

Individual vs Collective Networking Activities in Business Networks: the role of Network Pictures

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Abstract

The debate around actors' network pictures, defined as the cognitive representations of managers' business surroundings, has rapidly grown in the latest years. Notwithstanding the increasing interest shown by scholars, some critiques toward network pictures have been also posed, especially with respect to the doubtful utility of knowing how managers interpret the business surrounding. These doubts have been nurtured by the fact that no research existed until now on the relationship between network pictures and the behavior of business actors, i.e. their networking strategies.

In this research direction, recently Corsaro et al. (2011) have conducted an experiment with 445 managers in order to show that a correlation exists between certain relevant network pictures characteristics and actors' networking strategic decisions. Notwithstanding its originality, this study has two main limitations: first it considers managers as undertaking decisions in isolation rather than collectively and second it tests only the relationship between network pictures and networking strategies leaving out the contrary.

The purpose of this paper is therefore address these to limitations by understanding if and how specific pertinent network picture characteristics - namely power and dynamic- are associated with different collective behavioral choices, i.e. collective networking strategies (Hoffman, 2007's model). To accomplish this purpose, we carried out an experiment involving 168 experienced managers, divided in 86 groups of two participants each.

This study provides important indications on the relevance of network pictures in addressing the decisions of managers in interaction, especially compared to individual decision making processes. Also, it highlights the impact of networking strategies when actors have the same or heterogeneous views of the business surrounding, their perceptions about the other party' views (i.e. cross understanding) and the level of agreement with the collective decisions (strategic consensus). Finally the study provides evidence on the effect of interaction on parties' re-interpretation of the business surrounding and on the decision undertaken individually.

Keywords:

Business-to-business networks, network pictures, networking, sense-making, experiments.

1. Introduction

There is no doubt that the concept of network picture has gained an increasing interest among scholars over time (Ramos and Ford, 2010; Purchase et al., 2010; Henneberg et al., 2009; Kragh and Andersen, 2009; Leek and Mason, 2009; Ford and Redwood, 2005). With different scopes and methodological approaches, a relevant number of studies are in fact exploring how business actors interpret the business surrounding and which could be the role of these interpretations. In general in business to business marketing literature the attention is moving from how resources combine, activities interlink and technologies develop to the role of actors and their perceptions and interpretations in driving these processes (Vanharanta & Easton, 2009; Geiger and Finch, 2009; Kaplan and Tripsas, 2008; Corsaro and Snehota, 2010; 2011). Scholars are more and more recognizing that the actor's dimension is critical for addressing the development of business relationships and networks.

In line with this reasoning Ford et al. (2003) introduced the concept of “network pictures”, the business actor's subjective mental representations (or frameworks) of their surroundings, i.e. the views of the network held by participants in that network. The development of the concept of network picture changed the way to look at the issue of boundaries of the network; The company network does not exist because network pictures are individual and subjective: “There is no single, objective network and different companies and the individuals within them each have a different picture of the extent, content and characteristics of the network...” (Ford et al. 2003: 175).

Over time we can notice that the interest of scholars in network pictures has been recently mainly address at identifying the dimensions that characterize network pictures (Ramos and Ford, 2010; Henneberg et al. 2006), how network pictures change over time (Abrahamsen et al., 2009) and also the heterogeneity in the network pictures from different actors (Leek and Mason, 2009). In other words, research have mainly studied network pictures as a tool for grasping the complexity of the business surrounding while almost no interest has been instead dedicated to “if” and “how” network pictures affect the behavior of business actors in networks, i.e. their networking strategy. This is surprisingly if we consider that it is from 2003 that Ford suggests network pictures as significant in the process of organizing in business networks; network pictures are sense-making tools that underlie decision-making in networks (Ford et al., 2003), and which thus generate economic consequences for actors via shaping networking activities. It is even more surprisingly if we

consider that network pictures obviously are relevant to be studied only in the terms they show an effect on the behavior of actors; rather, on the contrary, it would be useless to know how people think and network pictures would become simple draws without any utility, as some few scholars observed during past IMP Conferences.

More in general in the IMP stream of research the relationship between network pictures and networking activities has been established on theoretical level (Hakansson et al. 2009), but there is no empirical evidence to support this thesis. Only recently Corsaro et al. (2011) have empirically tested the relationship between specific dimensions of network pictures and the actors' networking strategies (i.e. their behavior in business networks). By conducting a pre-test with 85 experienced managers across industries and a main experiment with 445 experienced managers executive MBA students at Manchester Business school, they have demonstrated that there is an association between network pictures and networking strategies (Corsaro et al., 2011). In particular, the authors tested the association between four pertinent network pictures dimensions – power, dynamicity, broadness and indirectness – and three models for networking strategies derived both from strategy and business to business marketing literature: the models of Ford et al. (2003), Krapfel et al. (1991) and Hoffman (2007). Their study shows that the perceived position of power of the focal company within the business network is significantly associated with all three models unequivocally, while propositions posing a relationship between dynamics, broadness and indirectness on the one hand, and networking strategies on the other, are only partially supported. More they find that the power dimension exhibited the highest discriminatory value, followed by dynamicity, in addressing networking strategies. At the same time, their study demonstrate that the model proposed by Hoffman (2007) emphasizes clear associations with all four network picture dimensions of power, dynamics, broadness, and indirectness; rather, the models for networking derived from Ford et al. (2003) and Krapfel et al. (1991) demonstrate much more marginal results and provide significant associations only with a limited number of the pertinent characteristics.

