks over time—not only the extent to which strong meta-networks contribute to network relations and network effectiveness, but also when such an effect might tilt toward a relational (that is, a bias toward the usual suspects, and thereby the exclusion of potentially relevant actors) or a cognitive lock-in effect (a positive bias for known measures and solutions, or a negative bias for measures that are invented elsewhere) (Gergiulo & Ertug, 2006; Uzzi, 1997).

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