

A social network perspective on Open Strategy

CHAPTER 16

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Abstract:

Social network research offers a diverse repertoire of theories and frameworks to describe, analyze, and explain the behaviors and consequences that emerge from increased transparency and inclusion in strategy processes. Introducing openness in the strategy process on one or both dimensions has the potential to fundamentally change the way *how* and with *whom* actors interact and build relationships thereby impacting outcomes relevant to a successful strategy process. This chapter provides links to research questions addressed in existing Open Strategy studies to discuss multiple levels of analysis and constructs applied in network research. Based on an established 2x2 framework categorizing research on the consequences of social networks (explanatory goals: social homogeneity vs. performance variation; explanatory mechanisms: network structure vs. content) different opportunities for future Open Strategy research are identified. Thereby this chapter shows that a network perspective offers a diverse and promising range of avenues for future studies into Open Strategy. It is particularly suited to providing insights into complex systems of social relationships associated with increased interaction and exchange in the context of greater openness in the strategy process.

Keywords: Social networks, network levels, network constructs, social capital, diffusion

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1. Introduction

Social network theory has been suggested to offer a particularly suitable perspective for studying both the emergence of increased openness in strategy process as well as its consequences at multiple levels (Hautz, 2017; Hautz *et al.*, 2017). Social network research and analysis have featured in the social sciences for nearly a century (Borgatti *et al.*, 2009), but their application in an organizational context has increased significantly in recent years, undergoing exponential growth (Borgatti and Foster, 2003; Phelps *et al.*, 2012). This dramatic increase is part of a general shift of research towards more relational, contextual, and systemic understandings (Borgatti and Foster, 2003). In this context, social networks offer a diverse repertoire of theories and frameworks to describe, analyze, and explain the behaviors and consequences that emerge from increased transparency and inclusion in strategy processes. These two dimensions of Open Strategy are based on concepts central to the network perspective, as they refer to increased internal and external transfer of strategic information and to external and internal exchange of information, views, and proposals intended to shape the continued evolution of an organization's strategy (Whittington *et al.*, 2011; Hautz *et al.*, 2017). Thereby, relationships are established between actors from within and outside organizational boundaries through which they exchange resources such as information, knowledge, and ideas, and through which they build and accumulate resources such as trust and power (Carpenter *et al.*, 2012; Phelps *et al.*, 2012). Introducing openness in the strategy process on one or both dimensions – also supported by the increased use of social technologies (Haefliger *et al.*, 2011; von Krogh, 2012; Majchrzak and Malhotra, 2013; Mack and Szulanski, 2017) – has the potential to fundamentally change the way *how* and with *whom* actors interact and build relationships (Hautz, 2017), thereby impacting outcomes relevant to a successful strategy

process. Hence, a social network perspective could offer new insights in the area of Open Strategy.

This chapter continues as follows. The next section briefly introduces network terminology and concepts, such as multiple levels of analysis and network constructs. To exemplify these, I provide links to research questions addressed in existing Open Strategy studies. Then a central 2x2 framework categorizing research on the consequences of social networks is outlined (Borgatti and Foster, 2003). Using this framework, I will identify opportunities to inform future Open Strategy research. Key themes identified in the four quadrants of the framework are summed up in the final section, which highlights the advantages of a network-based research agenda.

2. Social network research: levels and constructs

Over the past decades, scholars have devoted considerable attention to examining networks in organizational and management contexts and have addressed numerous research questions (see, for example, Kilduff and Brass, 2010; Carpenter *et al.*, 2012; Phelps *et al.*, 2012; Tasselli *et al.*, 2015 for extensive reviews). These network studies span multiple fields of research and vary significantly in the level of networks analyzed (Zaheer *et al.*, 2010) and the level of network constructs included in their theoretical models (Borgatti and Foster, 2003; Moliterno and Mahony, 2011; Carpenter *et al.*, 2012). Given the space constraints, this chapter does not provide a comprehensive review of the field or detail the individual research areas and theoretical lenses adopted in network research. Rather, it outlines those key concepts which are seen to be particularly relevant for addressing and contributing to central themes in Open Strategy research.

Scholars have drawn on network literature to address numerous questions related to opening up the strategy process (Kilduff and Brass, 2010; Carpenter *et al.*, 2012; Hautz, 2017), such as

the creation and implementation of creative outcomes (Burt, 2004; Obstfeld, 2005; Uzzi and Spiro, 2005; Perry-Smith, 2006; Fleming *et al.*, 2007; Baer, 2010; Lingo and O'Mahony, 2010; Sosa, 2011), increased knowledge transfer and information sharing (Constant *et al.*, 1996; Hansen, 1999; Hansen, 2002; Reagans and McEvily, 2003; Phelps *et al.*, 2012; Tortoriello *et al.*, 2012), power and influence (Brass and Burkhardt, 1993; Ibarra and Andrews, 1993), or strategic decision making (McDonald and Westphal, 2003). The majority of this work defines a network as a social phenomenon composed of entities connected by specific dyadic ties reflecting interaction and interdependence (Carpenter *et al.*, 2012). Although recent research has called for the application of a social network perspective to Open Strategy in order to generate additional insights (Matzler *et al.*, 2016; Hautz *et al.*, 2017), so far only one conceptual study on openness in the strategy process (Hautz, 2017) draws explicitly on network literature. However, many existing empirical studies on Open Strategy refer to settings and questions which provide opportunities to explore and extend research questions informed by a network perspective. Therefore, this section refers to the settings of existing studies to demonstrate, explain, and exemplify key concepts and constructs of network literature in the context of Open Strategy. Section three shows how social network research could particularly inform and extend our understanding of behaviors and consequences that emerge from increased transparency and inclusion in strategy processes.