The study of Corsaro et al. (2011) constitutes an important one as it is the first testing the relationship between cognition (i.e. network pictures) and networking strategies, but also the first operationalizing the concept of network pictures and one of the few applying an experimental design to business to business markets. At any rate, notwithstanding its originality, this study presents two limitations: it focuses on the relationship between cognition and action of individual actors “in isolation”, i.e. acting individually rather than in interaction, and it also does not consider the effects that networking strategies have on

network pictures (see Ford et al. 2003), but only the contrary. In this study we thus decided to add further complexity to Corsaro et al. (2011)'s model by addressing the previous two issues in a second step research.

Starting consideration of our work is that adopting a network perspectives, we automatically realize that each business actor is embedded in a network of relationships that influence its networking strategies (Håkansson and Snehota, 1995). One of the main findings of the IMP (Industrial Marketing and Purchasing) stream of research, in fact, has been that a company is a nexus of a limited number of relationships with customers, suppliers and others with which it interacts and which actually define its business. Following the IMP perspective on business network, networked actors are influenced by and influence the network of which they are part. Organizing of the networks emerges in an explainable but not pre-determinable way by means of a system of interactions and interpretations and it is suggested that in business networks the critical ongoing process is the continuous organizing (Weick 1969): "Activity structures emerge spontaneously, in the sense that various actors develop their own activities in reaction to how counterparts are performing theirs. Activity structures thus emerge over time as one's activities become modified, adapted and related to those of others" (Håkansson and Snehota 1995, p.53).

Buyer – seller interactions are thus a central process in the development of business relationships (Håkansson and Snehota, 1995, Ford et Al. 2003, Turnbull et Al. 1996) and it is in interactions – meant as action and reaction - that related actors reciprocally attribute meanings through interpretations. The crucial role of interaction is however acknowledge not only in the IMP stream, but in Service-Dominant Logic too (Vargo & Lusch, 2008); more in general the relevance of interaction processes in complex networks is something quite established in the marketing literature (Gronroos, 2010; Ballantyne & Varey, 2006; Cova & Salle, 2008; Gummesson, 2006).

Whatever important, interaction is complex phenomenon to catch; on that recently Håkansson et al., 2009 (: 38) stressed the complexity of interaction processes in networks by affirming "the multiplicity of simultaneous interactions both between and outside of any dyad, makes it effectively impossible to construct distinct causal links between particular episodes and outcomes in interaction", and also "it is difficult for the actor to anticipate and cope with the chain of events in interaction".

In this paper we will try to catch this challenge and to overcome the limits of Corsaro et al. (2011)'s study by trying to isolate the effects that certain network pictures dimensions have on collective actors' networking strategies, i.e. decision undertaken as effect of

collective processes. We agree with Hakansson et al. (2009) that this is particularly difficult task to deal with, and this is why we decided to apply an experimental design so as to have the possibility to manipulate our independent variable (network picture characteristics) with respect to the dependent one (networking strategies). More in general our study is aimed at answering to the following research questions: How network pictures dimensions affect collective networking strategies? Are there any differences with networking strategies undertaken by actors individually? Does interaction lead actors to re-interpret their network pictures? To answer these research questions, after pre-testing our experimental material, we have conducted an experiment with 84 dyads of experienced managers across industries, executive MBA students at Manchester Business School; further data will be collected at the end of August. For this purpose, we employ insights from cognitive sense-making theory (Weick, 1995), strategy literature (Hodgkinson et al., 2002; Hoffman, 2007; Krapfel et al., 1991), and the industrial network approach (Håkansson and Snehota, 1995; Ford et al. 2003).

This study provides important indications on the relevance of network pictures in addressing the decisions of managers in interaction, especially compared to individual decision making processes. Also, it highlights the impact of networking strategies when actors have the same or heterogeneous views of the business surrounding, their perceptions about the other party' views (i.e. cross understanding) and the level of agreement with the collective decisions (strategic consensus). Finally the study provides evidence on the effect of collective interaction on parties' re-interpretation of the business surrounding and on the decision undertaken individually.

We will thus contribute to recent debate on how actors' perceptions of the business surroundings may affect managerial actions (Corsaro et al. 2011; Mouzas et al., 2008) and also understand the extent to which IMP literature can be integrated with strategy one, where the role of cognition on strategic behavior has been widely recognized (Thomas et al., 1993; Goodhew et al., 2005).

This paper is composed as follows. In section two we review the literature cognition and collective decision making; in section 3 we describe the methodology of the study while findings from the study are described in section 4. Conclusions and implications for research and practice follow in section 5.

2. Cognition and collective strategic networking

Acting involves interpretation of situations, and the way in which actors make sense of the context appears critical for orienting their behaviours, particularly in interaction between the parties (Weick et al., 2005). Above all cognitive sense-making processes, by representing reference points and suggesting possible outcomes, are significant for strategic decision-making (Fiol, 1994; Fiss and Zajac, 2006). Through enactment processes, sense-making involves the construction of frameworks and mental representations, which help the individual to guide both decisions and actions (Meindl et al. 1994). Organizations respond differently to situations in the environment as a consequence of their managers or decision-makers holding different cognitive structures, and thus interpreting strategic issues in different ways (Dutton and Jackson, 1987; Hodgkinson, 2005). From these considerations it follows that the phenomenon to analyze in order to gain an understanding of the actors' behaviours is the way in which individuals interpret the situations (Weick et al., 2005).

