

## **How & Why Governance Dynamics Emerge in Inter-Organizational Networks:**

### **A Meta-Ethnographic Analysis**

#### **ABSTRACT**

Over the past few decades, governance was a pervasive theme in discussions of strategy and management in the context of inter-organizational networks. To date, network researchers call for a dynamic theory of governance in inter-organizational networks to deal with increased uncertainty in the network environment and unpredictable network changes. In response to this call, the present research aims to generate a better understanding of how and why governance mechanisms in inter-organizational networks change over time and the implications of such governance evolutions for the network actors. Based upon a meta-ethnographic analysis of 19 longitudinal case studies, a multitude of governance mechanisms ranging from relational to formal governance are identified at the single dyad, multiple dyad and network level. These governance mechanisms constitute five network governance dynamics over time: purely relational, relational-formal, combinations of relational and formal, formal-relational, and purely formal governance patterns. These governance dynamics empirically demonstrate that governance in inter-organizational networks is always possible in other, although not infinite, ways. By detailing the conditions under which path dependencies occur, the present research advances the literature on network governance.

**Keywords:** Qualitative research, Intervention Strategies and Practices and Systems Changes

## INTRODUCTION

Managing inter-organizational networks is an absolute necessity in a “society of networks” (Raab & Kenis, 2009). As a consequence, network governance – defined as “a mechanism of reaching and implementing decisions whereby, instead of hierarchy and command or markets and prices, networks and cooperation are at work” (Hollstein, Matiaske, & Schnapp, 2017: 1) – was pervasive in discussions of strategy and management (Jones, Hesterly & Borgatti, 1997; Provan & Kenis, 2008). Today, inter-organizational networks are ever more complex with different types of actors (e.g., individuals, firms, NGOs, governmental agencies) from a wide variety of industries in arenas from the local up to the global level (Dhanaraj & Parkhe, 2006; Hollstein et al., 2017). In this context, network researchers hold a plea for managing inter-organizational networks as social systems or structures, which involves taking uncertainty into consideration due to its unpredictable changes (Sydow, 2017).

To date, network research has focused on governance solutions to problems of uncertainty, but governance mechanisms adopted by one or more network actors are increasingly seen as possible sources of systemic or structural dynamics in inter-organizational networks (Gay & Dousset, 2005; Sydow, 2017). In turn, network evolutions may change the way in which network actors – such as orchestrators – deal with structural governance dilemmas (Paquin & Howard-Grenville, 2013). In response to a recent call for a dynamic theory of network governance by coupling conceptual and empirical work (Dagnino, Levanti, & Destri, 2016), the present research aims to generate a better understanding of how and why governance in inter-organizational networks changes over time and the implications of such governance evolutions for the network actors by means of a meta-ethnographic study. Specifically, a meta-ethnographic analysis of 19 longitudinal case studies provides insight into the interplay between governance at different levels of aggregation and structural dynamics within inter-organizational networks.

This research contributes to the literature on network dynamics, which has emphasized the importance of studying network dynamics for generating a better understanding of the performance of networks and its organizational members (Ahuja, Soda, & Zaheer, 2012). A better comprehension of network performance follows from the focus on governance dynamics in inter-organizational networks. By adopting a meta-ethnographic approach, this research allows to empirically investigate the governance dynamics in different types of networks. As such, this research does not only respond to the paucity of empirical studies in the area of network dynamics, but also demonstrates that governance of inter-organizational networks is always possible in other, although not infinite, ways (Ahuja et al. 2012; Sydow, 2017). By providing insight into the conditions under which path dependencies occur – which is when inter-organizational networks become inflexible and/or develop rigidities over time, this research advances the literature on network governance (Sydow, 2017; Zaheer & Soda, 2009).

## **THEORETICAL BACKGROUND**

### **Dynamics in inter-organizational networks**

Network researchers have long recognized that inter-organizational networks – whether emergent or consciously formed/mandated – are dynamic (Dagnino et al., 2016). Indeed, inter-organizational networks involve representations of connections between organizations, which may change over time (Ahuja et al., 2012; Dagnino et al., 2016; Provan & Kenis, 2008). At any point in time, inter-organizational networks are – in line with the social network analysis literature – characterized by as a set of nodes (organizations) linked by a set of ties that connect these nodes (inter-organizational connections), which result in a network structure or pattern (Borgatti & Halgin, 2011). Network dynamics, in turn, involve changes in the number of nodes (e.g., addition or subtraction of nodes) or changes in the ties that connect the nodes (e.g., creation of new ties, dissolution of existing ties, or modification of ties in terms of content or

strength), which generate an infinite number of patterns of ties that connect nodes (Ahuja et al., 2012). In other words, networks dynamics are associated with changes in terms of nodes, ties, and patterns, which constitute the network structure or architecture.