2.1. *Level of analysis*

One of the major appeals of the network approach is the distinctive lens it brings to a range of organizational phenomena at different levels (Kilduff and Brass, 2010; Carpenter *et al.*, 2012). These levels of networks are determined by the scope of focal actors. The nodes, or actors, can be any kind of entity, ranging from individuals to collectives, such as teams, organizations, or countries (and their representatives) (Borgatti and Foster, 2003; Phelps *et al.*, 2012) (see Table x.1).

At a macro-level, social network research focuses on either inter-organizational relations between firms or intra-organizational networks, in which the focal actors are sub-units, divisions, or teams. In both cases, actors consist of multiple individual members or the major representatives of those organizations (Carpenter *et al.*, 2012).

<i>Level of network</i>	<i>Type of focal actor</i>	<i>Relation to Open Strategy Studies</i>
Inter-organizational	relationships between organizations	e.g. inter-organizational workshops (Werle and Seidl, 2012; Pittz and Adler, 2016; Wulf and Butel, 2016)
Intra-organizational	relationships between sub-groups, divisions, teams	e.g. relationships in intra-organizational workshops among divisions, intra-organizational networks (Mount and Pandza, 2017)
Inter-personal	relationships between individual actors	e.g. in online communities, blogs, e-mail lists (Hutter <i>et al.</i> , 2017; Luedicke <i>et al.</i> , 2017; Neeley and Leonardi, 2018)

Table x.1: Level of networks

The first studies to investigate the concept of Open Strategy at an organizational level have begun by examining collaborations in strategy-making across firm boundaries, such as inter-organizational workshops, strategic alliances, coalitions, or business ecosystems (Pittz and Adler, 2016; Wulf and Butel, 2016; Seidl and Werle, 2018). Seidl and Werle (2018), for example, argue that when facing meta-problems – multi-dimensional problems of strategic significance that often cut across different industries or even different sectors – organizations open up their strategizing process and collaborate with other firms. Thereby, organizations seek to complement their own variety and ensure that they attain the overall requisite variety that is needed to capture the meta-problems. These inter-organizational collaborations include, for example, workshops, which are conducted with organizations represented by groups of individuals, consisting mainly of middle and senior managers (Seidl and Werle, 2018). At an intra-organizational level, Mount and Pandza (2017), for example, investigate how IT-based Open Strategy formulation can change and reduce perceptions of intra-organizational power asymmetries between organizational divisions.

Micro-level network research, in contrast, has examined interpersonal ties between individual actors. The majority of empirical studies on Open Strategy focus less on collaborations, interactions, and exchanges between organizations but rather on the inclusion of previously excluded individuals in the strategy process of an organization, often facilitated by social technologies. These newly involved individuals may be internal employees (Stieger *et al.*, 2012; Matzler *et al.*, 2016; Hutter *et al.*, 2017) or external individuals such as, for example, customers, scientists, or students (Aten and Thomas, 2016; Morton *et al.*, 2016; Dobusch and Kapeller, 2017; Malhotra *et al.*, 2017). Social technologies enable the enactment of open practices such as blogging, online communities, or contests, which facilitate asynchronous, direct, low-cost interaction and communication between those participating individuals independent of geographical proximity and time (Stieger *et al.*, 2012; Hautz *et al.*, 2017). Multiple studies in the area of Open Strategy have examined these individual-to-individual relationships through which resources such as knowledge, information, content, and support are provided, as well as the consequences of these relationships (Hutter *et al.*, 2017; Luedicke *et al.*, 2017; Neeley and Leonardi, 2018). In their qualitative case study, Neeley and Leonardi (2018), for example, specifically investigate the mechanisms that enable and encourage employees within an organization to connect with each other and to share knowledge via internal social networking sites. Also, Luedicke *et al.* (2017) examine how 1,650 individual members of the German-based Premium Cola collective communicate via a mailing list in order to set strategy agendas, to participate in strategy deliberations, and to contribute to decision making (Luedicke *et al.*, 2017).

Together with single-level network research, which has explored how networks of individuals, groups, or firms relate to outcomes at the same level of analysis, there has also recently been an increased focus on cross-level network research, which considers relationships connecting individuals and collectivities (Ibarra, Kilduff, and Wenpin, 2005). It is increasingly

acknowledged that organizations are multi-level systems, where one level of network influences higher and/or lower levels of the system (Moliterno and Mahony, 2011). Hence, micro-level interpersonal interactions also relate to higher-level organizational outcomes. Trust, for example, develops as a result of interpersonal exchanges, and provides the foundation for the development of trust in the whole intra-organizational network (Tasselli *et al.*, 2015). Increased openness in strategy making is very likely to be related to such cross-level relationships. When organizations include additional internal or external individual actors in their strategy process, this leads to new micro/macro-level relationships. Participating individuals interact, communicate, and share their information, knowledge, and ideas. These networks of individuals might influence outcomes in higher-level networks, such as at intra-organizational or inter-organizational levels, and vice versa.