In strategy it is well known that cognition and strategic actions are strictly interrelated; thus, as cognitive representations provide the foundation for organizational activities (Meindl, Stubbart, and Porac, 1994), network pictures form the basis for individual understanding and action (Ford and Gadde, 2003). As much of these pictures constitute some elements of common experiences, then there is an equivalence of meaning that allows for network action (Colville and Pye, 2009: 4).

Understanding the process of strategic management is centrally concerned with explaining how diverse frames of reference are reconciled within and between organizations in order to formulate and implement strategies (Hodgkinson, 2005: 31). However, framing is not only a cognitive but also social process: individuals construct collective frame as they interact (Porac et al. 2001) and the emerging collective frames, in turn, influence the ones applied by the individual actors (Kaplan and Tripas, 2008). The key challenge in considering knowledge structures at the supra-individual level of analysis is to account for the role of social processes in the acquisition, retention, and re-trieval of information. The study of cognition at this level of analysis truly becomes a study of social cognition (Walsh, 1995: 291).

Relating this to network pictures, it follows that no single behaviour or set of behaviours' can derive from an individual network picture, but rather pictures affect the intertwining of different behaviours generated during interactions. Meanwhile, as each actor is influenced by a complex web of relationships (Håkansson and Snehota, 1995), the possibility of stabilizing images of reality relates to the strength, direction, and dynamicity of the influences exercised by the other relationships in the network on network pictures.

Mouzas et al. (2008) further confirmed that network pictures need proper translation through several stages of inter-organizational exchange before they become amalgamated and as such objectified. Therefore, we cannot consider single behaviours as isolated events; the outcome of an action is always mediated by others' reactions to it. Actions and reactions form interactions which provide input into the expectations and sense-making structures (Weick, 1995), i.e. network pictures. Thus, more than considering individual perceptions, researchers should look into the interplay between individual frameworks, as decisions and actions result from this interchange (Kaplan and Tripsas, 2008).

In general, collective cognition is an important area of potential inquiry and additional work is required on the effect of collective schema or shared cognitive frames on a broad range of organizational activity (Porac et al. 1995).

In the next section we will explain how in practice we tested the relationship between cognition (i.e. network picture) and the collective behaviour of business actors.

3. Methodology and Research Design

To test the propositions which posit an association between pertinent characteristics of network pictures and collective strategic networking behavior on the other a quantitative experimental study was conducted. Experiment was chosen due to the exploratory nature of our research objective and also given the good quality of results it shown during the first phase of research. More in general in business to business marketing this method has not been yet adequately exploited (Shiv and Fedorikhin, 1999), due to problems of data access and concept operationalization.

As for our independent variable, among the five network picture characteristics used in the first experiment (see Corsaro et al. (2011) we decided to select the two that shown to work better, or in other words that presented an higher association with the networking strategies considered. They are the power dimension and dynamic. For the same reason, with respect to networking strategies we chosen the three networking strategies by Hoffman (2007) – adapting, shaping and exploring –. Following a description of both the dependent and independent variable; Table 1 in appendix A also provides evidence of our choice.

3.1 The independent variable: network picture characteristic

The network picture operationalizations carried out by Henneberg et al. (2006) and by Ramos and Ford (2010), provide us with a set of tested dimensions for capturing how actors perceive their business surroundings. Instead of considering all the proposed dimensions in our study, we choose to focus on those which have a potentially stronger impact on actors' networking choices, based on indications from the IMP Group and strategic management literature but even more from our previous empirical findings.

Power

Power is identified in Henneberg et al.'s (2006) model of network pictures; this dimension corresponds to what Ramos and Ford (2010) classified as Focus on Actors. We use Henneberg et al.'s (2006) definition of power, who discuss it in terms of actors' perceived dependence or independence in relation to other actors within the network of relationships (Emerson, 1962; Håkansson and Gadde, 1992; Hingley, 2005), as well as in terms of strength of the relationships (Granovetter, 1973; Ganesan, 1994).

Dynamics

Dynamics corresponds to what Henneberg et al. (2006) identify as Time/Task, which Ramos and Ford (2010) classify as Stasis. Dynamics is about the time horizon that is involved in the network (Ganesan, 1994), and actors may perceive this as being more or less relevant (Boyd and Fulk, 1996). Actors are embedded in a network of relationships made up by a series of episodes, involving exchange and adaptation processes between the parties along varying stages of relational developments (Ford, 1980; Håkansson, 1992; Johanson and Mattsson, 1987). The network in which relationships develop is itself dynamic (Håkansson and Johanson, 1992).

3.2. *Networking Models*

Different ways to analyze strategic networking options (i.e. the strategic actions on how actors may manage in business relationships with others in the network) have been proposed in the marketing and strategy literature. Among them there are three (partly overlapping) approaches which represent a broad variety of different concepts addressing issues of networking, specifically strategic alliances (Hoffman, 2007), business networks (Ford et al., 2003), and relational exchange (Krapfel et al., 1991). We chosen the first, Hoffman (2007) as

it shown an higher association with both the power and dynamic dimensions (see Table 1). Following a brief description of this model.

