LEADING NETWORKS EFFECTIVELY: LITERATURE REVIEW AND PROPOSITIONS

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A literature review is presented on the modes of effective network leadership within and between organizations. In total, 163 published studies, both empirical and conceptual, were parsed with regard to definitions, contexts, antecedents, and outcomes, leading to four propositions. A continuum of network leadership concepts, including shared and distributed leadership, is projected on two axes: one for the (individual actor and collective level) antecedents and one for the (type of desired) outcomes of network leadership. The new two-by-two model distinguishes four distinct network leadership roles: connecting, coaching, catalyzing, and consulting. The 4C network leadership model offers a set of practical roles and associated behavioral styles in different situations. Context-moderated propositions conclude the review, to guide future empirical research on effective interorganizational and intraorganizational network leadership.

Introduction

The interest in networks has been increasing from various theoretical perspectives, including economics (e.g., game theory), sociology (e.g., social network theory), and public administration (e.g., policy networks). The result is a broad range of "network concepts" varying from— but not limited to—networks as concrete organizational forms (Provan & Kenis, 2008; Tsai, 2001; Westerlund & Rajala, 2010) and networks as fluid, social constructs which emerge when individuals "network" in their social or

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professional environments (Balda & Mora, 2011; Carter, DeChurch, Braun, & Contractor, 2015; O'Toole & Meier, 1999, 2003). Similarly, Kilduff and Tsai (2003) distinguished network concepts as either *goal-directed* or *serendipitous*. In the current paper networks are interpreted as the first type and are defined as: *Either interorganizational or intraorganizational entities, consisting of three or more collaborating actors, who are aware of being a member of that specific entity.*

An increasing number of studies working on network theory are focusing on the question "what makes networks effective?" (e.g., Provan & Milward, 1995; Provan & Sebastian, 1998; Turrini, Cristofoli, Frosini, & Nasi, 2009). The scientific interest in network leadership began when studies showed that leadership is a crucial component when striving for organizational and network effectiveness (e.g., Agho, 2009; Baker, 2007; Burt, 2000; Klijn, Steijn, & Edelenbos, 2010; McGuire & Silvia, 2009; Powell, 1996; Turrini et al., 2009). Many different concepts of network leadership have emerged, especially in the last two decades. Here, the term "concepts" refer to either one of the different network leadership typologies, such as shared or distributed leadership. Carter et al. (2015) and Yammarino, Salas, Serban, Shirreffs, and Shuffler (2012) opened avenues for future research on these concepts by conjecturing the multifaceted nature of network leadership. Most studies, however, tend to focus on certain types of network phenomena; networks in specific sectors; or on a few of the broad array of network concepts.

In order to advance the field, all the academic network literature to date was reviewed around the main question: What constitutes effective network leadership? The aim was to offer a number of practically relevant propositions for new empirical and theoretical research. The first part of the review reports which effective network leadership concepts have appeared in the literature, and how they differ in terms of definitions, contexts as well as their antecedents and outcomes. In the second part, their key insights are developed into a new model of effective network leadership.

The current comprehensive literature review aims to contribute to network leadership research and enable a better understanding of effective network leadership. As network forms of organizing are increasingly needed, due to the progressively dynamic and complex nature

of the workplace (Karriker, Madden, & Katell, 2017; Lapierre & Carsten, 2014), such knowledge is relevant. In a previous review on interorganizational network leadership, Müller-Seitz (2012) distinguished between hierarchical and heterarchical leadership within networks and concluded that relatively few studies have moved beyond heroic concepts of leadership. Rather counter intuitively—as organizations are thought of as hierarchical entities while networks are seen as horizontal systems—the literature on intraorganizational networks is dedicating more conceptual and empirical attention to heterarchical and shared forms of network leadership, than literature on interorganizational networks. The relative lack of academic attention for heterarchical forms of network leadership is addressed by including studies of both interorganizational and intraorganizational network leadership. In addition, the current study addressed antecedents and outcomes of effective network leadership by responding to calls from the field to build a theory that accounts simultaneously for network leadership outcomes and antecedents (Carter et al., 2015; Hiller, Day, & Vance, 2006; Zaccaro, 2007). Hence, a network leadership model is proposed that takes both the antecedents of network leadership and the networks' desired outcomes into account.

The review below is structured as follows. In the Method section the analytical steps that were taken are detailed. The Results section elaborates on the various concepts: their differences and commonalities regarding definitions, empirical assessment, and contexts. In addition, insights are gained into the antecedents and outcomes of network leadership. In the Discussion, the resulting network leadership model is presented, including its theoretical, practical, and future research implications.

Method

To provide a comprehensive overview of the available research on effective network leadership, the Wolfswinkel, Furtmueller, and Wilderom (2013) approach was adopted, consisting of five iterative stages: define, search, select, analyze, and synthesize. The final search strategy is outlined in Table 1.

DEFINE

In the *define* stage, the field of research is identified, and the inclusion and exclusion criteria are determined,

Table 1 Search Strategy of the Literature Review	
Keywords	Network leader*
	OR
	Shared leader*, distributed leader*, complexity leader*, democratic leader*, inter group leader*, collaborative leader*, collective*, participative leader*, network leadership theory
	(AND)
	Effective*, success*, outcomes, results, antecedents, predictors
Databases	Web of Science, Scopus, ScienceDirect
Search criteria	Topic/English/article or review
	Text word/English/article or review/business, sociology, psychology, economics, public policy and administration
	Text words/English/articles/full text/reviewed journals
Results	Total number of articles retrieved: 2,615

Note. Total number of articles scanned: 572. Total number of articles included in the review: 163.

as are the used databases and the specific search terms (Wolfswinkel et al., 2013). An initial bundle of gathered scientific work (*N* = 57) provided a solid starting point for the literature analysis. The scope of the review's search was established during various iterative discussions between the researchers, leading to a list of network leadership concepts. To be incorporated, a concept had to (a) focus on leadership in network contexts; (b) clarify what "leadership" implies; (c) be used and examined repeatedly rather than appearing to be a one-off term; (d) relate to the other concepts (i.e., the concept had to refer to network leadership in general or to one of the other network leadership concepts). The chance of missing or mistakenly including concepts was thus minimized.

Nine different network leadership concepts resulted from the process. The search terms were then established by coupling the names of the network leadership concepts with adjectives (e.g., "effective*") and specific areas of interest (e.g., "outcomes") (see Table 1). The initial exploratory search terms were fed into electronic databases namely, Web of Science, Scopus, ScienceDirect, and Google Scholar.

SEARCH

An extensive search was conducted between January and March 2017, followed by a second one in the autumn of 2018. Research that did not focus on leadership modes and (inter-) organizational contexts (e.g., studies focusing on networks in a biomedicine context), and papers written in languages other than English, were excluded. After the first round, "snowball sampling" by forward, backward, and hand-searched citation screening was adopted, which resulted in an initial base of 2,615 articles.

SELECT

The selected articles (*N* = 572) were thoroughly screened, by assessing the titles, abstracts, and keywords. Eligible records had to refer to *network leadership* as an (inter-) organizational entity: Studies in which actors were merely "networking in serendipitous networks," rather than being members of goal-directed networks (Kilduff & Tsai, 2003), were excluded. In addition, the articles had to contain at least one key passage relevant to the topic of network leadership. In contrast, articles which solely mentioned network leadership as a side note, or merely stated that network leadership "is or should be present", were excluded.

ANALYZE

A database of the relevant articles (*N* = 163) was constructed, specifying, among others, the key concepts, type of research (e.g., conceptual, qualitative, quantitative), the type of context (e.g., health care, education, business), definitions, and citations. A special column was left blank for so-called "open coding" (e.g., see Keijser et al., 2019) in order to mark any peculiarities of the study. During the analysis of the literature, regular meetings took place between the researchers wherein the content and the interrelations among the network leadership concepts were discussed.