Neeley and Leonardi (2018), for example, not only focus on the establishment of connections between individual actors but also investigate the conditions under which the knowledge that is shared among these connections can then be integrated into firm-level routines. They highlight the need to also focus on a firm's ability to encapsulate knowledge gained based on individual-to-individual networks and to enact it at an organizational level (Neeley and Leonardi, 2018). Hence, Open Strategy does not only refer to relationships between organizations, groups, or individual actors. Rather, it also concerns relationships between organizations, who open up their strategy process and the participating individuals. In their qualitative case study, Dobusch and Kapeller (2017) compare the relational set-up of relying on either communities or crowds in an Open Strategy process. They demonstrate that while communities consist of networks of individual interrelated actors who engage in interpersonal exchange, crowds mostly comprise actors who do not share interpersonal ties but who are mainly related to organizations. This difference in network levels is found to relate to the practices and tensions emerging from openness (Dobusch and Kapeller, 2017). While single

actor-level networks in communities tend to actively enact strategy-making practices that are more open when it comes to decision making, multi-level networks in crowds exhibit the opposite tendency. As discussed in the final section of this chapter, multi-level network research (Ibarra, Kilduff, and Tsai, 2005; Moliterno and Mahony, 2011) can help us to obtain deeper insights into these micro/macro-level relationships and phenomena in the context of Open Strategy.

2.2. *Network constructs*

Network studies not only differ significantly regarding the level of networks examined but also regarding the network constructs included. These can range from properties of network structure, to properties of dyadic relations, and of individual nodes (Moliterno and Mahony, 2011; Carpenter *et al.*, 2012; Phelps *et al.*, 2012). While the level of networks under consideration typically derive from researchers' specific research questions, the network constructs applied are largely determined by the theories scholars use to address these questions (Borgatti and Foster, 2003).

As discussed above, social networks are typically conceptualized as consisting of actors at different levels, which are connected by network ties. These relationships can be distinctively conceptualized, for example, as social relations (friend of, boss of) or dyadic interactions (talks to, sells to), and can have distinctive properties in terms of, for example, strength or similarity (Phelps *et al.*, 2012; Kane *et al.*, 2014). A set of ties that links actors is not independent but rather congregates to form paths, which provide mechanisms for nodes to affect one another indirectly. The system of paths forms a structure in which each node occupies a particular position (Galaskiewicz and Wassermann, 1994; Burt, 2005). If the focus is on a single, focal actor, this actor is called "ego" and the nodes that this actor has established ties with are called "alters" (Borgatti and Foster, 2003). The sum of ego, his/her alters and all the ties between them is called an "ego-network". In the following sub-section, this chapter focuses on different

structural properties, types of relationships, and relational properties and links them to existing Open Strategy research.

2.2.1. *Structural properties*

Research on the structural features of networks refers to network positions, ego network structure, and whole network structure (see Table x.2) (Phelps *et al.*, 2012). Individual positions describe focal actors' locations in the whole network, determining the overall pattern of their connection with others (Burt, 1992; Carpenter *et al.*, 2012). Positions indicate focal actors' access to and control over resources, their roles, importance, influence, and actions in that network (Borgatti and Foster, 2003). These structural properties of actors are captured by the concepts of user level centrality (Wasserman and Faust, 1994). An actor's centrality refers to the extent to which he/she is in the center of a network and reflects that actor's importance in that network (Freeman, 1979; Kilduff and Tsai, 2004). At the ego-network level, research on structural properties has focused on whether a focal individual's direct contacts have ties to each other (Burt, 1992). Structural holes, for example, exist if two individuals share a tie with a third individual but are not connected with each other (Burt, 1992). These unique ties to other individuals provide superior access to unique resource bundles and the ability to affect flow between otherwise disconnected groups (Burt, 1992). Network constraint, in contrast, indicates the extent to which an actor's contacts are redundant and lack structural holes. At a network level, for example, network density, the degree of connectivity in a network, or a network's centralization, referring to the overall cohesion or integration of the network (Freeman, 1979), can have effects on multiple outcomes such as diffusion of resources, etc. (Singh, 2005). Network density refers to the sum of ties actually present divided by the number of possible ties and may give insights into such phenomena as the speed at which information diffuses among actors (Hannemann and Riddle, 2005). High centralization of a network indicates a high variability of an actor's connections, hence the power and influence of individual actors varies

quite substantially, meaning that, overall, positional advantages are rather unequally distributed in such a network (Hannemann and Riddle, 2005).

<i>Structural properties</i>	<i>Network constructs</i>	<i>Relation to Open Strategy Studies</i>
Positions	location of a node relative to others: <i>centrality measures (degree, betweenness, eigenvector, structural equivalence...)</i>	(Luedicke <i>et al.</i> , 2017)
Ego network	patterns of ties among a focal's node in a bounded population: <i>structural holes, constraint</i>	(Hautz, 2017)
Whole network	pattern of ties among all nodes in a bounded population: <i>network density, size, centralization, clustering, cohesion,</i>	(Hautz, 2017; Mack and Szulanski, 2017)

Table x.2: Structural network properties

In her conceptual study, Hautz (2017) draws on a network perspective to conceptualize the consequences of openness in the strategy process. In the framework developed in that study, it is suggested that the different structural properties of social networks allow for the costs and benefits of strategic activities in different phases of an Open Strategy process to be optimally balanced (Hautz, 2017). While larger network size, low density, and many structural holes are shown to have a positive impact on heterogeneity and increased knowledge diversity during idea generation, smaller, more cohesive and homogenous networks might be beneficial for selection purposes. Finally, the framework implies that large cohesive networks, exhibiting high density characterized by few structural holes, produce the benefits of knowledge and information transfer and collective support and action during implementation (Hautz, 2017).

The inclusion dimension of Open Strategy refers to the greater involvement of a broader set of actors. In this context, previous studies have raised the question of how strategically-relevant and influential individuals can be identified (Matzler *et al.*, 2014; Matzler *et al.*, 2016). It has been shown that among the large crowd of newly involved actors, some might be more “central” than others. Luedicke *et al.* (2017), for example, not only suggest the existence of more central

individuals, but also propose a potential core/periphery structure in relation to the entire Premium Cola communication network: “Premium is registered as a private company in the name of the “central organizer” (emic term) Ulrich (pseudonym) [...] Apart from Ulrich, the collective is constituted of 3 salaried staffers, about 20 highly active, core group members (i.e. members that have posted more than 100 emails and participated in most strategic debates), about 50 occasionally active members, and about 1650 other members who are involved in various ways” (Luedicke *et al.*, 2017, p.374).