Provan & Lemaire (2011) point out that the network dynamics depends on both events in the external environment (exogenous drivers) and incentives and pressure from network members (endogenous drivers). Sydow (2017) confirms that exogenous environmental uncertainty and endogenous system uncertainty need to be considered when managing inter-organizational networks over time, in that both affect the evolution or dynamics of the network. Ahuja et al. (2012) also contend that network dynamics can be driven by not only exogenous or random factors beyond the control of the network, but also agency, opportunity, and inertia within the network. Here, agency refers to network actors' motivation or ability to shape the network architecture or structure, opportunity refers to the structural context that encourages linking within groups rather than across them, and inertia encompasses the pressure for persistence and change (Ahuja et al., 2012).

These exogenous and endogenous factors associated with changes in the network structure or architecture also drive network evolutions over time (Popp, MacKean, Casebeer, Milward, & Lindstrom, 2014). Gulati, Sytch and Tatarynowicz (2012) identified an inverted U-shaped evolutionary pattern in small-world wherein the growth of the network is followed by its decline. In the early stages, a lot of opportunities exist for forming bridging ties, but these opportunities turn into sources of constraint in later stages due to homogenization of the networks and separation of some clusters of network actors from the network. In other words, the formation of bridging ties declines, while the global separation is growing (Gulati et al., 2012). Bryson, Crosby & Bryson (2009) also observe a shift from fluid and participatory network structures to more exclusive and hierarchical ones throughout the life cycle of networks. A more recent review of the network evolution literature identified four stages: (1)

formation, (2) development and growth, (3) maturity, sustainability, and resilience, and (4) death and transformation (Popp et al., 2014). Interestingly, governance appears to play a crucial role in the evolution of networks across network phases (Dagnino et al., 2016; Provan & Kenis, 2008). The next section further elaborates on governance mechanisms in inter-organizational networks.

### **Inter-organizational network governance**

Governance can be defined as an interaction between people or a group of people, where the decision-making is not the responsibility of only one of the parties; but where a complex interplay of control and balancing mechanisms should enable them to make decisions whereby the interests and goals that lie in the foundations of their relationship are realized (Eeckloo 2008). This definition suggests that governance involves rules and forms that guide collective decision-making. Extant research suggests that the same goes for network governance, which is defined as “a mechanism of reaching and implementing decisions whereby, instead of hierarchy and command or markets and prices, networks and cooperation are at work” (Hollstein, Matiaske, & Schnapp, 2017: 1). Building on transaction cost economics and social network theory, governance in inter-organizational networks can resolve in multiple ways.

The transaction cost perspective argues that the transaction costs of exchange are the most significant determinants of the governance form (Zaheer & Venkatraman, 1995). In response to exchange hazards, managers may craft complex contracts that define remedies for foreseeable contingencies or specify processes for resolving unforeseeable outcomes. When such contracts are too costly to craft and enforce, managers may choose to vertically integrate. These explicit organizational structures and legal agreements are labeled as formal, legal or contractual governance (Lusch & Brown, 1996).

Following social network theory, the formation of ties between actors requires specific coordination and integration mechanisms (Grandori & Soda, 1995) able to support repeated interaction (Nooteboom, 2004) while safeguarding actors from the risks of inter-organizational collaboration (Gulati & Gargiulo, 1999). In response to possible exchange hazards, managers establish contracts that define remedies for foreseeable contingencies or specify processes for resolving unforeseeable outcomes (Williamson, 1981). An alternative governance form involves rules based on implicit understandings, which are usually socially derived and therefore not accessible through written documents or sanctions through formal positions (Poppo & Zenger, 2002). In other words, this form of governance is embedded within social relationships. In line with this relational component in social network theory, prior work based upon transaction costs economics also shows that relational contracting is the basis for an alternative governance form between markets and hierarchies (Mariotti & Cainarca, 1986). Relational governance can – in comparison with formal or contractual governance – be considered as rather informal and social, in that it is based upon trust and relational norms (Griffith & Myers, 2005). Trust refers to the confidence in the partner's integrity, credibility, and benevolence in a risky exchange relationship (Zaheer et al., 1998) whereas relational norms refer to shared expectations about the behaviors of each party in inter-organizational networks (Heide & John, 1992).

## **METHODOLOGY**

### **Research design**

Meta-ethnography is a foundation for a methodology to synthesize existing case studies. It is initially described by Noblit and Hare (1988) and enhanced by Doyle (2003) who has tested and enhanced this methodology. Synthesis in a meta-ethnographic study does not mean transferability of similar findings on a case by case basis but rather a reconceptualization across

studies. Indeed, this synthesis is based on the findings and interpretations of existing case studies, but a synthesis is achieved through a process of constructing interpretations across case studies. In line with case study research, the quality of meta-ethnographic research depends on appropriate case selection (Doyle, 2003; Eisenhardt & Graebner, 2007; Stake, 2008). Therefore, meta-ethnographic researchers first make an inventory of case studies before purposively selecting the cases for their research (Doyle, 2003). Purposive case selection, in turn, is not additive, which means that meta-ethnographers are not necessarily looking for cases from the same research perspective or with the same purpose, findings and/or interpretations. Instead, case selection decisions are based on which case studies provide the most fruitful data for the research question or the best learning opportunities (Doyle, 2003, Noblit & Hare, 1988). Indeed, Doyle (2003) point out that the goal of meta-ethnographic research is to learn from a collection of individually unique cases (p. 331). The next section elaborates on the selection of cases with the biggest learning opportunities.