The data were synthesized into higher-order codes by a combination of discriminatory coding processes (i.e., integrating and refining concepts and themes) and axial coding (i.e., further development of categories). The original articles were consulted when the interpretation of the data needed additional or in-depth contextual information. During the process, two coding schemes were developed that captured the full range of the discussed antecedents and outcomes of network leadership in the retrieved literature (see Tables A1 and A2). The qualitative "inductive analysis" coding method (e.g., Goetz & LeCompte, 1981; Lee, 1999; Patton, 2002; Popping, 2015) was then adopted; it enables the identification of codes "through an analyst's interaction with the data" (Patton, 2002, p. 453). The interactions enabled the creation and refining of a list of 9 mutually exclusive codes for network leadership antecedents and 12 mutually exclusive codes for its outcomes (Katz, 1983).

To build a summarizing model, the codes were collapsed into higher order categories by creating "as many categories as needed to organize, explain, and assign data to these categories in a coherent fashion" during an initial coding phase (Lee, 1999, p. 48). The process was repeated until all the codes were assigned to a category (Miles & Huberman, 1994). Four main categories emerged: Individual actor and collective types of *antecedents* of network leadership; and interaction and performance types of network *outcomes*. Tables A1 and A2 provide an overview of the categorized codes, their definitions, and examples.

ANALYSIS

The final database of search results comprised a wide range of study types (e.g., empirical, conceptual, meta-analyses, book chapters, and dissertations) and contexts from both the public and private sector (e.g., consultancy, education, government). Moreover, the database consisted of studies on both intraorganizational networks and interorganizational networks. The final database enabled a thorough assessment of both the antecedents and outcomes of network leadership, as well as the genesis of a model that reveals research gaps.

Results: Network Leadership Concepts

Historically, research on leadership characteristics focused on leadership modes and the traits of "heroic" and charismatic leaders (Pearce & Conger, 2003). However, over the last decade, a growing body of literature has conceptualized leadership as a collective social process emerging through the interaction of multiple actors (Uhl-Bien, Marion, & McKelvey, 2007). Many different concepts have been developed within the domain of network approaches to leadership, such as "democratic leadership" and "shared leadership" (e.g., Carson, Tesluk, & Marrone, 2007; Carter et al., 2015; Mayo, Meindl, & Pastor, 2003; Yammarino et al., 2012). Based on the history and development of leadership theories, networks differ in the degree to which they share their "leadership function." Leadership was previously described as being present *in* or *as* networks (Carter et al., 2015; Contractor, DeChurch, Carson, Carter, & Keegan, 2012; van Wart, 2014). A stream of research was based on the proposition that network leadership is executed by a focal leader (Carter & DeChurch, 2012; Gronn, 2015), who may choose to distribute certain leadership roles or tasks (Hudak, Russell, Fung, & Rosenkrans, 2015). Hence, leadership *in* a network refers to the presence of a focal leader. Conversely, network leadership has been described as a communal phenomenon, typically executed by multiple—if not all—network actors (e.g., Crevani, Lindgren, & Packendorff, 2007; Gronn, 2002). The stress of leadership *as* a network is the division of the leadership role among multiple actors within a network (Carter et al., 2015). Nine network leadership concepts were identified from the research, spanning the "in" and "as" networks: shared leadership; distributed leadership; collaborative leadership; collective leadership; participative leadership; network leadership theory (NLT); complexity leadership; intergroup leadership; and democratic leadership. Each of these concepts is described briefly below. Their main characteristics are outlined in Table 2.

SHARED LEADERSHIP

Focal leaders appear to be absent from shared leadership contexts (e.g., Crevani et al., 2007). The relational nature of the shared leadership concept is stressed by the mutual influence of members

Table 2   Overview of the Nine Network Leadership Concepts Covered by the Current Review

Network leadership concept	Number of relevant articles	Definition
1. Shared leadership	36	A dynamic interactive influence process among actors whose objective is to lead one another towards the group or organizational goals, or both (Pearce & Conger, 2003)
2. Distributed leadership	28	A concerted and conjoint effort of a network of actors (Bennet et al., 2003; Currie et al., 2009; Gronn, 2002)
3. Collaborative leadership	21	The situation in which a(n) (interorganizational) workgroup is truly active in leadership, thereby taking advantage of individual and collective competencies (Finch, 1977; Herrington, 2000; Morse, 2008; Raelin, 2006)
4. Collective leadership	18	Multiple actors, who are interacting through a variety of broadly defined, formal and informal structures, take on a variety of leadership roles, both formally and informally, over time (Yammarino et al., 2012)
5. Participative leadership	17	Transference of influence, autonomy, attention and discretion, and empowering group members to solve problems, thereby increasing actor participation (Bass & Stogdill, 1990; Huang, 2012; Huang et al., 2010; Kahai, Sosik, & Avolio, 2004; Lam et al., 2015)
6. Network leadership theory	16	The impact of the leader on the network and how this leader is influenced by the network, the quality of the interactions within the network, and the effectiveness that resides within the network due to the emergence and existence of the focal leader—specifically within the internetwork interactions (Balkundi & Kilduff, 2006; Carter & DeChurch, 2012; Ospina & Foldy, 2016; McGuire & Silvia, 2009; Yammarino et al., 2012)
7. Complexity leadership	10	Emergent leadership stemming from complex interactive dynamics around certain roughly specified and desired outcomes that often include a learning component (Hill, 2009; Lichtenstein et al., 2006; Uhl-Bien et al., 2007)
8. Intergroup leadership	9	Leading collaborative performance between different organizational groups, thereby promoting positive intergroup relations (Hogg et al., 2012; Pittinsky & Simon, 2007)
9. Democratic leadership	8	The behavior that influences the people in the network in a manner that is consistent with democratic fundamentals (Dahl, 1989; Fishkin, 1991)
Total	163	

(Chiu, Owens, & Tesluk, 2016). Dynamic interactions, in which roles are rather fluid, result from the suitable personal competencies of the actors for the specific task at hand (Klein, Ziegert, Knight, & Xiao, 2006; Li, Wang, & Chen, 2008). Several meta-analyses were performed on shared leadership and its link with effectiveness or performance (e.g., see D'Innocenzo, Mathieu, & Kukenberger, 2014; Nicolaides et al., 2014; Ulhøi & Muller, 2014; Wang, Waldman, & Zhang, 2014; Zhu, Liao, Yam, & John-son, 2018). Moreover, empirical work was published on the process (e.g., density) of shared leadership (Avolio, Jung, Murry, & Sivasbramaniam, 1996; Carson et al., 2007; Crevani et al., 2007; Zhou, 2012), antecedent conditions (e.g., Carson et al., 2007; George et al., 2002; Hoch, 2013), and more extensive work on moderating factors (e.g., Nicolaides et al., 2014). Scarce attention was paid to interorganizational contexts; the focus was mainly on shared leadership within intraorganizational teams (Carson

et al., 2007; Chiu et al., 2016; Ensley, Hmieleski, & Pearce, 2006; Fransen, Delvaux, Mesquita, & Van Puyenbroeck, 2018; Li et al., 2008). Scientific interest started to rise after 2003, but particularly rapidly after 2006, and is accruing yearly.

DISTRIBUTED LEADERSHIP

Gronn (2002) is considered as the patriarch of the research stream in which the leadership role is dispersed across some, many, or all network members. Although several scholars excluded the presence of a focal leader (e.g., Fitzgerald, Ferlie, McGivern, & Buchanan, 2013; Gronn, 2002), others note that a focal leader, who often plays an important role in distributing leadership within the network, may be present (e.g., Bolden, 2008; Lester & Kezar, 2017; Spillane, 2005). Studies on distributed leadership often transcend the team levels (e.g., Gronn, 2002; Heck & Hallinger, 2010), but they hardly focus on interorganizational contexts. A notable number of studies were conducted in the context of education (e.g., Bellibas & Liu, 2018; Currie, Lockett, & Suhomlinova, 2009; Heck & Hallinger, 2010; Lester & Kezar, 2017; Wan, Law, & Chan, 2017).

COLLABORATIVE LEADERSHIP

Collaborative leadership scholars believe that *all* network members should be part of the leadership equation (Morse, 2008; Raelin, 2006), but usually with the presence of a focal leader (Zander & Zander, 2002). The focal leader must thus be willing to share power with the other network members. Scientific work on collaborative leadership, although conceptual and qualitative in nature (Kramer & Crespy, 2012), is on the rise, especially after 2008.