Networking as Strategies for Managing a Portfolio of Alliances

Hoffman (2007) identifies three strategies for managing a portfolio of alliances, each being associated with two contingency factors: environmental uncertainty and the firm's potential for shaping the environment or its resource endowment (see Figure 1). Different resulting strategies are identified based on these two dimensions: *exploration* and *exploitation*. As part of *exploration*, the actor gets access to new resources by joining new alliances, exploring or opening-up new development possibilities or opportunities. This approach is related to two alternative sub-strategies: *adapting* and *shaping*. *Adapting* characterizes an actor reacting to a dynamic environment, thus increasing his resource base, as well as his strategic flexibility. This is achieved by exploring new development opportunities without making high and irreversible investments. An adapting strategy involves broadening the firm's resource endowment, as well as improving its capacity to learn and change. A *shaping* strategy implies actors actively influencing environmental dynamics according to their own strategy. It reflects a will to develop new resources and capabilities by exploring new development opportunities, and it leads to expanding and deepening the firm's resource endowment in a focused way.

On the other hand, with *exploitation*, the actor exploits the current resources by fully acquiring and integrating the cooperation unit or by making successive joint investments with its current partner. This category is associated with a stabilizing strategy, i.e. the actor solidifies the environment with the aim of avoiding organizational change. This strategy implies exploiting the resources that the firm has previously gained through *exploration* (i.e. through *adapting* and *shaping* strategies) and thus deepening and exploiting an established competitive advantage in an efficient and sustained manner.

The three main strategies (*adapting*, *shaping*, and *stabilizing*; see figure 1) are posited to allow firms to deal with an ever-changing environment (Ansoff, 1965; Wernerfelt and Karnani, 1987). Adapting and shaping are about exploration of new opportunities with the aim of acquiring new resources and capabilities. On the other hand, stabilizing is about efficiently exploiting the existing resources in order to defend and existing competitive advantage (March, 1991).

3.3. The research process

As first, we conducted a pre-test involving 10 groups of two participants (managers) each with the aim of testing the effectiveness of the stimulus material (Hoyle et al., 2002), due to the necessity of safeguarding the validity and reliability of the instruments used in the final study (Perdue and Summers, 1986). Secondly, we designed an experiment involving 84 dyads of experienced managers, executive MBA students at Manchester Business School. This experiment has taken place between April 2011 and June 2011. Among the 84 dyads considered, data from 11 of them have shown to be of low quality and thus eliminated. Each group was composed by two participants, randomly assigned. We divided the groups into the following categories, according to the stimulus each participant received: high power/high power (i.e. both the two participants to the group received the same stimulus): 9 groups; low power/low power: 9 groups ; high power/low power (i.e. the two participants to the group received different stimuli): 19 groups; dynamic/dynamic: 8 groups; static/static: 7 groups ; static/dynamic: 21 groups. We used the *Qualtrics* system as technological platform for data collection; thus it was crucial that each participants brought with him a laptop and that a wireless internet connection was available in the rooms used for the experiment.

As it occurred for the first experiment, participants were asked to engage in a mental exercise: by imagining that they were managers in the ‘focal firm’, they were asked to consider the network picture they were provided with as representing the focal firm’s business surrounding. The validity of this material, and thus the extent to which managers perceive the features we wanted to manipulate has been already assessed with the pre-test in the first phase of research (see Corsaro et al. 2011); in this way we reduced the risk that participants see in a pictures something different from the features (high power or low power or dynamic or static) we want every time to manipulate (see Appendix B).

Following each stimulus scenario of manipulated network pictures, we provided a description that illustrated how the focal firm could manage their existing and potential business relationships with other firms (e.g. suppliers, customers, competitors), in terms of networking strategies. For each of these three different descriptions of networking models (adapting, shaping and consolidating), the respondents had to indicate through a self-typing modality which of the three represented the best behavioral option that best suited for the given scenario (see Table 2). Each individual had to provide this results both individually then after a discussion with the other component of its group.

In addition to these, we also tested other relevant variables. First of all, in order to measure the quality of the collective decision making process we used the concept of the

'*overall effectiveness of a work team*', whose scale was already tested in the literature (Stevens and Campion, 1994; Kickul and Neuman, 2000) showing a good construct validity (see Appendix C). In this scale there are two critical dimensions for increasing the overall effectiveness of a work team, which encompass both interpersonal and self- management areas. The interpersonal area includes conflict resolution, collaborative problem solving, and communication. The self-management area contains performance management, planning and coordinating. For each of these dimensions, there are specific knowledge, skills, and abilities (KSAs) that are essential to the productive functioning of a work team.

In addition to this variable, we also measured the level of '*strategic consensus*' between parties (Kellersman et al. 2011), which is the degree of agreement within a group of managers as the outcome of the decision-making process. Specifically, we define strategic consensus as the shared understanding of (i.e., agreement on) a specific strategy-relevant content by a group of individuals that can be comprised of managers at the top, middle, and/or operating levels of the organization.

The literature generally assumes that higher levels of consensus are associated with higher organizational performance. Although operationalized differently in terms of content, scope, and measurement (Markóczy, 2001), strategic consensus is argued to improve coordination and cooperation after a decision is made, which leads to a more efficient strategy implementation and, hence, enhances organizational performance.

Finally we also included a measure of '*cross understanding*' (Huber and Lewis, 2010), as performance of groups consisting of diverse members requires mutual understanding (Miura and Hida, 2004; West and Anderson, 1996). This implies that in non-redundant networks a sufficient level of mutual understanding is crucial. The general idea is however that low cross understanding reflects relatively little understanding among members about other members' mental models. Low cross understanding can mean either an absence (or near absence) of understanding or an inaccurate understanding. When understandings of other members' mental models are absent, members' communications to other members are less likely to contain pertinent information or to be most effectively phrased. As a result, the group's information integration and other coordinative processes are less effective than they otherwise would be. Being unaware of others' uniquely held knowledge, groups with low cross understanding are prone to the discussion bias towards shared (i.e., commonly held) information, versus unshared (i.e., uniquely held) information (Stewart & Stasser, 1995).