### **Case selection**

To identify the cases with the biggest learning opportunities, we searched the Web of Science for longitudinal case studies related to inter-organizational networks. Our search string involved synonyms of inter-organizational networks (e.g., inter-organizational relationships, cooperative arrangements, and strategic alliances) in combination with the search terms ‘case’ or ‘longitudinal’. After the exclusion of articles in other areas than “business economics” and non-English articles, 809 records were retained (see figure 1). A case was included when the inter-organizational network was an emergent or consciously formed/mandated group of more than two organizations connected to each other by a certain pattern or structure that was studied over time.

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To select cases with the best opportunities to learn, theoretical and methodological boundary conditions were – in line with the recommendations for meta-ethnographic research – taken into consideration: each study had to be more than a description of a case, but involved interpretation and analysis based upon established theories and methods (Doyle, 2003). Established theories are defined as widely accepted in the literature, which means that the theory is extensively and favorably cited in the literature over a period of time (Doyle, 2003). As shown in Table 1, the selected case studies are based on social network theory, resource based view, dynamic capabilities, social capital theory, service dominant logic, and institutional theory. The research methods were deemed established if the authors demonstrated that they conducted case study research in rigorous ways. As recommended by Doyle (2003), case studies were excluded if they did not include multiple data sources. As shown in Table 1, all case studies include minimum two types of data sources. Additionally, we also excluded cases without explicit descriptions of methods of analysis. If these analysis methods were described, data triangulation, debriefing, and member checks were used as selection criterion for our meta-ethnographic study.

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The sampling strategy also centers on maximum variation by taking different types of case studies into consideration. In line with the recommendations of Noblit and Hare (1988), both single case studies and multiple case studies were included in the meta-ethnographic research. These case studies also vary in terms of the time period (2 to 67 years) and the network

perspective (ego network versus whole network). With regard to the network characteristics, networks stem from different industries and have different goals (commercial versus social versus both). As such, this sampling strategy has a positive impact on the transferability of the research findings (Doyle, 2003).

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### **Case analysis**

Original case studies involve text with interpretations of the researchers and even the language of the researchers in their written interpretations (Dixon-Woods, Shaw, Agarwal, & Smith, 2004). These textual units are subjected to an augmented or constructivist grounded theory approach with a focus on ‘translations’, which are interpretations of the interpretations and talks of researchers through a new lens (Doyle, 2003). Specifically, the textual data associated with each case are viewed as fresh data and descriptive narratives (translations) are written to tell detailed stories about the network governance dynamics, thereby holding to the words of the original authors. Next, the descriptive narratives of different cases were juxtaposed to identify key descriptors for each case, which were used to rewrite the descriptive narratives. Finally, the key descriptors across cases were juxtaposed to identify the main themes associated with network governance dynamics. As such, this data analysis procedure mirrors the idea of within-case and cross-case analyses in case study research (Yin, 2013).

## **RESULTS**

### **Network governance at different levels of aggregation**

Based upon the meta-ethnographic analyses, a wide variety of governance mechanisms are identified in networks (see Table 3). These network governance mechanisms are

characterized as relational or formal. **Relational governance mechanisms** are based on repeated interactions (case 3, 10, 13, 15) and joint actions (case 1, 2, 4, 11, 12, 14), represented by trust. **Formal governance mechanisms**, in turn, encompass making contractual agreements for cooperation (case 4, 5, 6, 7, 8, 9), establishing forum or platform (case 15 and 18), offering boards seats to directors of network organizations (case 9), giving more decision power to the lead organization (case 11), establishing network administrative organizations (case 13, 14, 17, 19), establishing new organizations (case 3, 9, 11), and establishing joint venture (case 16). Relational and formal governance mechanisms are used at different levels of aggregation: the **single dyad level** associated with interactions between two network organizations, the **multiple dyad level** related to interactions between a focal organization and multiple network organizations, and the **network level** related to interactions between multiple network organizations. Illustrative examples of the governance mechanisms at different levels of aggregation are given in Table 3.