COLLECTIVE LEADERSHIP

Collective leadership suffers from a high level of incongruence. Despite some scholars emphasizing that a focal leader distributes elements of the leadership role effectively within a network (Friedrich, Vessey, Schuelke, Ruark, & Mumford, 2009; Margolis & Ziegert, 2016; Yammarino et al., 2012), others reject the existence of a leader altogether, stressing that leadership tasks and responsibilities are a fully shared phenomenon (e.g., Contractor et al., 2012; Gauthier, 2006; Hiller et al., 2006). Interestingly, there are relatively many quantitative empirical studies on collective lead-

ership. Collective leadership is assessed within a broad range of contexts from teams to interorganizational networks, and within a wide array of sectors, including health, manufacturing, education, and public administration. While the concept was already coined in the early 1980s, scientific interest only rose after 2007.

PARTICIPATIVE LEADERSHIP

Participative leadership generally entails a focal leader participating in intraorganizational networks: within teams (e.g., Huang, Iun, Liu, & Gong, 2010; Jago & Vroom, 1982; Li, Liu, & Luo, 2018). Participative leadership is often explained as the style or behaviors of focal leaders who encourage their network members to participate in decision-making processes, for example by consulting them or taking their views into account when making decisions (House, 1996). A relatively large part of the research was quantitative in nature and focused on the outcomes of participative leadership, such as team performance (Lam, Huang, & Chan, 2015; Lorinkova, Pearsall, & Sims, 2013; Rogiest, Segers, & van Witteloostuijn, 2018).

NETWORK LEADERSHIP THEORY

Little attention has been devoted to the relatively new NLT concept, in which a focal leader acts in an (interorganizational) network. The relative scarcity is quite surprising since the leadership field has, as discussed above, been historically primarily focused on the traits of individual leaders (Pearce & Manz, 2005). Although the NLT focuses on the focal leader in the network, it does not focus on his or her individual characteristics. Rather, the interaction between a leader and followers is the main point: the concept views both leader and follower attributions as being network system properties, whereby the influence connections define the relational structure (O'Leary & Ospina, 2016; van Wart, 2014). The NLT represents the most recent network leadership concept, first described in the literature in 2012, but it has not been widely adopted yet.

COMPLEXITY LEADERSHIP

Complexity leadership resides in the idea that current organizations are often too complex for leadership tasks to be executed effectively by a single actor (Lichtenstein et al., 2006; Marion & Uhl-Bien, 2002; Uhl-Bien &

Marion, 2009), and that the top-down leadership paradigm no longer fits due to the shift from an industrial age to a knowledge era (Uhl-Bien et al., 2007). Complexity leadership focuses on complex network interactions rather than focal leaders: the research contexts often entail larger scale interorganizational or even intercultural networks (Coveney, 2003). Since it is a relatively new stream of research that only gained substantive interest after 2008, a lot of the work is at a conceptual rather than empirical level.

INTERGROUP LEADERSHIP

In intergroup leadership, a focal leader tends to promote collaborative performance and positive intergroup relations between different organizational parts or organizations (Hogg, Knippenberg, & Rast, 2012; Pittinsky & Simon, 2007). Explicit attention has been given to such a context with the focus often being on the role of leadership in bridging the different identities among the subgroups who ought to collaborate (Rast, Hogg, & van Knippenberg, 2018; Salem, van Quaquebeke, & Besiou, 2017). Intergroup leadership represents one of the more recent network leadership concepts; therefore, not many studies have been published about it yet.

DEMOCRATIC LEADERSHIP

A great deal of the scholarly work on democratic leadership is conceptual in nature (Choi, 2007), or is situated in the educational sector, with a focus on intraorganizational contexts (e.g., Choi, 2007; Gastill, 1994). The fundamentals of the democratic leadership concept revolve around the classic democratic processes and principles of inclusiveness, self-determination, and equal participation (Dahl, 1989; Fishkin, 1991; Gastill, 1994). Democratic leadership often includes a focal

leader (Spillane, 2005). According to Gastill (1994), a democratic leader has three functions: distributing responsibilities among network members; aiding the collective decision-making process; and empowering network members. Contrary to the other reviewed concepts, the scientific interest in democratic leadership has decreased since 2015.

HOW DIFFERENT ARE THE NINE NETWORK LEADERSHIP CONCEPTS?

Some of the nine network leadership concepts are applied concurrently or even interchangeably. Although the concepts share some similarities, notable differences also exist based around the question whether network leadership is regarded as a widely shared phenomenon, or as a centralized one (Carter et al., 2015). Although a few of the nine studied concepts fit in well with one of these two categories, most of them are presented with nuances and variations. In an effort to summarize the phenomena, the *in* and *as* network leadership types were identified as two ends of a continuum, as represented in Figure 1. The percentages were calculated as the number of studies that mentioned the presence of a focal leader as a percentage of the total number of studies for each network leadership concept. The scale ranges from 0% sharedness (i.e., none of the studies define or mention leadership as being shared among the network members, but mention the presence of a focal leader) to 100% sharedness (i.e., all studies define or mention leadership as being fully shared among the network members).

Shared leadership and NLT represent the two extremes: either a focal leader is not part of the network at all or a designated and focal leader is present. Distributed leadership is in the middle: roughly half
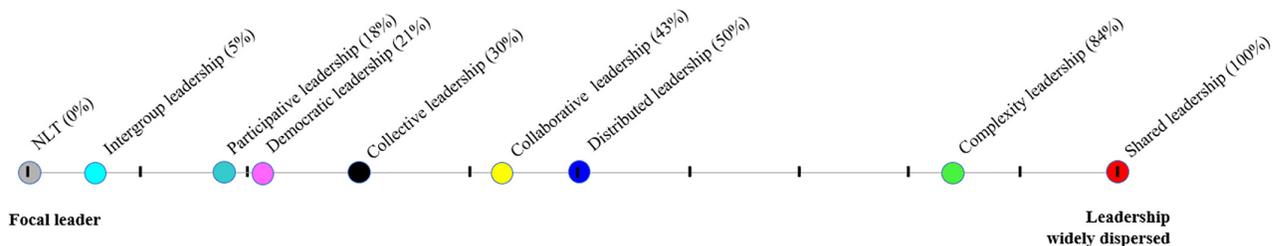