The study of Mack et al (2017) also implies that network-level structural properties, such as the centralization of, for example, an intra-organizational network (Freeman, 1979), could have a significant impact on the outcomes of opening up the organizational strategy process. In their qualitative case study, they discuss the impact of organizational centralization versus decentralization on information flow in the context of an Open Strategy initiative (Mack and Szulanski, 2017).

2.2.2. Dyadic relationships

In addition to structural properties, Borgatti *et al.* (2009) note that different types of ties need to be considered in the context of social networks (see Table x.3 below). Relations are ties that reflect persistent social connections, such as roles-based connections (family, organization) or affective relations (like, support) (Borgatti *et al.*, 2009; Kane *et al.*, 2014). Interactions include discrete, transitory, relational events, such as having lunch, meetings, sending e-mails, or signing an agreement with another node (Borgatti *et al.*, 2009; Kane *et al.*, 2014). Finally, flows refer to tangible or intangible resources (money, information, ideas, beliefs, power) that can move from one node to another when nodes interact (Friedkin, 1982; Borgatti *et al.*, 2009).

<i>Types of relationships</i>		<i>Relation to Open Strategy Studies</i>
<i>Social relations</i>	<i>Relational states</i>	e.g. Neeley and Leonardi, 2018

	formal work relationships (boss of etc.), informal private relationships (friendship, relative of ...)	
<i>Interactions</i>	<i>relational events:</i> meeting, talking to, sending e-mails, commenting, blogging	increasing reliance on social technology, e.g. Stieger <i>et al.</i> , 2012; Baptista <i>et al.</i> , 2017
<i>Flows</i>	<i>resources that move along ties:</i> information, advice, ideas, knowledge, power, reputation	e.g. Gegenhuber and Dobusch, 2017; Hutter <i>et al.</i> , 2017; Mount and Pandza, 2017

Table x.3: Types of network relationships

Openness in strategy making affects types of relationship and their relevance. Different types of interactions might become more prominent in the context of Open Strategy processes. While previously strategy work has mostly been realized in analogue interactions, such as meetings, workshops, etc., increased openness in terms of inclusion and transparency has been realized and enacted mainly through the increased availability of social technologies (Haefliger *et al.*, 2011; Stieger *et al.*, 2012). These digital technologies, such as blogs, wikis, online contests, and community platforms facilitate and influence exchange relationships, communication, and interaction (Haefliger *et al.*, 2011; von Krogh, 2012; Majchrzak and Malhotra, 2013; Baptista *et al.*, 2017). Recent studies on digital interaction support the notion that online communication/interaction serve an equal social function to face-to-face interaction and can be used to study the underlying network of social relationships (Dunbar *et al.*, 2015).

In addition to new types of interactions in the strategy process, distinctive types of social relations might also become more relevant in Open Strategy settings. While previously formal top-down/hierarchical relationships, either in the form of formal work relationships or contractual relationships with consultants, have dominated strategy work, the inclusion of a broader set of internal and especially external actors has shifted the focus to more informal social relationships. Neeley and Leonardi (2018), for example, investigate the role of non-work-related interaction versus work-related interaction on knowledge strategy implementation in an

employee social network. They find that non-work-related interactions on social media generate curiosity and trust, which encourage individuals to connect and share knowledge. However, they also emphasize that these non-work-related interactions may create tensions, a fear of exposure and criticism, reduce engagement, and, finally, hinder a firm's ability to encapsulate knowledge in the form of routines (Neeley and Leonardi, 2018).

Different types of interactions and social relations and different flows of resources might have distinctive consequences in the context of Open Strategy. Studies have shown that increased inclusion can improve the sharing of information and knowledge, or provide new strategic ideas (Gast and Zanini, 2012; Morton *et al.*, 2015), but it can also go deeper, allowing for the synthesis, discussion, development, and evaluation of strategic initiatives and, in addition, a collective focus on the realization and implementation of those initiatives, implying a growing sense of community over time (Hutter *et al.*, 2017; Mack and Szulanski, 2017). Hutter *et al.* (2017), for example, find that while “commenting [on]” and “evaluating the ideas of others” create a sense of virtual community – a feeling of virtual belongingness to other participants in an Open Strategy platform – the “submission of ideas” alone has no or even a negative effect. They speculate that “while the isolated act of posting ideas may contribute creative thoughts to strategy making, it might be counter-productive to strategy implementation if it instigates employees to (mis-)use the OS platform as an idea dump without generating interest toward understanding the other users' perspectives or grasping the big picture” (Hutter *et al.*, 2017, p.356).

Mount and Pandza (2017) focus on power asymmetries in the strategy-making process between inter-organizational divisions and argue openness in the strategy process reduces perceptions of asymmetry. Hence, it can be assumed that greater openness influences flows and accumulation of power, distinguishing them from established power networks in closed strategy settings.

While not specifically related to networks and network research, properties of content and resources transferred along network relationships are relevant here. Hence, in the case of Open Strategy, we can refer to the tacitness /complexity of knowledge shared or the type of ideas submitted (radical vs. incremental), for example.