Furthermore, at the end of the experiment it was also asked each participant two more issues. The first is that if the initial picture shown at the beginning of the experiment still

represented his/her image of the business surrounding; in this way we wanted to assess if the collective debate has an effect in how the respondent re-interpreted the surrounding business context. Second, in order to further verify the effect of the group interaction we also asked if the participant wanted to change the networking strategies initially choice individually.

As for control variable we used the construct of ‘*reciprocal interdependence*’ (Pierce and Gregersen, 1991), as in the appendix C. In the last part of the questionnaire the participant’s socio-demographic features (e.g. industry, work experience, role in the firm) were also collected.

4. Findings

During our experiment we asked respondents to select a strategic networking strategy among the three options of 1 – adapting, 2 – shaping, 3 – exploiting (Hoffman, 2003), given the manipulated scenario they received. In particular we asked to make this choice in two different moments, both individually and as outcome of the group interaction, i.e. collective decision. Table 3 contains the aggregated results.

Table 3: Confronting Individual versus Collective Decision Making – Total data

<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking Option	Number	Frequencies
1	29	19,9%	1	20	13,7%
2	65	44,5%	2	80	54,8%
3	52	35,6%	2	46	31,5%
	146	100%		146	100%

It can be noticed that option 2- adapting strategy- seems to be prevalent as individual decision (44,5%) and even more as a collective one (54,8%).

More in detail, in the following tables, from 4 to 7, we will instead provide results for individual and collective choice with respect to those situations where participants received the same stimulus.

Table 4: Confronting Individual versus Collective Decision Making in case of homogeneous stimuli – high power/high power

HIGH POWER / HIGH POWER

<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking option	Number	Frequencies
1	2	11,1%	1	0	-
2	7	38,9%	2	13	72,2%
3	9	50%	2	5	27,8%
	18	100%		18	100%

In the case of high power/high power, it is interesting to observe that the option of shaping is not prevalent as individual decision (38,9% versus 50% of exploiting option), while it is the most selected choice (72,2%) after the interaction with the other participants. The same situation can be found below, in table 5, in the case of low power/low power.

Table 5: Confronting Individual versus Collective Decision Making in case of homogeneous stimuli – low power/low power

LOW POWER / LOW POWER					
<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking option	Number	Frequencies
1	9	50%	1	0	-
2	3	16,7%	2	10	55,6%
3	6	33,3%	2	8	44,4%
	18	100%		18	100%

Moving to the remaining stimuli in the case of dynamic/dynamic (table 6) the second option remains the preferred one (81,3% and 68,8%), while in the case of static/static, respondents expressed a clear preference for an adapting strategy only after the group interaction (42,9%).

Table 6: Confronting Individual versus Collective Decision Making in case of homogeneous stimuli – dynamic/dynamic

DYNAMIC / DYNAMIC					
<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking Option	Number	Frequencies
1	2	12,5%	1	4	25%
2	13	81,3%	2	11	68,8%
3	1	6,3%	2	1	6,3%
	16	100%		16	100%

Table 7: Confronting Individual versus Collective Decision Making in case of homogeneous stimuli – static/static

STATIC / STATIC					
<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking Option	Number	Frequencies
1	4	28,6%	1	5	35,7%
2	5	35,7%	2	3	21,4%
3	5	35,7%	2	6	42,9%
	14	100%		14	100%

When we instead consider those situations where participants in each dyad received different stimuli, it emerges that, again, the shaping option is the most selected in the case of high-power/low-power stimuli (table 8), while exploiting is the preferred one for static/dynamic cases (table 9).

Table 8: Confronting Individual versus Collective Decision Making in case of heterogeneous stimuli – high power/low power

HIGH POWER / LOW POWER					
<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking option	Number	Frequencies
1	6	15,8%	1	3	8,1%
2	21	55,3%	2	24	64,9%
3	11	28,9%	2	11	27%
	38	100%		38	100%

Table 9: Confronting Individual versus Collective Decision Making in case of heterogeneous stimuli – static/dynamic

STATIC / DYNAMIC					
<i>Individual choice</i>			<i>Collective choice</i>		
Networking option	Numbers	Frequencies	Networking option	Number	Frequencies
1	6	13,3%	1	8	19%
2	16	38,1%	2	18	38,1%
3	20	47,6%	2	18	42,9%
	42	100%		44	100%

Moving on in the analysis, we compared 1. the extent respondents perceive their view of the business surrounding to be similar to the one of the counterpart with 2. the agreement they expressed toward the group decision (see table 10).

Table 10: Managers' perceptions of similarity with respect to the counterpart's view of the surrounding vs Level of agreement with the group decision

<i>Stimuli</i>	<i>Average perceived similarity</i>	<i>Average agreement</i>
<i>Homogeneous stimuli</i>		
HIGH/HIGH	5,8	6,11
LOW/LOW	4,5	3,66
DYNAMIC/DYNAMIC	5,5	5,68
STATIC/STATIC	5,07	5,5
<i>Heterogeneous stimuli</i>		
HIGH/LOW	5	4,55
STATIC/DYNAMIC	4,06	5,5

Looking at table 10, surprisingly, even in the cases of heterogeneous stimuli, the level of perceived similarity remains quite high, i.e. managers have not realized that they received different scenarios. Interesting is also to observe that in the case of high power-high power stimuli they perceive the maximum level of similarity and also express the highest level of agreement with the collective decisions. Rather, starting from heterogeneous pictures, and thus scenarios, do not seem to have a negative effect on the quality of the group decision (4,5 and 5,55).