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### **Network governance dynamics**

With regard to how governance mechanisms change over time in inter-organizational network, Table 4 demonstrates that almost every case is characterized by unique patterns of governance mechanisms over time. These governance patterns can be categorized in five groups. The **purely relational governance pattern** involves cases where an increase of relational governance at the multiple dyad level is observed (case 1, 3, 12, and 16), which can – in the long run – be followed by a decrease of relational governance at the multiple dyad level (case 16). The **relational – formal governance pattern** involves cases characterized by an increase of relational governance at the multiple dyad or network level, followed by an increase

of formal governance at respectively the single/multiple dyad level and the network level (case 2, 4, 5, 9, 10, 11). After the formal governance increase, all cases within this group – except for case 5 – are characterized by an increase of relational governance at the multiple dyad or network level. This sequence of relational-formal-relational governance mechanisms is repeated over time in case 11. The **combined governance pattern** consists of cases starting with a simultaneous increase of relational and formal governance at the multiple dyad level, followed by decreases and subsequently increases of relational and formal governance at the multiple dyad level (case 6, 7, and 8). In **formal - relational governance pattern**, we observe a shift from increased formal governance at the network level over increased relational governance at the network or multiple dyad level (respectively case 13/14/15 and 19), which can be followed by increased formal and relational governance at the multiple dyad level (case 19). The **purely formal governance pattern** only consists of increases in formal governance at the network level (case 17 and 18).

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**Insert Table 4 about here**  
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### **Origins of network governance dynamics**

The previous section identified five network dynamic patterns: purely relational, relational-formal, combinations of relational and formal, formal-relational, and purely formal governance patterns. Interestingly, all case descriptions start when the network is formed, which implies that the network formation stage involves relational governance mechanisms, formal governance mechanisms, or combinations of both governance mechanisms.

Further inquiry revealed that **relational governance mechanisms** are applied when all involved network partners expect concrete benefits from collaborating, such as the opportunity to develop a new product by combining resources and capabilities (case 1), increase efficiency

(case 2), or enter a new market (case 9). In most cases, focal organizations engage in relational governance with partner organizations by highlighting the opportunities, thereby forming lead organization networks (case 1, 3). A notable exception is case 9, in that this network does not involve a lead organization. Instead, a multitude of organizations with specific resources and competencies engages in repeated interactions due to shared values and norms. The presence of shared values and norms guarantees achievement of a goal that is shared by all network organizations (here, fair trade) (see Quote 1).

*Quote 1: “Through the creation of companies and continual enclaving fair trade has formed an interconnected network, which this article refers to as the ‘ideological network’, of organizations pursuing similar goals in relation to improving living conditions in the developing world.” (Davies 2009, case 9, p. 188)*

Organizations who adopt **formal governance mechanisms** in the network formation stage have less insight into the concrete benefits that can be established through a network. These organizations do engage in a network with formal governance mechanisms to either meet governmental requirements (case 18) or force themselves to identify the concrete cooperation benefits by establishing a network administrative organizations (case 13) or forum (case 15). Case 14 even involves a combination of both, in that a group of organizations applied for governmental funding to form a network administrative organizations (see Quote 2).

*Quote 2: “In late 1990, a state economic development council applied for and obtained a large grant to develop “European-style ... networks ... for small business development.” The initial grant included multiyear funding for network operations, such as staff and office space, and for projects such as trade shows and catalogs.” (Human & Provan 2006, case 14, p.335)*

A **combination of relational and formal governance mechanisms** occurs in networks with large, established organizations. Those organizations engage in formal governance

mechanisms by force of habit, but the main decisions are based upon relational governance mechanisms. In other words, relational governance mechanisms generate strong ties, while this is not the case for formal governance mechanisms (see Quote 3).

*Quote 3: “While defining marketing agreements, and licensing and patent agreements as weak ties,” (Capaldo 2007, p.589 )*

### **Path dependence with regard to network governance dynamics**

After its formation, networks are characterized by a status quo or changes in terms of governance mechanisms. A status quo in terms of **formal governance** goes along with decreased performance of the network (see Quote 4), while the opposite holds for formal governance mechanisms that are complemented with relational governance mechanisms over time. Further inquiry revealed that a status quo in terms of formal governance merely occurs due to a lack of time and financial resources, or better, a lack of motivation to spend resources on participating in a network that is mandated by the government (see Quote 5). The conditions under which formal governance mechanisms in inter-organizational networks are complemented with relational governance mechanisms over time can be driven by the formal governance mechanisms. Specifically, the analysis reveals that formal governance mechanisms facilitate the adoption of relational governance mechanisms to the extent that these formal governance mechanisms force network organizations to come together (e.g., steering groups with directors of network organizations). The network structure, in turn, might also evolve. If the network attracts new types of actors or actively builds connections with new types of actors, networks prefer to engage in relational governance mechanisms rather than subjecting these actors to the already established formal governance mechanisms. The reasons is that new network organizations often play a different role in the network. Case 19, for instance, involves a network of industrial organizations. After the establishment of a network administrative

organization (formal governance mechanism at the network level), the network engages in frequent trust-based exchanges with the industry (see Quote 6).