<i>Relational properties</i>		<i>Relation to Open Strategy Studies</i>
<i>Tie strength:</i>	frequency and depth at which two nodes interact	e.g. Hautz, 2017
<i>Reciprocity</i>	whether nodes in a dyad reciprocate a tie	e.g. Gegenhuber and Dobusch, 2017
<i>Multiplexity:</i>	extent to which two actors are linked by multiple ties simultaneously	no existing Open Strategy studies
<i>Simmelian ties:</i>	between three actors, if two actors are reciprocally connected to one another and both are also reciprocally connected to the third one	no existing Open Strategy studies

Table x.4: Relational properties

Network relationships are characterized by different properties which, for example, refer to their strength and reciprocity (see Table x.4) (Kane *et al.*, 2014). Tie strength is an important dyadic-level construct, reflecting a function of frequency and intensity, relational duration, emotional intensity, and attachment of interaction (Granovetter, 1973; Friedkin, 1982). Direct reciprocity occurs if there are repeated interactions between the same two actors. Another dyadic level construct is multiplexity, which indicates the extent to which two actors are simultaneously linked by two or more different types of relationships (Beckman and Haunschild, 2002). Such ties in multiple social contexts, for example, having a formal work relationship and private friendship at the same time, increase opportunities to interact and improve mutual understanding. Simmelian ties refer to the special nature of dyadic ties embedded within triads. Relations embedded in a such three–person cliques are suggested to be stronger, more durable, and in particular more able to produce agreement and effective sense-making processes between actors (Krackhardt and Kilduff, 2002).

Opening up the strategy process typically results in larger networks of connected individuals (Hautz, 2017). As more opportunities for relationships, often based on digital interactions, are enabled, it has been suggested these larger “Open Strategy networks” are characterized by weaker, less frequent, emotional, effortful, non-reciprocal ties between involved individuals, compared to the stronger, reciprocal relationships found in a traditional closed strategy setting (Hautz, 2017). However, different tie strength might be beneficial at different stages of the strategy process. Weak ties might allow the actors to access diversified resources and knowledge, thereby benefiting idea creation, while strong ties facilitate information exchange and drive mutual action in the context of implementation (Hautz, 2017).

Research has shown that relationships in Open Strategy settings can differ in their reciprocity. They can be one-directional, involving one-way communication of strategic information to a greater internal and external audience (Yakis-Douglas *et al.*, 2017) or bi-directional, reciprocal engagement in a dialogue (Gegenhuber and Dobusch, 2017). This reciprocity is thereby not limited by the type of relationship. Gegenhuber and Dobusch (2017), for example, distinguish between the open practices of broadcasting, where a blog is used as a one-way channel to transmit information to an audience, and dialoging, where the blog is also used to reveal strategic information “but simultaneously soliciting opinions and engaging external audiences in an open conversation” (Gegenhuber and Dobusch, 2017, p.342).

3. A framework for social network research and avenues for future research on Open Strategy

In order to reduce the complexity inherent in network research due to its multiple constructs and levels of analysis, Borgatti and Foster (2003) have classified the literature on the consequences of social networks by providing a 2x2 framework based on two dimensions. Explanatory goals (social homogeneity vs. performance variation) and explanatory mechanisms

(network structure vs. content) describe four “canonical” approaches of social network studies (Borgatti and Foster, 2003), which offer different opportunities for future Open Strategy research (see Table x.5).

3.1. *Explanatory mechanisms: content versus structure*

Studies on the outcomes and consequences of networks differ from each other in how they treat ties and their functions (Borgatti and Foster, 2003). A fundamental tenet of social network research is that a node’s position in a network structure helps determine the opportunities and constraints it will encounter (Borgatti *et al.*, 2009). Here, a focus is on the exploitability of certain features of a network’s structure or typology, such as the abundance of structural holes (Burt, 2000), which may be the primary source of benefits in a network. This structural, topological approach tends to neglect the content of ties and focuses on the patterns of interconnection. The connectionist stream, in contrast, draws attention to the nature of content flows through social ties (Lin, 2001). In this approach, an actor is successful because he/she can draw on the right resources controlled by his/her alters, including information, power, etc. (Borgatti and Foster, 2003).

3.2. *Explanatory goals: performance variation versus homogeneity*

The second dimension specifies whether social network research focuses on explaining social homogeneity or performance variation (Borgatti and Foster, 2003). The performance variation, or social capital approach, describes the benefits of social positions and relationships and examines how and why particular nodes perform differently as a result of their network properties. Social capital reflects the instrumental utility and beneficial consequences of a social network to its participants (Burt, 1997; Nahapiet and Ghoshal, 1998; Lin, 2001). Scholars have recognized two basic sources of these benefits. As outlined above, these include the structural patterns of connections across actors (Adler and Seok-Woo, 2002) and the resources that inhere in the social network (Lin, 2001). In the social capital view, the actors are assumed to be rational

and active agents, who deliberately choose their ties, manipulate and create network structure, and deliberately exploit it to maximize gain (Borgatti and Foster, 2003). Social homogeneity, or the diffusion perspective, in contrast, takes the network structure as given and examines its consequences in terms of behavior and outcomes for individual nodes (Davis, 1991). Hence, this perspective is implicitly about how the network changes the actors in the sense of adopting a practice or developing an attitude. This research, characterized by environmental determinism, is more interested in the process by which practices, for good or bad, spread through a system (Valente, 1995). Studies on social attitude formation, or social influence studies, for example, are part of a structuralist tradition that emphasizes constraints rather than opportunities. These contrasting explanatory goals of social capital versus diffusion studies reflect the classical tension between the fields of strategy and organization theory (Borgatti and Foster, 2003).

To the extent that these four approaches to social network research differ in their research goals (explaining the variation in actors' success vs. explaining homogeneity in actors' attitudes, beliefs, and practices, both as a function of social ties), their assumptions of actors' rationality, deliberateness, and determinism, and their conceptualization of positional (topological/structuralist) versus relational (flow/connectionist) perspectives (Borgatti and Foster, 2003; Kane *et al.*, 2014), they offer different opportunities for addressing particular aspects of Open Strategy. In the following sub-section, this chapter identifies and outlines the potential future contributions to Open Strategy research of each type of network literature (see Table x.5).