To be more precise, we decided to select those cases where the perception of similarity was very high (6 or 7) and check what happened to the level of agreement with the collective decisions (see table 11). The result is interesting; in above all the cases, apart from 3, the perception of high similarity corresponds to high level of agreement with the group decision (scores between 6 and 7). And even in the 3 cases mentioned, the value were not low (4 in two cases and 5 in one case). A strong association seems thus to appear between the two variables.

Table 11: Managers' perceptions of similarity with respect to the counterpart's view of the surrounding vs Level of agreement with the group decision - high values

Perception of high similarity (scores between 6 and 7)	Strong agreement with the group decision (scores between 6 and 7)
Number of cases 74	Number of cases 71

Table 12: Managers' perceptions of similarity with respect to the counterpart's view of the surrounding vs Level of agreement with the group decision - low values

In table 12 we did the same analysis as in table 11, but this time we considered low values (scores below 3). Findings in this case are counterintuitive, we would expect this time that the lower the perception of similarity the lower the level of agreement, while it seems exactly the contrary.

Table 12: Managers’ perceptions of similarity with respect to the counterpart’s view of the surrounding vs Level of agreement with the group decision - low values

Perception of low similarity (scores below 3)	Strong agreement with the group decision (scores between 6 and 7)	Low agreement with the group decision (scores below 3)
Number of cases 33	Number of cases 22	11

The following tables are instead dedicated at understanding the effect that interaction had on the interpretation of the surrounding and on the individual choice carried out.

As for the first aspect (table 13) the influence of interaction is evident, in 115 cases (57 plus 58) respondents have indicated as perceiving in a different way the stimuli manipulated. In 57 cases stronger, while in 58 weaker. While in only 31 cases the perception has not changed.

Table 13: The effect of group interaction on the reinterpretation of the business surrounding

Total cases	Perception of the network picture characteristic remained equal	Perception of the network picture characteristic became stronger	Perception of the network picture characteristic became stronger
146	57	58	31

As for the second aspect, at the end of our experiment, we asked each respondent to select individually which a strategic networking option, and we compared these data with the ones provided at the beginning of the questionnaire. Also, in the right part tables from 14 to 19 we also shown in which directions respondents shifted their choices.

Table 14: The effect of group interaction on individual collective choice in case of homogeneous stimuli –high power/high power

HIGH POWER / HIGH POWER					
<i>Individual choice</i>			<i>Detail</i>		
Networking option	Numbers before group interaction	Numbers after group interaction	1	2	3
1	2	-	-	2	-
2	7	12	-	7	-
3	9	6	-	3	6
	18	18			

Table 15: The effect of group interaction on individual collective choice in case of homogeneous stimuli –low power/low power

LOW POWER / LOW POWER					
<i>Individual choice</i>			<i>Detail</i>		
Networking option	Numbers before group interaction	Numbers after group interaction	1	2	3
1	9	3	3	2	3
2	3	8	-	-	3
3	6	7	-	2	4
	18	18			

Table 16: The effect of group interaction on individual collective choice in case of homogeneous stimuli – dynamic/dynamic

DYNAMIC / DYNAMIC					
<i>Individual choice</i>			<i>Detail</i>		
Networking option	Numbers before group interaction	Numbers after group interaction	1	2	3
1	2	3	-	2	-
2	13	12	3	10	-
3	1	1	-	1	-
	16	16			

Table 17: The effect of group interaction on individual collective choice in case of homogeneous stimuli – static/static

STATIC / STATIC					
<i>Individual choice</i>			<i>Detail</i>		
Networking option	Numbers before group interaction	Numbers after group interaction	1	2	3
1	4	5	3	2	-
2	5	3	-	3	2

3	5	6	1	3	2
	14	14			

Table 18: The effect of group interaction on individual collective choice in case of heterogeneous stimuli – high/low power

HIGH POWER / LOW POWER					
<i>Individual choice</i>			<i>Detail</i>		
Networking option	Numbers before group interaction	Numbers after group interaction	1	2	3
1	6	5	3	2	1
2	21	25	-	21	-
3	11	8	1	2	7
	38	38			

Table 19: The effect of group interaction on individual collective choice in case of heterogeneous stimuli – dynamic/static

STATIC / DYNAMIC					
<i>Individual choice</i>			<i>Detail</i>		
Networking option	Numbers before group interaction	Numbers after group interaction	1	2	3
1	6	7	3	2	1
2	16	17	2	10	4
3	20	16	2	5	13
	42	42			

It is interesting to observe that many respondents changed their idea after interacting with the counterpart, which could imply that interaction not only leads to change the actors' view of the surrounding, but also lead to rethink their decisions.