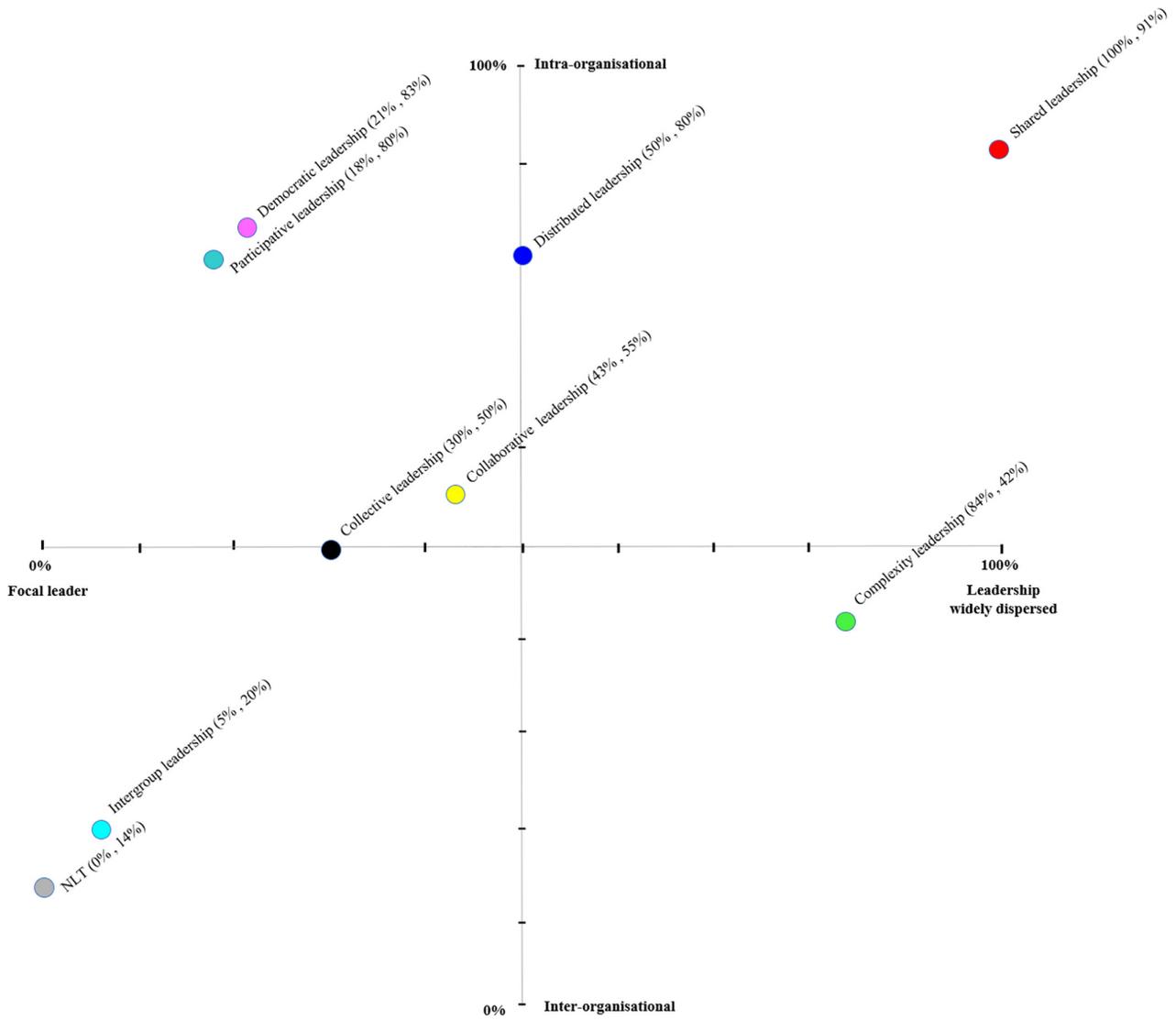**Figure 1   An Overview of the Nine Network Leadership Concepts in the Current Review**

Figure 2   A Multidimensional Depiction of the Reviewed Network Leadership Concepts

of the studies recognize the presence of a focal leader; the other half reject it. Such a finding is in line with Cannatelli et al. (2017) who argued that distributed leadership moves beyond a static and monolithic concept. Figure 1 illustrates that the majority of the concepts revolve around the left-hand side of the spectrum, thereby tending to include a focal leader. In general, the network leadership literature acknowledges the existence of focal leaders in network contexts who, to a more or lesser degree, may distribute certain leadership tasks and roles to other network members.

A second notable difference involves the organizational context, that is, whether it is applied specifically in *intraorganizational* teams or within *interorganizational* networks. Figure 2 presents the concepts on two axes: (a) the level of "sharedness" of the leadership equation; and (b) the focus on intraorganizational or interorganizational contexts ranging from 0% (i.e., all of the reported studies took place in an intraorganizational context) to 100% (i.e., all studies took place in an interorganizational context). Overall, the number of studies that explicitly included an interorganizational context is remarkably low. Thus, although the term *network* leadership may suggest otherwise, the interorganizational context has been given remarkably little attention in the current network leadership literature.

ANTECEDENTS OF NETWORK LEADERSHIP

Network leadership can come in all shapes and sizes. What factors are responsible for the emergence of *effective* network leadership modes? Research on whether different antecedents predict a specific network leadership configuration is thus needed to define effective network configurations. Table S1 provides an overview of the antecedents discussed in the network leadership literature.

Two overall categories of characteristics appeared in the articles that affect the occurrence of a specific type of network leadership. First, individual actor-oriented antecedents include individual network members' abilities, attributes, affects, and (managerial) behaviors (e.g., encouraging contact or managing the collabora-

tive process) (e.g., Burke, Fiore, & Salas, 2002; George et al., 2002; Pittinsky & Simon, 2007). Second, collective-oriented antecedents include relational attitudes, cohesion, quality of communication, the presence of having shared goals or ambitions, as well as the characteristics of the network's form or context (e.g., a simple agency structure or task cohesion) (e.g., Carson et al., 2007; Chen, 2008; Li et al., 2008). Figure 3 presents a matrix in which a continuum of individual actor and collective antecedents is added to the initial continuum of the level of network leadership sharedness. The scores represent the number of collective antecedents as a percentage of the total number of antecedents mentioned by studies that belong to a leadership concept.
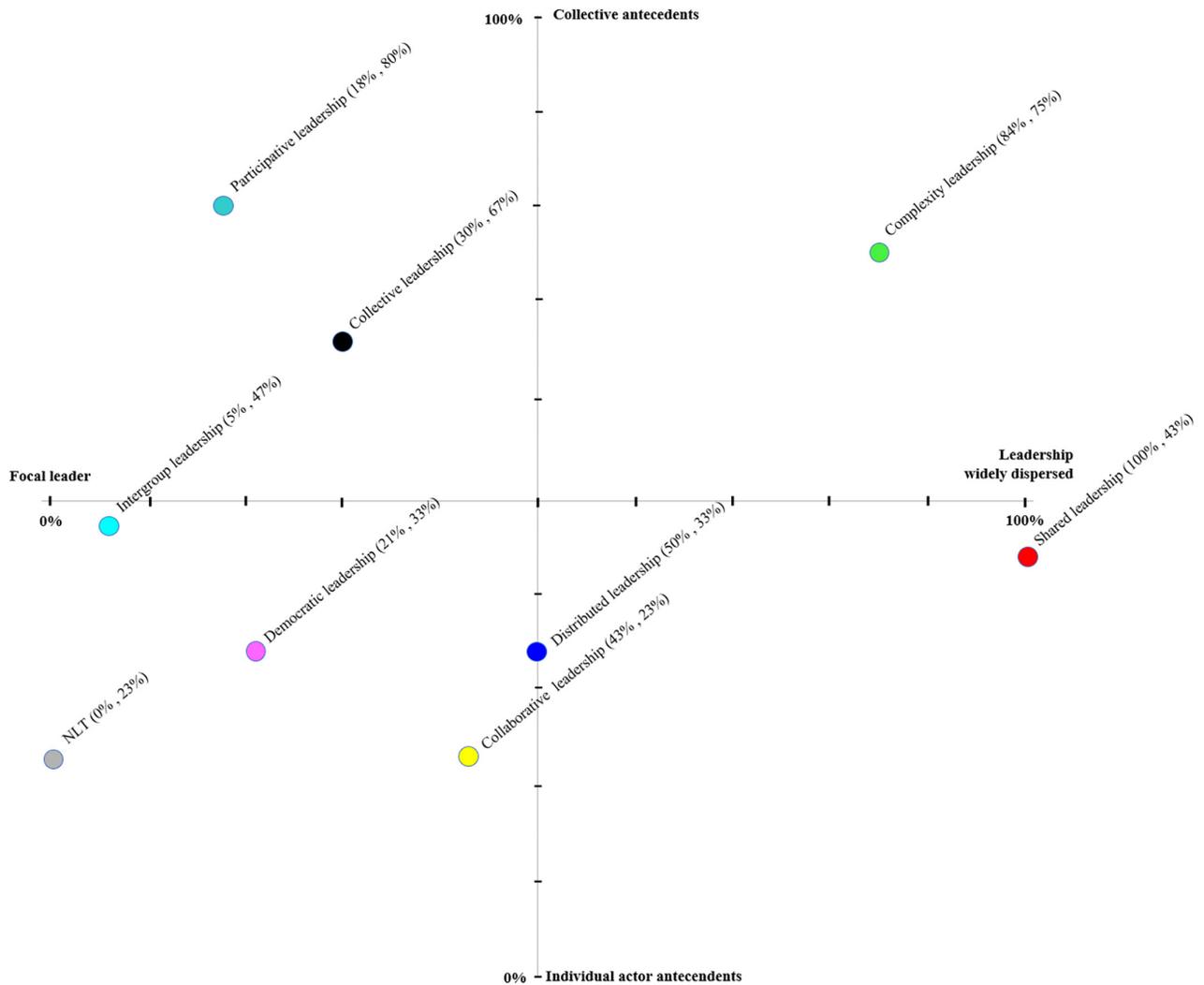