	<i>Social capital (performance variation)</i>	<i>Diffusion (social homogeneity)</i>
<i>Structuralist (typology)</i>	<p>Structural capital: How can actors occupy positions in the network which are beneficial for desired outcomes (e.g. having a sparse ego-network, being located along the shortest paths)</p> <ul style="list-style-type: none"> ▪ How do positional network characteristics of more diverse and newly included actors in Open Strategy settings enable divergent relevant outcomes such as e.g. <ul style="list-style-type: none"> - generation of new and more radical strategic ideas - mobilization of support for ideas ▪ Who are the most influential / most centrally positioned individuals in an Open Strategy setting ▪ How does network centralization/decentralization influence information flow 	<p>Environmental shaping: Do actors adopt common attitudes or practices in terms of similar network environments</p> <ul style="list-style-type: none"> ▪ How do structural network properties of communication networks enable and result in e.g. <ul style="list-style-type: none"> - increased similarity in learning about strategic issues - increased similarity in knowledge about strategic issues - increased agreement about strategic direction - increased acceptance and legitimacy of strategy
<i>Connectionist (flows)</i>	<p>Social access to resources: How can actors form and beneficially exploit ties for desired outcomes → success function of the quantity and quality of resources controlled by actors' egos, actor can access these resources through ties</p> <ul style="list-style-type: none"> ▪ Which types of relationships e.g. formal / informal, intraorganizational / interorganizational, reciprocal/non-reciprocal are beneficial for e.g. <ul style="list-style-type: none"> - creativity/ creation of new strategic ideas - knowledge transfer - mobilization of support ▪ How does access to different resources (strategic information, power, technological resources) affect strategy making 	<p>Contagion: How do ideas, practices, and information etc. spread along ties → explains shared attitudes, patterns of behavior and practices etc. through interaction</p> <ul style="list-style-type: none"> ▪ How does increased spread of strategic information affect e.g. <ul style="list-style-type: none"> - employees' attitudes towards the organization, - their behavior in terms of commitment and actions - adoption of new approaches and routines ▪ How can conflict / negative opinion adoption spread among newly communicating actors

Table x.5: Types of network research and future avenues for Open Strategy research

3.3. *Structural capital*

Structural capital network studies focus on a structuralist perspective of social capital and the benefits that accrue to actors due to desirable patterns of ties (Granovetter, 1985; Coleman, 1988; Burt, 2005). Central positions in networks (Brass and Burkhardt, 1993; Ahuja *et al.*, 2003) or having an ego-network with a certain beneficial structure (Burt, 1992, 1997; Ahuja, 2000a) have been associated with beneficial outcomes. Work on the outcomes of individuals' social network structures follows a debate on the merits of two different views (Gargiulo and Benassi, 2000; Burt, 2005; Obstfeld, 2005). One view stresses the benefits of having a sparse ego-network, being located along the shortest path between otherwise unconnected actors (Burt, 1992). These unique ties to other individuals provide superior access to diverse information and experience, varying preferences, and multiple perspectives (Burt, 1992, 2004). Having individuals situated at the confluence of different social domains generates heterogeneity and, thereby, opportunities for novel combination and recombination of diverse information and knowledge which results in increasing attractiveness of ideas (Burt, 2004; Rodan and Galunic, 2004; Nerkar and Paruchuri, 2005; Fleming *et al.*, 2007). The contrasting view stresses the benefits of densely connected networks (Coleman, 1988). Individuals are likely to be aligned, and shared language, value systems, and mutual understanding are readily available (Obstfeld, 2005; Uzzi and Spiro, 2005; Rivera *et al.*, 2010). Such structures facilitate the development of trust, norms of cooperation, and reputation (Gargiulo *et al.*, 2009), and support the transfer and exchange of complex information and knowledge (Reagans and McEvily, 2003; Uzzi and Spiro, 2005; Tortoriello *et al.*, 2012). At the network level of analysis, structural capital studies seek to relate the network structure of a group – for example, an organization, division, or team – to its performance (Borgatti and Cross, 2003).

The structural capital network perspective has the potential to inform future research on Open Strategy in multiple ways. In the case of openness through inclusion practices, networks

are established consisting of newly involved actors connected by their exchange of information, knowledge, views, ideas, proposals, etc., intended to shape organizational strategy. These networks, especially those supported by digital technologies, are often quite large in size and, as the first case studies have shown, actors are very heterogeneous in terms of participation, importance, and strategic influence, etc. (Luedicke *et al.*, 2017). Identifying the most relevant and influential actors, however, might be problematic and difficult in an Open Strategy context, as the roles of actors might be independent of hierarchical, formal positions and may even involve anonymous, external individuals.

The structural capital network perspective will allow future studies to generate more insights in terms of identifying the most “central” actors – individuals, divisions, teams, organizations – and will enable a more nuanced understanding of sources of their relevance and importance, and their particular impact within these large networks of newly involved actors. Due to their favorable structural positions (see Table x.2), these central actors might be the most relevant for achieving distinctive desired outcomes, which are critical in strategy settings. Future research attempts into Open Strategy using a structural capital network perspective could investigate the impact of these actors and their favorable network positions on multiple consequences, such as the generation of new strategic ideas, creativity, or influence in strategic decision making. However, the structural capital approach is not only particularly suitable when investigating research questions at the actor level, but also allows researchers to address questions related to the consequences of entire network structures. Future research could, for example, investigate how different structures of relational systems, such as density, or centralization versus decentralization of organizations, divisions, or online communities, facilitate a range of outcomes in an Open Strategy setting, such as the sharing of complex strategic knowledge, the generation of trust, access to diverse information, or transparency.