5. Conclusions, Limitations and Implications for research and practice

Our study contributes to the IMP's literature on network pictures by demonstrating the presence of an association between these network picture characteristics, in particular the perceived power of the focal firm in the network and dynamicity of the business surrounding, and collective networking strategies. Findings from our study indicate that, even given the same scenario, participants choose different networking strategies when acting individually

rather than collectively; if in general the preferred networking strategy remains 'shaping', according to which the focal firm commonly shapes, in a pro-active way, its surroundings, more heterogeneous situations can be found analyzing the different stimuli. There is however no doubt that the option of adapting is the less preferred choice, which could indicate that once realizing their embeddedness in the network, managers prefer to be pro-active and try to shape the other actors rather than adopting a passive attitude.

Our experiment also shows that there is a strong correlation between the perceived level of similarities with the counterpart (mutual understanding) and managers agreement with the collective decision (strategic consensus). However while this relationships is positive in case of high scores (6-7), it becomes inverted in the case of low ones (below 3).

Moreover in this study we also shown that interaction has an important effect in re-addressing both managers' interpretations, than their decisions. This empirically confirms the relationship not only between cognition (network pictures) and behaviour, but also the contrary, as in sense-making theory (Weick, 1995). This bi-directional relationship has not been tested until now.

Finally, our research further confirms that experiment is an effective method to be applied in business to business marketing research, especially for studying cognitive related processes.

The main limitation of this study is that the interaction occurring between participants to each group remains quite simple in terms of decision to be taken and do not yet totally reflects the complexity that could characterize collective decision making processes in real life. To address this issue, further research should adopt as unit of analysis groups composed by more than two actors and include higher difficulty to the provided scenarios. Also, the effect of combined network pictures characteristics (for instance power and dynamic, rather than alternatively) could be also interesting to be studied. In addition to this an in depth investigation of findings from our control variables could provide interesting explanation of our findings.

As for managerial implication, the more the quality of experimental design will increase, the more network pictures could become an interesting tool for managers in order to drive teams discussions and decisions.

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Appendix A

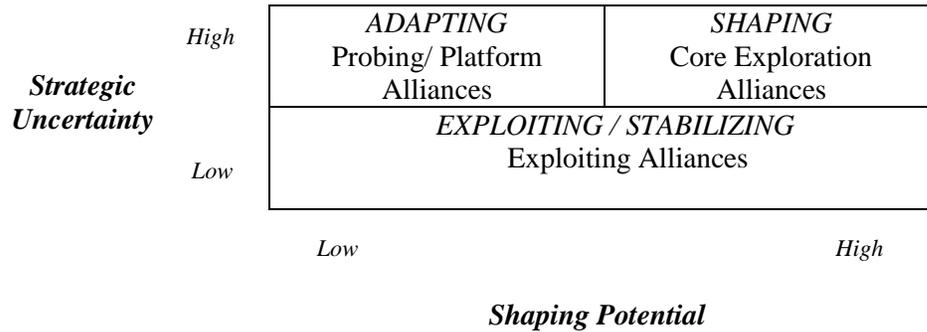
Table 1

Significance of Findings

	Networking Models	Pearson Chi_Square	Sig.	Phi	Sign.	
POWER (125 respondents)	<i>Strategies for Managing a Portfolio of Alliances</i>	22.600	0.000	0.425	0.000	
	<i>Networking in Business Networks</i>	Confront or Conform	18.572	0.000	0.385	0.000
		Consolidate or Create	8.019	0.018	0.253	0.018
		Coerce or Concede	31.467	0.000	0.502	0.000
	<i>Relationship Management Modes</i>	38.198	0.000	0.553	0.000	
DYNAMICS (106 respondents)	<i>Strategies for Managing a Portfolio of Alliances</i>	25.071	0.000	0.486	0.000	
	<i>Networking in Business Networks</i>	Confront or Conform	14.619	0.001	0.371	0,001
		Consolidate or Create	6.517	0.038	0.248	0.038
		Coerce or Concede	1.407	0.495	0.115	0.495
	<i>Relationship Management Modes</i>	6.341	0.274	0.245	0.274	
BROADNESS (111 respondents)	<i>Strategies for Managing a Portfolio of Alliances</i>	6.836	0.033	0.248	0.033	
	<i>Networking in Business Networks</i>	Confront or Conform	1.430	0.489	0.114	0.489
		Consolidate or Create	0.482	0.786	0.066	0.786
		Coerce or Concede	7.486	0.024	0.260	0.024
	<i>Relationship Management Modes</i>	2.468	0.781	0.150	0.781	
INDIRECTNESS (103 respondents)	<i>Strategies for Managing a Portfolio of Alliances</i>	9.700	0.008	0.307	0.008	
		Confront or Conform	6.132	0.047	0.244	0.047
		Consolidate or Create	0.074	0.963	0.027	0.963
		Coerce or Concede	3.794	0.150	0.193	0.150
	<i>Relationship Management Modes</i>	5.260	0.262	0.226	0.262	

Figure 1

Networking as Strategies for Managing a Portfolio of Alliances



S

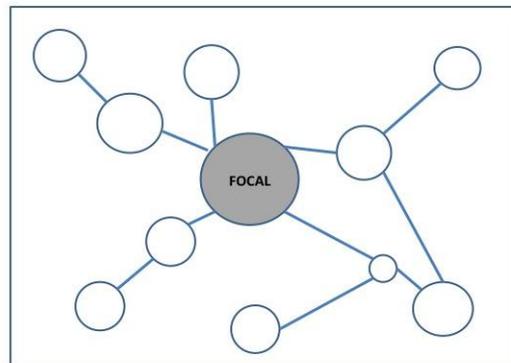
Source: Hoffmann (2007), p. 832 (adapted).