Figure 3   Antecedents of Network Leadership at the Collective or Individual Actor Level

When assessing the graph, the overall dominance of actor-oriented antecedents stands out. Actor-oriented antecedents may include the characteristics of focal network leaders as well as of network members. Examples of leader characteristics are: charisma (Spillane, Halverson, & Diamond, 2001); skills and abilities (Friedrich et al., 2009; Gastill, 1994; Kuczmarski & Kuczmarski, 1995); and managerial actions, such as encouraging contact; reducing negative intergroup attitudes; and managing the collaborative process (Pittinsky & Simon, 2007; Ryan, 2001). The focus of the network leaders' characteristics is on managerial actions rather than on personal characteristics. In other words, network leadership with a focal leader may depend more on what a proposed leader does than on what s/he is. Examples of network member characteristics are: adaptability (Burke et al., 2002); integrity (Hoch, 2013); motivation; and self-efficacy (George et al., 2002). Note that the more widely dispersed a concept regarding network leadership is, the less distinction there is between the network members and leaders.

Three of the network leadership concepts—participative, complexity, and collective leadership—predominantly include collective-oriented antecedents like trust (Li et al., 2008; Louis, Mayrowetz, Smiley, & Murphy, 2009; Pearce, 2004), social support (Carson et al., 2007; Serban & Roberts, 2016), social identity (Hogg et al., 2012; Pittinsky, 2009; Pittinsky & Simon, 2007), and positive intergroup attitudes (Pittinsky & Simon, 2007).

OUTCOMES OF NETWORK LEADERSHIP

Networks in organizational settings often emerge with specific ambitions or goals in mind, regardless of whether they concern small networks within a single organization, large interorganizational or even intercultural networks. Leadership is an important component influencing network effectiveness (Hwang & Moon, 2009). Hence, network leadership ought to be taken on board. The key question that therefore arises is: Which of the concepts described in Table S2 fits an organization with specified outcomes best? Based on the outcome characteristics found in the literature, two categories seem to result from network leadership. (a) Performance-oriented outcomes including collective or

organizational performance, learning, innovation, and change. (b) Interaction-oriented performance including empowerment of network members, network members' motivation and satisfaction, group cohesion, and the emergence of shared goals. Figure 4 presents a matrix in which performance- and interaction-oriented outcomes are added to the initial continuum. The percentages represent the number of performance outcomes as a percentage of the total number of outcome types studied within each leadership concept.

The results show that performance-oriented outcomes are abundantly presented in the literature. With the exception of democratic leadership, all the concepts include multiple performance oriented outcomes, such as team or network performance (Carson et al., 2007; Hiller et al., 2006; Hoch & Kozlowski, 2014; Leithwood & Azah, 2016; Mehra, Smith, Dixon, & Robertson, 2006; Nicolaides et al., 2014; Wang et al., 2014;); learning (Jameson, Ferrell, Kelly, Walker, & Ryan, 2006; Liu, Hu, Li, Wang, & Lin, 2014); and organizational performance (Hallinger & Heck, 2010; Meier & O'Toole, 2002). Shared leadership concepts tend to focus more on adaptability (e.g., learning, change, innovation), whereas focal leader concepts tend to focus on performance in terms of results.

In addition, most studies of network leadership concepts—with the exception of complexity leadership and intergroup leadership—include relational-type outcomes. The most frequently mentioned ones are network members' empowerment (George et al., 2002; Huang et al., 2010; Yammarino et al., 2012); network members' satisfaction (Bass & Stogdill, 1990; Drescher & Garbers, 2016; Gastill, 1994; Harris & Ogbonna, 2002; Yammarino et al., 2012); cohesion; and trust (Drescher, Korsgaard, Welpe, Picot, & Wigand, 2014; Ensley et al., 2006; Hiller et al., 2006; Jameson et al., 2006; Mandell & Keast, 2009; Mathieu, Kukenberger, DÍnnocenzo, & Reilly, 2015; Yammarino et al., 2012).

Antecedents are expected to predict the likelihood of the emergence of a specific type of network leadership. Moreover, the emerging type of network leadership is expected to result in specific types of outcomes. The conceptual model described in the next section was developed to underpin the theorizing on leading networks.
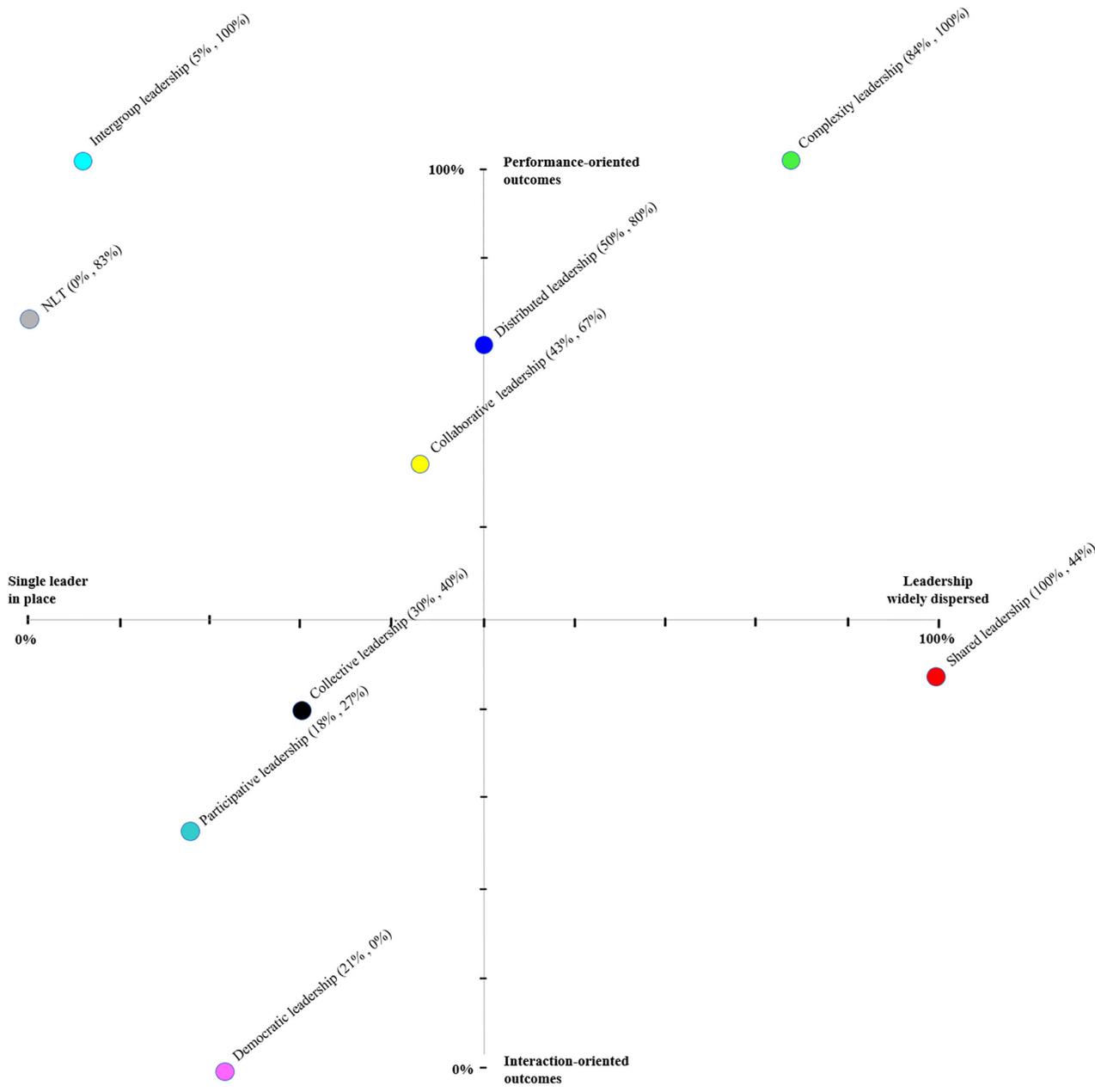
Figure 4   Network Leadership Concepts Mapped on the Basis of Interaction- or Performance-Oriented Outcomes