Quote 4: *“a feeling of patient dissatisfaction is reported due to a lack of coordination among the operators in the service network”* (Tzannis 2013, case 18, p. 1049)

Quote 5: *“GPs signaled a strong feeling and support toward individualism and sometimes a lack of vision for the potential future evolution of their profession.”* (Tzannis 2013, case 18, p. 1050)

Quote 6: *“NISP primarily undertook actions we labeled engagement because NISP staff sought to involve various audiences, introducing them to the concept of IS and its potential, and conveying its value.”* (Paquin & Howard-Grenville 2013, case 18, p. 1633)

A status quo in terms of **relational governance** exists when there is a balance between the needs of the network organizations and the network as a whole. In those situations, the organizations engaged in the network were able to build new knowledge (case 1), develop new products (case 12), and generate profits and/or achieve social objectives (case 16). In most cases, however, relational governance mechanisms are complemented with formal governance mechanisms over time (see Quote 7), although a shift from relational to formal governance mechanisms may go along with resistance to change (see Quote 8). This change, however, is recommended when the network is growing in terms of number of member organizations, as illustrated in case 11. A larger number of network organizations necessitates mechanisms to control the contribution of each organization to the network. If network growth is not associated with formalization, this may result in negative repercussions for the network members (see Quote 4). Furthermore, the network context may also necessitate a shift from relational to formal governance mechanisms, as illustrated by case 5 where the emergence of the knowledge society and globalization resulting in increased competition necessitate contractual agreements.

In most cases, the shift from relational to formal governance mechanisms is associated with a reduction of the number of network organizations (see Quote 9), or a network where some ties are subject to formal governance mechanisms while other are governed through relational governance mechanisms (case 11).

Quote 7: *“The original relation, which (at least formally) was based on consensus building among independent organizations, evolved towards a more vertical, command-and-control style of decision making, where Corona made all relevant decisions and the non-profit partner implemented them.”* (Gutiérrez et al. 2013, case 11, p. 62)

Quote 8: *“This formalized method has, however, received considerable opposition from the founders, who consider the former trust relationships to be adequate.”* (Davies 2009, Case 9, p. 118)

Quote 9: *“From Curtin’s perspective, there is an intentional move towards limiting members and establishing greater commitment, i.e. the formation of a net. This intention is not necessarily shared by the other participants who may well be comfortable with a looser network platform.”*(Butler & Soontiens 2015, case 5, p.486)

## **DISCUSSION**

Drawing on a meta-ethnographic study of longitudinal cases, this research aimed to generate a better understanding of how and why governance in inter-organizational networks change over time and the implications of such governance evolutions for the network actors. As background, this research identifies different relational and formal governance mechanisms, which are applied at the single dyad, multiple dyad, and network level. By plotting these governance mechanisms at different levels of aggregation over time, five patterns of governance mechanisms are observed throughout the evolution of a network: purely relational,

relational-formal, combinations of relational and formal, formal-relational, and purely formal governance patterns. The identification of these patterns throughout the network evolution does not only respond to the paucity of empirical studies in the area of network dynamics, but also contributes to a better understanding of how governance mechanisms in inter-organizational networks change over time (Dagnino, et al., 2016).

Specifically, the present research contributes to a better understanding of network governance dynamics by investigating not only its origins, but also factors that explain further evolutions of these dynamics in inter-organizational network. Network governance dynamics originate from and are further shaped by complex combinations of endogenous factors (i.e., network governance mechanisms and network structure) and exogenous or random factors beyond the control of the network (i.e., market and governmental factors). This finding builds on the network literature, which demonstrates that endogenous and exogenous factors are associated with changes in the network structure or architecture (Ahuja et al., 2002) and also drive network evolutions over time (Popp et al., 2014).

The five governance patterns in inter-organizational networks, however, also demonstrate that network governance is always possible in other, although not infinite, ways (Ahuja, et al., 2012, Sydow, 2017). Indeed, the present research demonstrates that inter-organizational networks characterized by relational governance mechanisms in early stages can be successful when these mechanisms are complemented by formal governance mechanisms in later stages, but the same goes for inter-organizational networks who restrain themselves to relational governance mechanisms throughout the network lifecycle. With regard to inter-organizational networks characterized by formal governance mechanisms in early stages, the present research demonstrates that the absence of relational governance mechanisms in later stages is detrimental for the network performance. In other words, the adoption of formal

governance mechanisms necessitates relational governance mechanisms and therefore constrains – or at least – shapes the options for action.

By providing insight into the conditions under which path dependencies occur – which is when inter-organizational networks become inflexible and/or develop rigidities over time, this research advances the literature on governance in inter-organizational networks (Sydow, 2017, Zaheer & Soda, 2009). By investigating governance mechanisms applied in inter-organizational networks, the present research also contributes to a better understanding of formal and relational governance in a network context (Zaheer & Soda, 2009). More particularly, relational governance mechanisms involve repeated interactions and joint actions represented by trust at the single dyad, multiple dyad, and network level. Formal governance mechanisms, in turn, relate to – among others – contractual agreements, the establishment of steering groups or network administrative organizations, or the founding of new organizations at the single dyad, multiple dyad, and network level.