3.4. *Social access to resources*

This particular type of network research focuses on the connectionist aspect of social capital (Borgatti and Foster, 2003). In this perspective, an actor's success is a function of the quality and quantity of the resources controlled by the actor's alters (Anand and Khanna, 2000). Different types of ties (see Tables x.3 and x.4) have different capacities for extracting these resources (Borgatti and Cross, 2003). Research examining the impact of different types of ties on innovation outcomes, for example, suggests that advantages associated with bridging ties are contingent upon the nature of the ties forming the bridge, specifically, whether these bridging ties are Simmelian (Krackhardt and Kilduff, 2002). Tie strength has also been considered in this context. Weak ties, which are not necessarily reciprocal and involve less frequent and intense interaction (Granovetter, 1982b), are likely to provide diversity and non-redundancy of information, search benefits (Constant *et al.*, 1996; Hansen, 1999), and facilitate autonomy (Perry-Smith and Shalley, 2003; Perry-Smith, 2006). However, weak ties might also result in different language. If knowledge shared on a tie cannot be framed for mutual understanding, comprehension can be difficult and costly (Borgatti and Cross, 2003).

Future studies on the consequences for Open Strategy could benefit from adopting this particular network perspective, focusing on social access to resources when investigating consequences of both dimensions of openness. This approach provides avenues for future research to generate deeper insights into which types of relationships and which tie properties are beneficial in Open Strategy settings for achieving specific desired outcomes. Promising future research questions include the exploration of the distinctive effects of different types of ties established between newly involved actors, such as formal work-related ties versus non-formal, private ties, or digitally mediated versus analogous ties and their potential consequences, such as motivation to be involved, creation of new strategic ideas, knowledge transfer, etc. But this approach also provides opportunities to investigate questions related to

different properties of relationships (see Table x.3). As outlined above, increased transparency encompasses greater internal and external transfer and visibility of strategic information and knowledge. Hence, networks constituting different types of interactions – digital or analogous, in the form of meetings, town halls, blogs, wikis, e-mails, etc. – are established, where information and knowledge flows along the ties between involved actors. Open Strategy research has a special interest in studying the consequences and implications of this increased transparency. Future studies focusing on the beneficial outcomes of increased transparency could, for example, explore the impact of the reciprocity of ties or the consequences of tie strength. These research attempts could compare the effects of one-directional versus two-way reciprocal relationships within networks established through practices of increased transparency. This could provide insights into the impact that different open practices have on outcomes such as mobilization of support, increased knowledge transfer, or enhanced understanding.

3.5. *Environmental shaping*

Network studies adopting an environmental shaping perspective take network structure as given and examine its consequences in terms of behavior and consequences for actors (Kane and Alavi, 2008; Kane and Borgatti, 2011). Specifically, they try to explain common attitude formation, behaviors, and practices in terms of similar network environments, such as centrality or structural equivalence (Galaskiewicz and Burt, 1991). Equivalence defines the similarity of two actors' profiles in terms of their of network relations regardless of whether they are connected to each other (Burt, 1987). Increasing equivalence between persons in an organization, for example, has been found to increase the similarity of what they learn and know about their organization (Walker, 1985).

The environmental shaping approach could also be beneficial in creating new insights in the context of Open Strategy research in several ways, enabling researchers to explore its

consequences within communication networks established to achieve greater transparency or interaction networks generated through practices of inclusion. But rather than focusing on which structural positions result in superior performance, future Open Strategy research could engage in explaining behavioral patterns and the development of attitudes, for example, similarities between involved actors in terms of learning and knowledge about strategic issues, increased agreement and acceptance of strategy and strategic directions by involved actors, or similarities in their commitment to realizing and implementing strategic initiatives. Thereby, research could gain insights into how practices, attitude, and beliefs are adopted among larger groups of actors, newly involved in the strategy process, due to their shared structural properties within networks.

3.6. *Contagion*

Social network research adopting a contagion perspective focuses on how different types of network content can spread through social networks and thereby affect actors who come into contact with it and, for example, influence their attitudes and behavior (Borgatti and Foster, 2003; Kane *et al.*, 2014). Hence, shared attitudes, culture, and practices are not explained through shared structural properties, as in the case of environmental shaping, but through interaction between actors (Geletkanycz and Hambrick, 1997; Krackhardt and Kilduff, 2002). For example, executives' intra-industry ties have been found to be related to strategic conformity (Geletkanycz and Hambrick, 1997), while Simmelian ties, defined as dyads embedded in three-person cliques, have been found to predict higher levels of cultural agreement than raw ties (Krackhardt and Kilduff, 2002). Social influence studies in the context of new product diffusion have also focused on this aspect of network research (Aral, 2011). Studies investigating how content spreads within social networks and influences actors have also been of considerable interest in the context of networks mediated by social technologies (Aral and Walker, 2011).

This network perspective offers a particularly suitable approach for Open Strategy researchers to investigate how relevant content – strategic knowledge, information, ideas, power – spreads within networks influenced by openness of the strategy process, and its consequences on affected actors. In the context of increased internal transparency, future research could, for example, contribute to a better understanding of how communicated information spreads and results in a common understanding of strategy or similar attitudes towards it. But this approach also helps us to explore the negative consequences of openness. As suggested by Hautz *et al.* (2017), increased inclusion could result in dilemmas of commitment, participation, and escalation. Clearly, newly involved individuals have expectations concerning the recognition of their contributions, do not want to be excluded from further developing them, or demand to be involved in later stages of the strategy process. If these expectations and interests are not met, this could lead to demotivation, frustration, protest, and conflict (Baptista *et al.*, 2017; Hautz, 2017; Malhotra *et al.*, 2017). Future studies could investigate how negative content, protest, or conflict might spread within networks of involved actors, for example, online communities, employee social networks, blogs, or workshop groups, and result in the adoption of negative attitudes, for example, towards strategic initiatives, the strategic direction of the organization, or the organization itself.