Discussion

INTRODUCING THE 4C NETWORK LEADERSHIP MODEL

The current literature review reveals that there are nine network leadership concepts that differ in terms of the degree of decentralization among the network members. Desired network outcomes vary from performance to more interaction-based outcomes. Reviewing the antecedents of a specific mode of net-

work leadership gives an even more diffuse portrayal: Networks that start off as constellations of actors who have been brought together, but who do not have previous relations with each other, may have different network leadership needs than networks that have already been formed. On the basis of the foregoing literature review, an integrative model is proposed to help answer the key question: What type of network leadership is most effective and in what
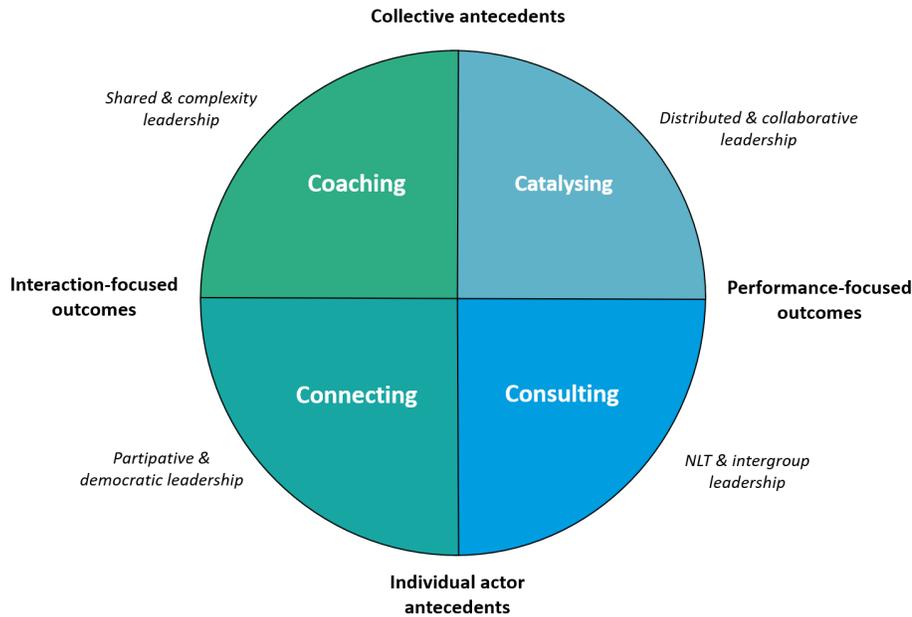
Figure 5   The 4C Network Leadership Model

type of context(s)? The model is based on two factors: (a) antecedents, consisting of individual actor- and collective-oriented antecedents; and (b) outcomes, consisting of performance- and interaction-oriented outcomes. The resulting model includes four key network leadership roles: connecting, coaching, catalyzing, and consulting (see Figure 5).

The four roles reflect the level of *sharedness* of the leadership function: from the presence of a focal leader within the network to the level of all leadership tasks being shared among the network members. In addition, the role suggests the presence of particular leadership *tasks and behaviors*. Below, the four roles are discussed in detail, reflecting both the level of sharedness and the tasks and behaviors that accompany each role. Propositions for further research are offered for the leadership roles, as well as illustrative case descriptions. These case descriptions are not meant as evidence; they provide real-world (Dutch) examples of what each network leadership role looks like in practice.

CONNECTING

The first role is based on *individual actor antecedents* and *interaction-focused outcomes*. It is characterized by actors that form—or are about to form—a network whose primary goal is to realize rich interactions, including

well-established relationships, between actors who feel proactively engaged and empowered. The basic idea is that results will follow these interactions, without planning or steering towards predetermined goals. Although the actors may be highly skilled or capable as individuals, the social "glue that binds the network together" has not been established yet. Therefore, the primary task of network leadership is to connect, motivate, and encourage actors to develop interpersonal relations, increase group cohesion, and stimulate the development of shared goals, ambitions, or values.

Initiating such a social process requires a focal leader who embraces and instills true participation of the individual actors. Such a leader focuses on the relational aspects of the network, stimulating participation and connections within the network. The connecting role of network leadership relates to the democratic and participative leadership concepts. Democratic and participative leadership concepts typically consist of focal leaders who focus on stimulating the participation and connection of actors in the network, without fully sharing the leadership equation. In terms of behavior, a focal leader who connects individuals closely demonstrates network leadership behaviors that are often described as "activating" (Agranoff & McGuire, 2001; Kickert, Klijn, & Koppenjan, 1997; McGuire & Silvia,

2009). Activating behaviors focus on identifying and bringing actors (and resources) together.

The first proposition is:

P1. A network characterized by the presence of competent actors who have little group cohesion, and where the desired outcomes are predominantly inter-action-focused, is most effective when a focal network leader *connects* the individual actors and facilitates a process, such as trust building, knowledge-sharing, and developing shared visions or ambitions, in which they become actively involved.

Illustrative Case I: Establishing relationships between contracting partners

In 2015, the procurement of social care in the Netherlands was decentralized from the central government to the 355 municipalities. In 2018, a nationwide network was initiated with the aim to connect the local governments' procurers of social care and the social care providers. The network's purpose was to share best practices and state-of-the-art methods for the proper procurement of social care. Due to the national character, actors had the chance to contact actors of regions they were not (often) operating in. As a result, the network took the actors out of their usual buyer-seller setting, which stimulated the sharing of ideas and the development of relationships based on incentives other than the more common interests among the contracting parties. Prior relationships were limited between the network members: they either did not know each other or had only met in a regional negotiation setting. The Dutch Ministry of Health, Welfare and Sports served as the initiator and focal leader of these network members: It facilitated events, organized actors' input, and shared practical information. The Ministry connected the actors and created a setting in which they were stimulated to freely share their ideas. The network members were responsible for agenda setting and the content of the discussions. No concrete output, other than meeting sparring partners and sharing ideas, was expected. The Ministry hoped to soften the 'them' versus the 'us' rhetoric while paving the way for developing shared ambitions, both nationally and within regions.

COACHING

The second role, coaching, results from *collective antecedents* and *interaction-focused outcomes*. In such situations, interpersonal relations, a collective identity, and shared values already exist within the network. The main objective of the network is to sustain and strengthen the network relations, with the expectation that interesting and relevant initiatives, projects, or innovations may emerge from the network interactions—without having clear-cut goals beforehand. A network with high-quality network relations can be expected to benefit from leadership roles being largely shared among the network members. The actors are attuned to each other and the positive collective dynamics can enable constructive alternations of granting and claiming behaviors (DeRue & Ashford, 2010). Sometimes, the presence of a focal leader may still be desired, for example if a network is quite large and the actions and interactions are difficult to coordinate without a central coordinator. In such circumstances, a small facilitative—and preferably external—leadership role could add to the effectiveness of the network. Carson et al. (2007) stated the value of having an external network leader to enhance the effectiveness of shared networks. Such a network leader is not a heroic visionary influencer, but rather a facilitating coach who stimulates and coordinates interactions, and who leaves decision-making to the other network members. The leadership role is akin to the Network Administrative Organization (Provan & Kenis, 2008).

The term coaching refers, in this context, to the facilitation and stimulation of collective processes among network members, with the aim to strengthen relations and stimulate commitment. The coaching role is closely related to the concepts of shared and complexity leadership. Both embrace high levels of sharing leadership (e.g., by granting and claiming leadership), sometimes with the presence of an external "leader" who coaches network members and facilitates the network process if needed. The leadership behaviors that are associated to the coaching role include mobilizing behaviors (Agranoff & McGuire, 2001; McGuire, 2002; McGuire & Silvia, 2009). Mobilizing behaviors aim to develop and sustain support for the network (both internally and externally), by keeping network members committed, inspiring enthusiasm, and communicating the network's accomplishments (McGuire & Silvia, 2009).