Although the meta-ethnographic approach allowed to empirically investigate the governance dynamics in a wide range of inter-organizational networks over time, this research method has – like any other research methodology – limitations. Meta-ethnographic research relies on case study analyses and interpretations of other researchers. As such, this research method is subject to the quality of these case study analyses. The quality of the case study analyses was taken into consideration by adopting the measures of Doyle (2013), but future research validate our research findings by adopting alternative research methods. One path to these ends involves a longitudinal survey research where people who participate in inter-organizational networks in different stages of the network life cycle provide information about the network governance mechanisms and the network performance. This research might contribute – along with the present contribution – for a better understanding of network governance at the intersection of necessity and impossibility (Sydow et al., 2017).

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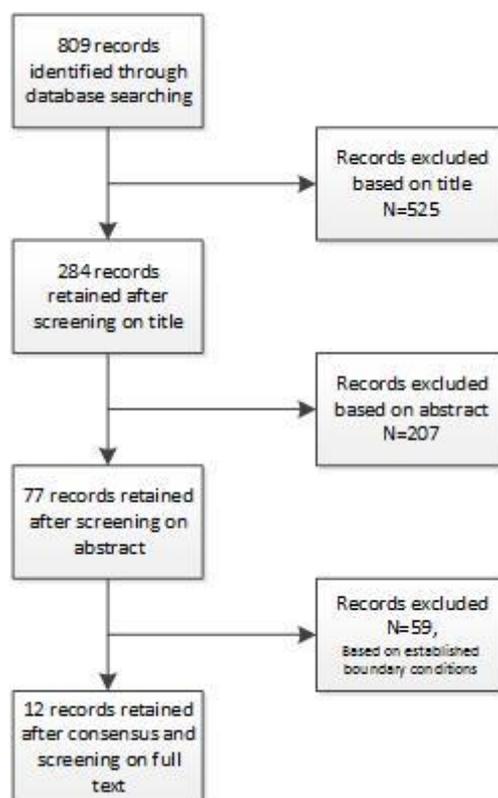
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FIGURE 1



**TABLE 1****Case selection**

<b>PAPER</b>	<b>THEORY</b>	<b>METHOD</b>				
		<b>Case study design</b>	<b>Data collection methods</b>			
			Interviews	Participant observation	Quantitative data	Secondary data
Aaboen et al. 2013	Resource based view	Multiple case study	x			x
Alvarez et al. 2010	Institutional theory	Single case study	x			x
Butler and Soontiens 2015	Dynamic capabilities	Single case study		x		x
Capaldo 2007	Social network theory	Multiple case study	x	x	x	x
Davies 2009	Social capital theory	Single case study	x	x		x
Ford and Redwood 2005	Dynamic capabilities	Single case study				x
Gutiérrez et al. 2016	Resource based view	Multiple case study	x		x	
Human and Provan 2000	Institutional theory	Multiple case study	x	x	x	x
Jack et al. 2010	Resource based view	Single case study	x	x	x	x
Lin et al. 2010	Dynamic capabilities	Single case study	x			x
Tello-Rozas et al., 2015	Service dominant logic	Single case study	x	x		x
Tzannis 2013	Service dominant logic	Single case study	x			x
Paquin and Howard-Grenville 2013	Institutional theory	Single case study	x	x	x	x

**TABLE 2****Case characteristics**

<b>Author</b>	<b>Case</b>	<b>Time period</b>	<b>Network perspective</b>	<b>Industry</b>	<b>Goal</b>
Aaboen et al. 2013	Case 1	4 years	Ego network	Wood and textile	Commercial
Aaboen et al. 2013	Case 2	4 years	Ego network	Food	Commercial
Aaboen et al. 2013	Case 3	4 years	Ego network	Gaming	Commercial
Alvarez et al. 2010	Case 4	5 years	Ego network	Fair trade	Commercial and social
Butler and Soontiens 2015	Case 5	8 years	Ego network	Teaching	Commercial
Capaldo 2007	Case 6	6 years	Ego network	Furnishing	Commercial
Capaldo 2007	Case 7	6 years	Ego network	Furnishing	Commercial
Capaldo 2007	Case 8	6 years	Ego network	Furnishing	Commercial
Davies 2009	Case 9	9 years	Ego network	Fair trade	Commercial and social
Ford and Redwood 2005	Case 10	45 years	Ego network	Leather	Commercial
Gutiérrez 2013	Case 11	7 years	Ego network	Construction Materials	Commercial and social
Gutiérrez 2013	Case 12	7 years	Ego network	Gas Utility	Commercial and social
Human and Provan 2000	Case 13	5 years	Whole network	Secondary wood-products	Commercial
Human and Provan 2000	Case 14	5 years	Whole network	Secondary wood-products	Commercial
Jack et al. 2010	Case 15	7 years	Whole network	Starting Entrepreneurs	Commercial
Lin et al. 2010	Case 16	68 years	Ego network	Machinery	Commercial
Tello-Rozas et al. 2015	Case 17	3 years	Whole network	Public sector	Social
Tzannis 2013	Case 18	3 years	Whole network	Health care	Social
Paquin and Howard-Grenville 2013	Case 19	5 years	Whole network	Public sector	Commercial and social