4. Opportunities for Open Strategy research from a network perspective

As already stated, the adoption of a network perspective has the potential to benefit Open Strategy research in multiple ways. Questions raised in existing qualitative case studies on Open Strategy may be extended and quantitatively addressed. In addition, it has been shown that social network research offers opportunities to address new research questions which have not yet been considered in an Open Strategy context. The following section summarizes the

advantages of the network perspective when studying the increased openness of strategy processes.

First, by adopting a network perspective when exploring questions related to Open Strategy, it is possible to move from an actor centered perspective towards a more relational, contextual, and systemic understanding. Rather than analyzing individuals' and organizations' behaviors, attitudes, and characteristics, the focus is on the relational system in which the social actors are embedded (Granovetter, 1973; Granovetter, 1982a; Borgatti *et al.*, 2009). Such a dyadic perspective allows us to study complex social phenomena, such as groups of interacting individuals, teams, divisions, workshop groups, organizations, online communities, or crowds, and to explore their structure, their interdependence, and the importance of actors and actor's contributions within these social systems (Borgatti *et al.*, 2009).

Second, the network perspective provides an opportunity to apply a quantitative method to an empirical study of these complex social phenomena. Thanks to social network analysis (SNA), we are no longer limited to an investigation using qualitative tools but can explore these phenomena using quantitative and graphical analyses (Borgatti *et al.*, 2009). IT-based Open Strategy initiatives in particular, such as online communities, blogs, or wikis, allow the researcher to capture digital network data based on actual interactions between actors saved on the log-file of the relevant platform server (Hautz, 2017). Various forms of computer-mediated social interaction and communication activities, like e-mail, blogs, chats, commenting functions, etc., create a digital record of relationships between actors while they virtually interact and view, reply, annotate, comment, rate, or link to another's content (Smith *et al.*, 2009). This network data on digital ties is often readily available and allows for new insights into exchange relationships between actors within social structures.

Third, this chapter shows that Open Strategy research has been concerned with different levels of analysis that analyze interactions between organizations and divisions, as well as

between individuals. Network research could enable future studies to better understand and leverage this multi-level settings. Multi-level research has focused on how networks at one level influence networks at higher or lower levels (Moliterno and Mahony, 2011). This would allow future studies to investigate, for example, how properties of interpersonal employee networks influence characteristics and outcomes of networks of divisions at an inter-organizational level. Opening up the strategy process often results in new micro-macro linkages between individuals and organizations as collectives. Organizational network research has also been concerned with questions zooming back and forth between individual and collective levels of analysis, such as divisions or organizations (Ibarra, Kilduff, and Tsai, 2005). This type of multi-level network research enables insights into how organizational outcomes, such organizational learning, are affected by structural network properties of individuals.

Finally, the framework of network literature discussed in this chapter has focused in particular on the consequences of social networks and is therefore highly appropriate for studying the outcomes of increased openness. Although multiple benefits have already been associated with Open Strategy, research has also highlighted potential downsides to increased openness which might result in inefficiencies and costs of increased openness (Hautz *et al.*, 2017). If organizations want to be able to create and also capture value through opening up their strategy processes, a deeper and more nuanced understanding of the effectiveness of Open Strategy is required. Hence, for research as well as for practice, it is of great relevance to further explore the various and multi-faceted consequences of greater transparency and inclusion. When adopting a network perspective, it is assumed that increased openness on both dimensions has an impact on properties of the established networks (Hautz, 2017), related to the structuralist and connectionist perspectives shown in Table x.5. Both greater transparency and inclusion lead to a wider exchange of information, knowledge, ideas, proposals, etc. (Hautz *et al.*, 2017), resulting (i) in the establishment of new relationships between actors that have not been

connected before, such as communicative relationships between a top manager and an employee via discussion in an Open Strategy blog; (ii) in the creation of new types of relationships, such as digital connections established through IT-based Open Strategy initiatives or informal, non-work related relationships with actors from outside organizational boundaries; (iii) and in the establishment of new network structures, such as larger crowds of interacting actors in online communities, etc. Depending on the specific research question and the particular network perspective adopted, these changes in network properties – ties and structures – allow us to investigate different types of consequences of increased openness, including superior outcomes of particularly favorably connected or positioned actors, but also the alignment of outcomes, such as similar patterns of behavior or attitude.

While a majority of network studies in the social sciences has focused on the consequences of social networks (Borgatti *et al.*, 2009) as discussed in this chapter, network research has also explored the patterns and determinants of network formation, evolution, and change (Ahuja, 2000b). Hence, the network perspective also provides promising and insightful avenues for future studies on Open Strategy in terms of understanding network development processes and explaining antecedents of networks and their specific properties and network dynamics. Future research could, for example, investigate how actors change their tendencies to establish relationships in the context of new open practices and digital technologies. Such studies could explore if greater openness enables actors to overcome homophily, the tendency to form ties with similar other (McPherson *et al.*, 2001).

In summary, a network perspective offers a diverse and promising range of avenues for future research into Open Strategy. As argued above, it is particularly suited to providing insights into complex systems of social relationships associated with increased interaction and exchange in the context of greater openness in the strategy process.

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