The second proposition is:

P2. A network context characterized by strong cohesion among the actors, with predominantly interaction-focused desired outcomes, is most effective when leadership roles are largely shared among the network actors, possibly strengthened by the addition of an (external) network leader who *coaches* the network members in their interaction processes.

Illustrative Case II: Shared network leadership within a water network

A Dutch network named "Water Meets Water" (in Dutch: WOW) was founded over a decade ago with the aim to stimulate relationship building, knowledge sharing and collaboration between the various organizations responsible for water quality and waterways in the Netherlands. Over the years, the network has gained a solid base of network members who share knowledge and collaborate in various projects initiated by them. The network's primary purpose was to continuously facilitate interactions among its members, with the belief that by stimulating meetings, concrete collaborations and projects will emerge that will, in turn, add to more efficient and higher quality water systems. A Network Administrative Organization coached the network members towards interconnectedness, via organizing meetings, actively bringing network members together, and publicizing the results of the collaborative projects during meetings, on the website and by appointing prizes.

The result was a generally strong sense of network ownership within the network, with many of the leadership tasks, such as agenda-setting, decision-making and coordinating actions, being shared among the network members.

CATALYZING

Networks characterized by *collective antecedents* and *performance-focused outcomes* may be served best by the network leadership role of *catalyzing*. In such networks, cohesive relations are already present, and they have well-established performance-related goals, including quantitative results, innovations, learning, or other types of desired network outcomes. Such a network does not really need a network leader who is committed to managing the social bonds, but one who helps

to provide direction, stimulates the forming of clear, shared goals, and actively motivates the network to increase the outcomes.

The catalyzing role corresponds with the distributed and collaborative leadership concepts. Both include a focal leader who aligns the processes of the various actors and who purposefully distributes specific leadership roles and tasks to stimulate network ownership (Finch, 1977; Herrington, 2000; Morse, 2008; Raelin, 2006). The main role of the focal leader is to catalyze the network actors' capabilities into collective performance and to stimulate a certain level of sharedness of leadership roles and tasks, in order to develop an enduring and effective network. In terms of specific behaviors, framing or structuring behaviors (Agranoff & McGuire, 2001; Kickert et al., 1997; McGuire, 2002; McGuire & Silvia, 2009) are associated with the catalyzing role. Framing includes the process of arranging norms, values, operating rules, and agreement on network roles and tasks. A focal leader may try to establish a shared identity for the network and develop a shared vision, share the leadership role with other network members, assign network members to particular tasks and roles, influence the network's values and norms, and change the network's structure if needed (McGuire & Silvia, 2009).

The third proposition is:

P3. In a cohesive network with predominantly performance-focused outcomes, a network leader who stimulates and *catalyzes* the network members towards formulating and realizing a shared ambition and who shares specific leadership roles and tasks with the network members, is most effective.

Illustrative Case III: Dialogue-based contracting in regional networks

The responsibility for procuring social care for people with the lowest incomes in the Netherlands shifted from the central government to the local municipalities. There is a variety of tendering procedures that can be adopted by these local municipalities when contracting organizations offering social care. One of these procedures involves the establishment of regional networks of buying municipalities and supplying social care providers. In these networks, the municipalities function as the network leaders, but a great deal of influence is distributed to the social care

providers. Instead of offering a preset contract to the social care providers, the contract is co-constructed by the municipalities and the social care providers. The municipalities schedule so called consultation tables in which they bring the social care providers together, chair the meetings, share information, and steer towards the achievement of the main goal: A contract that describes the ways in which the parties will provide care in a certain region. The networks are characterized by the presence of collective antecedents: All parties are located in a finite geographical area, with a limited number of buyers and suppliers who share the value of wanting to provide the best possible, yet (publicly) affordable, social care for its needy citizens. The regional networks are not temporary vehicles, which means that both results and relations are important outcomes: Once contracts are signed, the networks will continue with a renewed focus on realizing their goals (e.g., regarding client satisfaction and innovations).

CONSULTING

The fourth role stems from the situation in which a network comprises *individual actors* who do not have a strong collective identity, despite a desire for *performance-focused outcomes*. Performance focused outcomes encompass, for example, the realization of a specific pre-determined goal, the development of an innovation, and the coordinating and aligning of network members' activities. Such outcomes can be realized through the joint efforts of the network actors, without aiming to develop an enduring network per se. Although network relations are not a prime objective, a certain level of interconnectedness is often necessary to ensure the synergy of the individual actors' capabilities. The assembling of the actors is, therefore, mostly a functional means to reach the performance related goals. When the level of inter-network cohesion is low, a total sharing of the leadership equation is overly pervasive. A focal network leader is required then to bring the actors together, to stimulate interaction, coordination, and knowledge sharing in order to achieve synergy, and to consult with them on how to develop and/or realize specific network goals.

NLT and intergroup leadership are associated with the consulting role. These two network leadership concepts include the presence of a focal leader who steers the network towards performance related outcomes, by making use of managerial interventions. The focal leader

tries to build and maintain relationships and interactions that result in achieving the network purpose, which means that s/he consults both on the relational aspect and the content of the network. Behaviors that correspond with such a consulting role have been coined synthesizing behaviors (Agranoff & McGuire, 2001; McGuire, 2002; McGuire & Silvia, 2009). Such behaviors include sharing information, brainstorming, creating trust among network members, conflict resolution, scheduling and coordinating tasks, deciding how tasks should be performed, and keeping the work moving at a rapid pace (McGuire & Silvia, 2009).

The fourth proposition is:

P4. In a network with competent individual actors but little cohesion, and where the desired outcome is predominantly performance-focused, a focal network leader, who *consults* the network on both the relational and content aspect of the network, in order to realize a shared ambition, is most effective.

Illustrative Case IV: Multisectoral teams for a new curriculum

In order to provide children and high school students (age 4 to 18) with knowledge, skills and competences fit for the future, the Dutch national curriculum had to be revised drastically. In 2017, a network was formed in which teachers, school leaders, curriculum experts, and many other stakeholders had to develop the basic building blocks of a new curriculum. The next phase of the multi-annual program will commence in 2020.

Teams of teachers and experts will work together to formulate attainment targets for nine subject areas (e.g., Dutch, Math, Digital Literacy) of the new curriculum. The network leadership is in the hands of a neutral process consultant who guides the collaborative process within the teams, keeps the wider network close and engaged, and ensures that the products are delivered within the set timetable. Most of the individual team members will not know each other at the start and may have very different views on what good education entails (individual antecedents), which means that the network participants have to invest in creating a certain level of sharedness in order to be able to develop a joint product (performance-focused outcome). The chosen network leadership form is in that of a focal leader who serves as a consultant for both the team building and the product development processes.

DYNAMICS OF THE 4C NETWORK LEADERSHIP MODEL

The 4C network leadership model implies that, depending on the situational context as well as the type of desired outcomes, certain types of network leadership may be more effective than others. This may give the impression that a network's context or its desired outcomes are a given fact. Networks, however, are not static entities (Hudak et al., 2015). They emerge, develop, and may grow or cease over time. The antecedents and desired outcomes can be subject of change as well.

A network may, for example, start as a group of individual actors getting to know each other, exploring what they have in common, and what synergetic effects could result from the collaboration. The 4C model suggests that, in this context, a focal network leader has a connecting role. Like activating behaviors, which are described as being particularly important at the beginning of the formation of a network (McGuire & Silvia, 2009), connecting network members can be seen as necessary in such an emerging network. After a while, as a result of the group's efforts, the network members may develop a collective identity and stronger personal relations: a situation that may benefit from more shared leadership and a coaching leadership role. Or, alternatively, the network members may conclude that they want to pursue specific project-type goals and so move from the connecting towards the consulting role. Then, as the network matures and personal relations grow stronger, the network may require less of a focal leader and thrive with a more distributed and catalyzing leadership role.