**TABLE 3****Governance mechanisms at different layers of aggregation.**

<b>Governance mechanism</b>	<b>Illustrative case evidence</b>
Relational governance at single dyad level	Alpha has learnt a lot from working with C6 regarding how to work with international customers. It was also in the interaction with C6 that the idea for the latest add-on was born (Case 3).
Relational governance at multiple dyad level	Delta had formed a partnership with (P2) that modifies the wood to withstand rot and fire. The partner has one production line dedicated to DeltaWood and the contacts have been intensive since they need to interact concerning every customer order. A national distributor (D) sells the product through 170 retailers to end customers all over Sweden.
Relational governance at network level	At this time there was a big change in the outcomes of interaction with the Gloversville tannery, Booth's first move into ownership of manufacturing (Case 10).
Formal governance at single dyad level	Pre-existing relationships, few actors and a high level of motivation from actors involved led to very intense and frequent communication among all parties (Case 4).
Formal governance at multiple dyad level	Alternatively to the contractual methods of management, self-enforcement leads to both formal and informal mechanisms. The formal mechanisms, such as financial or investment hostages (Williamson, 1983), rely on gaining control of joint assets to align economic incentives to maintain the relationship. This is visible in Day's relationships in joint ventures with CRG, Sainsbury's and Starbucks, and also in its offering of board seats to maintain close ties with Comic Relief and Christian Aid. (Case 9)
Formal governance at network level	In the exploitation phase that began in 2010 under new management, Corona's same-sector partnerships were formalized through contracts (Case 11).

**TABLE 4****Network governance dynamics across cases**

<b>Author – year</b>	<b>Case</b>	<b>Network structure</b>	<b>Governance mechanisms</b>	<b>Network dynamics</b>	<b>governance</b>
Aaboen et al. 2013	Case 1	Increase in the number of ties between the lead organization and partner organizations	Increase in relational governance between the lead organization and the partner organizations (multiple dyad)	relational	
Aaboen et al. 2013	Case 2	Increase in the number of ties between the lead organization and partner organizations. Two of the partner organizations connected with the lead organization (key partners) have a lot of ties with other organization thereby generating new ties with the lead organization over time.	(1) Increase in relational governance between the lead and the partner organizations (multiple dyad), (2) An additional increase in relational governance between the lead organization and its key partners (multiple dyad) and an increase in formal governance between one of the two key partners and the lead organizations (single dyad), (3) Increase in relational governance between the lead and the new partner organizations (multiple dyad)	relational - formal	
Aaboen et al. 2013	Case 3	(1) Foundation of an acquisition between the lead organization and the first customer (2) Thereby generating ties with new partner organizations	(1) Increase in relational governance between the lead organization and the partner organizations (multiple dyad)	relational	
Alvarez et al. 2010	Case 4	(1) Increase in the number of ties between the lead organization and partner organizations	(1) Increase in relational governance between the lead and the partner organizations (multiple dyad), (2) Increase in formal governance from the establishment of a basic programme to the enrolment of more specified programme wich	relational - formal	

			includes contracts and quality assesment (network level), (3) Increase in the strength of the relationships due to a redesigned programme	
Butler and Soontiens 2015	Case 5	(1) Increase in the number of ties between the lead organization and partner organizations (2) Decrease in the number of ties	(1) Increase in relational governance between the lead and the partner organizations (multiple dyad)(loose network structure) (2) Intensifying relational governance between the lead and the remaining partner organizations and an increase in formal governance between the remaining partner organizations and the lead organizations	relational - formal
Capaldo 2007	Case 6	(1) Increase in the number of ties between the lead organization and partner organizations (2) Decrease in the number of ties (3) Increase in the number of ties between the lead organization and partner organizations (4) Decrease in the number of ties (5) Increase in the number of ties between the lead organization and partner organizations	1) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad) (2) Increase in relational governance between a select number of ties (multiple dyad) while decreasing the relational and formal governance of the other ties (3) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad) (4) Increase in relational governance between a select number of ties (multiple dyad) while decreasing the relational and formal governance of the other ties (5) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad)	formal and relational

<p>Capaldo 2007</p>	<p>Case 7</p>	<p>(1) Increase in the number of ties between the lead organization and partner organizations (2) Decrease in the number of ties (3) Increase in the number of ties between the lead organization and partner organizations</p>	<p>1) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad) (2) Increase in relational governance between a select number of ties (multiple dyad) while decreasing the relational and formal governance of the other ties (3) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad)</p>	<p>formal and relational</p>
<p>Capaldo 2007</p>	<p>Case 8</p>	<p>(1) Increase in the number of ties between the lead organization and partner organizations (2) Decrease in the number of ties (3) Increase in the number of ties between the lead organization and partner organizations (4) Decrease in the number of ties (5) Increase in the number of ties between the lead organization and partner organizations</p>	<p>1) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad) (2) Increase in relational governance between a select number of ties (multiple dyad) while decreasing the relational and formal governance of the other ties (3) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad) (4) Increase in relational governance between a select number of ties (multiple dyad) while decreasing the relational and formal governance of the other ties (5) Increase in relational and contractual governance between the lead and the partner organizations (multiple dyad)</p>	<p>formal and relational</p>