This does not mean that networks *should* develop from one phase to another, that networks with a connecting leadership role cannot be in their final stage, or that one role is preferred over another. In practice, networks will often evolve over time, since they are dynamic entities. In other words, networks may evolve from one situation into another, and if that happens, the type of network leadership will or should coevolve as well.

Finally, the 4C network leadership model offers a new definition of network leadership: One that acknowledges the level of sharedness as well as the context in which network leadership emerges. The following definition of network leadership is there-fore offered: *Leading a network by one or more network members or externals whereby the precise leadership roles and their distribution across the network depend on the context: The starting situation and the desired network outcomes.*

Theoretical Implications and Suggestions for Future Research

The current study is the first comprehensive review of studies on various network leadership concepts, spanning both the private and public sector, and including intraorganizational and interorganizational networks. In contrast to the main scientific belief that leadership in networks is either situated in one single entity (i.e., the focal network leader) or shared, the current paper moves away from such a dichotomous analysis (Carter et al., 2015; Müller-Seitz, 2012), and proposes a network leadership continuum, herewith providing a more complete spectrum.

Including both antecedents and outcomes helped to gain a better understanding of what types of network leadership may be *effective* in what types of contexts. Following the calls to move away from static assessments of leadership in networks, the presented model takes into account both the extant context of a network (i.e., antecedents) and the desired outcomes (Carter et al., 2015; DeRue, 2011; Lord, Brown, Harvey, & Hall, 2001; Yammarino et al., 2012). The 4C network leadership model opens new avenues for research on effective network leadership roles by considering the presence of specific contexts and conditions (Yammarino et al., 2012).

The network leadership field is evolving constantly. Traditionally, network leadership studies have had an overly intraorganizational orientation. More recently, leadership in interorganizational networks has gained increasing interest although the research is still mostly at the conceptual level, compared to research on intraorganizational networks. Thus, more scientific, and specifically empirical, attention should be devoted to the interorganizational network context, since practice shows the importance of network leadership knowledge transcending the level of single groups or organizations.

In addition, specific areas for future research include the precise roles within the 4C network leadership

model. Empirical research should focus on the question as to how network leadership roles, with their constituent behaviors, can contribute to the effectiveness of different types of networks. Longitudinal research is desired on how networks develop and evolve from, for example, more interaction-oriented networks to more performance-oriented ones, which may also require different leadership approaches. Such studies should ideally make use of mixed-methods analyses (e.g., quantitative density assessments and qualitative interviews on perceived leadership roles) of various network types and settings.

Akin to the leadership field in general—and as seen particularly in the network leadership field—little is known about the specific behaviors that fit the leadership roles: The actual behavioral repertoires associated with effective network leadership should be considered as a novel line of research. The video-observation method, preferably including video-shadowing in other (less formal) work settings (Czarniawska, 2007; Vie, 2010), would be particularly useful for studying network leaders (Hoogeboom & Wilderom, 2019).

Limitations

Despite the thorough and systematic literature review (Wolfswinkel et al., 2013), the taken approach is still subject to some limitations. First, the choice of only general English databases may have led to overlooking some publications, and there will always remain a chance that a relevant study or concept was not included in the current review. However, the subsequent snowball sampling and handsearched procedures curbed the risk. Second, whereas the 4C network leadership model was built on the basis of a comprehensive literature review, it should be noted that the model has not been empirically tested yet. The aim of the used inductive method was theory building rather than theory testing, and therefore validation and/or elaboration of the model and its specified propositions is urgently needed.

Concluding Remarks

The review of the scholarly literature on effective network leadership has yielded a synthesis of various network leadership concepts and provides the first model denoting specific network leadership roles which fit spe-

cific contexts. The network leadership concepts in the current review include: shared leadership, distributed leadership, complexity leadership, collaborative leadership, collective leadership, democratic leadership, participative leadership, intergroup leadership, and NLT. The results reduce variation in the studied leadership concepts because they are positioned on a continuum from "the presence of a focal leader" to "fully dispersed leadership," with most of the network leadership concepts revolving around the focal leader side of the spectrum. The 4C network leadership model aims to guide the practically relevant question regarding which type of network leadership fits a certain network context best and invites large-scale empirical studies to test its merit.

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SUPPORTING INFORMATION
Table S1. Antecedents of Network Leadership Per Concept in Actor- and Collective-Oriented Categories. **Table S2.** Outcomes of Network Leadership per Concept in Performance- and Interaction-Oriented Categories.

Appendix

Table A1	Coding Scheme for "Antecedents" of (Effective) Network Leadership		
Category	**Subcategory**	**Definition**	**Examples**
Individual actor's characteristics	Ability	The capability of an actor to perform his/her job, residing in one's skills, knowledge and competencies.	"Adaptability" "Managerial skills" "Knowledge"
	Personal attributes	Characteristics that define one's personality, such as traits and thinking styles (Atwater & Yammarino, 1993; Wood, 1989).	"Constructive interaction style" "Facilitative leadership" "Sex"
	Affect—positive and negative	Positive affect is the extent to which a person feels enthusiastic, active and alert; negative affect is a general dimension of subjective distress and pleasurable engagement (Watson, Clark, & Tellegen, 1988).	"Optimism" "Managerial resistance" "Motivation"
Managerial actions		The interventions of actors in the network that are historically attributed to managers (*based on* Carsten, Uhl-Bien, West, Patera, & McGregor, 2010).	"External coaching" "Activate a shared identity" "Discipline and sector boundaries"
Relationship characteristics	Attitudes/behavior	A settled way of thinking or feeling about something/the way in which an actor operates in response to a particular situation or stimulus.	"Motivation for democracy" "Granting and claiming behavior" "Allophilia"
	Group cohesion	A dynamic process reflected in the tendency of a group to stick together and remain united in the pursuit of its goals and objectives (Carron, 1982).	"Social support" "Interdependence" "Trust"
	Communication	The imparting or exchange of information by speaking, writing, or using some other medium.	"Open communication" "Effective communication" "Resource sharing"
	Shared goals	The existence of mutual objectives and aspirations.	"Shared vision" "Cooperative goals" "Being bound by a common goal"
Network characteristics		The attributes that define and surround a certain network.	"Meets physically" "Collective characteristics" "Availability of information and resources"

Category	Subcategory	Definition	Examples
Table A2	**Coding Scheme for Effective Network Leadership "Outcomes"**		
Performance	Team/group performance	The degree to which a team or group accomplishes its goal or mission (Devine & Philips, 2001).	"Team performance" "Team effectiveness" "Group goal attainment"
	Organizational performance	The organization's output as measured against the goals or objectives (Dess & Davis, 1984; Richard, Devinney, Yip, & Johnson, 2009).	"New venture performance" "Organizational performance" "Employee performance"
	Leader performance	The degree to which the leader contributes to the network/the degree to which a leader accomplishes the set goals/mission.	"Leadership effectiveness" "Leader effectiveness"
Adaptability	Learning	Learning is a relatively permanent change in behavior brought about by practice or experience (Manz & Sims, 1981).	"Collective learning" "Organizational learning" "Increased expertise"
	Innovation	Innovation is the generation, acceptance, and implementation of new ideas, processes, products or services.	"Innovative behavior" "Network innovation" "Creativity"
	Change	The act or process through which something becomes different.	"Swift coordination" "Change" "Organizational adaptability"
Perceived efficacy	Empowerment	The intrinsic motivation manifested in four cognitions (meaning, competence, impact and self-determination) reflecting an individual actor's orientation to her/his work role (Spreitzer, 1995).	"Empowerment" "Employees demonstrating leadership behaviors" "Involvement"
	(Job) satisfaction	The positive emotional state resulting from one's job or job experiences.	"Member satisfaction" "Job satisfaction" "Satisfaction"
	Motivation	The arousal, direction and persistence of behavior (Franken, 1994).	"Members' intended performance" "Proactive behavior" "Morale"
Relations	Commitment	The strength of an individual's identification with and involvement in a particular organization.	"Organizational commitment" "Commitment"
	Group cohesion	A dynamic process reflected in the tendency of a group to stick together and remain united in the pursuit of its	"Enthusiasm" "Active" "Alert"