Davies 2009	Case 9	(1) Foundation of new organization (network ownership) building on the ties between several partners in the network, (2) Increase in the number of ties between these organizations and the partner organizations	(1) Increase in relational governance between the organization whereby the newly founded organisations are central (multiple dyad), (2) An increase in contractual and formal agreements between one of the central organizations with another partner	relational - formal
Ford and Redwood 2005	Case 10	(1) Increase in the number of ties between the lead organization and partner organizations. (2) Tie with one of the partners generates ties with new partner organizations (3) Decrease in the number of ties	(1) Increase in relational governance between the lead and the partner organizations (multiple dyad), (2) An additional increase in contractual governance between the lead organization and one of its key partners (single dyad, change in ownership), (3) Increase in relational governance between the lead and the new partner organizations (multiple dyad)	relational - formal
Gutiérrez et al. 2016	Case 11	(1) Establishment of a tie between the lead organization and another partner (2) Increase in the number of ties between the lead organization and new partner organizations (3) Decrease in the number of ties between the lead organization and these partner organizations (4) Increase in the number of ties between the lead organization and new partner organizations (5) End of these ties between the lead organization and the partner	(1) Increase in relational governance between the lead organization and the partner organizations (multiple dyad) (2) Intensifying relational governance between the lead and the remaining partner organizations and an increase in formal governance between the remaining partner organizations and the lead organizations (3) Increase in relational governance between the lead and new partner organizations (multiple dyad), (4) Stop of relational governance, (5) Change in contractual governance of the project (network level) (change in the ownership), increase in relational governance and formal between the lead organization and one new partner	relational - formal

		organizations, (6) Replacement of ties with NPOs by one tie HRM-firm	organization(single dyad) and a decrease of the other relationships (6) Contractual governance of same-sector-partnerships	
Gutiérrez et al. 2016	Case 12	(1) Increase in the number of ties between the lead organization and partner organizations. (2) One of the partner organizations connected with the lead organization (key partner) have ties with other organizations thereby generating new ties with the lead organization over time.	(1) increase in relational governance between the lead organization and the partner organizations (multiple dyad)	relational
Human and Provan 2000	Case 13	(1) Increase in the number of ties between the partner organizations (2) Decrease in the number of ties between the partner organizations.(3) Increase in the number of ties between the partner organizations	(1) establishment of a NAO which is an increase in contractual governance (network level), (2) Further increase in relational governance between the partner organizations (network level), (3) Decrease in relational governance, (4) Increase in relational governance	formal - relational
Human and Provan 2000	Case 14	(1) Increase in the number of ties between the partner organizations (2) decrease in the number of ties between the partner organizations.(3)	(1) establishment of a NAO which is an increase in contractual governance (network level), (2) further increase in relational governance between the partner organizations (network level), (3) decrease	formal - relational

		Further decrease in the number of ties between the partner organizations	in relational governance, (4) further decrease in relational governance	
Jack et al. 2010	Case 15	(1) Increase in the number of ties between a lead organization and the partner organizations (2) Increase in the number of ties between the partner organizations (3) Decrease in the number of ties between the partner organizations (4) Decrease in the number of ties between the partner organizations (5) Increase in the number of ties between the partner organizations	(1) lead organization establishes formal governance at network level (i.e. forum), (2) Increase in relational governance between the partner organizations (network level), (3) Decrease in relational governance between the partner organizations (network level), (4) Increase in relational governance between the partner organizations (network level),	formal - relational
Lin et al. 2010	Case 16	(1) Increase in the number of ties between a lead organization and the partner organizations (2) Further increase in the number of ties between a lead organization and a different type of partner organizations (3) Decrease in the number of ties, (4) Further decrease in the number of ties, (5) Increase in the number of ties	(1) Increase in relational governance between the lead organization and the partner organizations (multiple dyad), (2) Increase in relational governance between the lead organization and the partner organizations (multiple dyad), (3) Increase in relational governance between a select number of ties (multiple dyad) while decreasing the relational governance of the other ties, (4) Decrease in relational governance between the lead organization and the partner organizations (multiple dyad), (5) Increase in relational governance between the lead organization and the partner organizations (multiple dyad)	relational

Tello-Rozas et al., 2015	Case 17	(1) Increase in the number of ties between the partner organizations	(1) Increase in the contractual governance on network level (NAO) and consequently formal governance	formal
Tzannis 2013	Case 18	(1) Increase in the number of ties between the partner organizations	(1) Increase in the formal governance on network level (NAO) and consequently formal governance	formal
Paquin and Howard-Grenville 2013	Case 19	(1) Increase in the number of ties between the partner organizations, (2) decrease in the number of partners in the network	(1) Contractual network governance, (2) Increase in relational governance between the NAO and the partner organizations (multiple dyadic), (3) Increase in relational and formal governance between the members of the organization (multiple dyadic)	formal - relational