Table 2 Networking strategies options

1. Hoffman (2007)	1. Adapting. The focal firm commonly adapts, in a reactive way, to its business surroundings. It frequently creates new relationships. New relationships aim at broadening the focal firm's resource availability. For example, very often establishes new partnerships with other firms to deal with changing customer needs.
	2. Shaping. The focal firm commonly shapes, in a pro-active way, its surroundings. It frequently creates new relationships. New relationships aim at consolidating the focal firm's resource availability. For example, the focal firm frequently works with new partners to create new product lines aimed at generating new business opportunities.
	3. Exploiting. The focal firm commonly consolidates already existing business relationships. It does not frequently create new relationships. The exploitation of existing relationships aims at further strengthening its established competitive advantage. For example the focal firm frequently invests in the development of long-term supply contracts with existing suppliers.

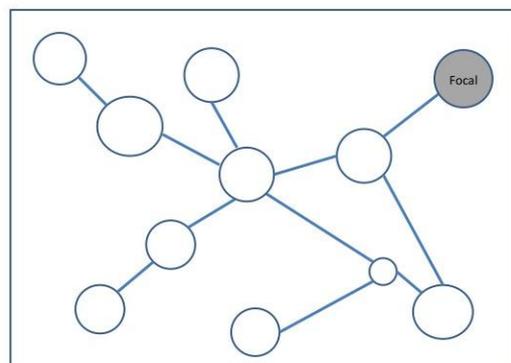
Appendix B (Note: the headings shown in bold here were not given to the respondents)

Pictorial and textual description of the business surrounding in an high power situation by the focal firm.



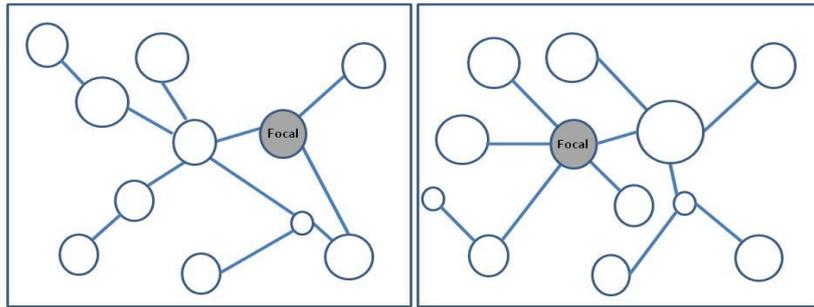
“The focal firm has a dominant position in the market where it operates. It has several relationship partners and has a strong influence over them. It also plays a primary role in the definition of the overall development of the industry where it develops its business activities.”

Pictorial and textual description of the business surrounding in a low power situation by the focal firm.



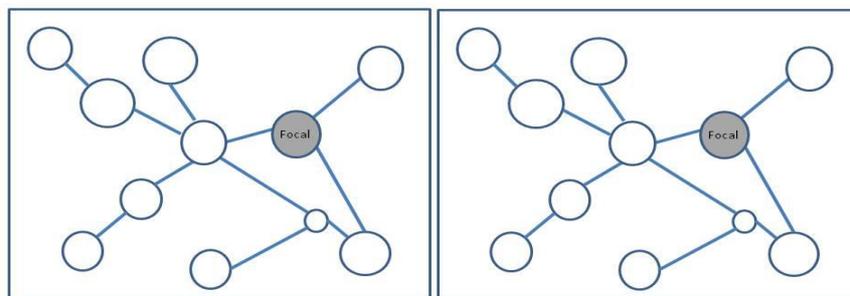
The focal firm has a peripheral/marginal position in the market where it operates. It has a low number of relationship partners and has low level of influence over other firms. It also plays a secondary role in the determination of the overall development of the industry where it develops its business activities.

Pictorial and textual description of the business surrounding in a dynamic situation.



In the business environment where the focal firm is operating there are multiple companies of varying types. Over the last three years, several changes have taken place in that market. Many existing relationships have been terminated, but new ones have also been initiated. This has resulted in changes in the positioning that the focal firm and others occupy in the market. companies of a diverse nature. These companies interact with each other to develop their business activities.

Pictorial and textual description of the business surrounding in a static situation.



At the present, in the business where the focal firm is operating, there are multiple companies of a diverse nature. These companies interact with each other to develop their business activities.

Appendix C

Measure of the overall effectiveness of a work team (Kickul and Neuman, 2000)

A. *INTERPERSONAL AREAS* is measured by 3 variables, each of them measured by 3 items:

1. Conflict resolution

- The team avoided unnecessary confrontation during the group exercise
- The team was constructive, civil, and not personally threatening
- The team members attempted to find solution that satisfied all parties.

2. Collaborative Problem Solving

- The team members took the initiative in trying to solve the problem
- The team considered the contributions of all team members
- Members of the team participated in group decision making.

3. Communication

- Individuals in the group gave suggestions
- The team members communicated ideas clearly and effectively
- Team's members shared information and listened carefully to each other

B. *SELF MANAGEMENT AREAS* is measured by 2 variables, each of them measured by 2 items:

1. Performance management

- Individuals in the group gave team members feedback on their performance
- Individuals encouraged other members in achieving team's goal

2. Planning and Coordinating

- The team performed tasks quickly coordinating and proficiently,
- All tasks were assigned according to the ability of each team' member

Measure of Reciprocal Interdependence (Pearce & Gregersen, 1991)

- I work closely with others in doing my work
- I frequently must coordinate my efforts with others
- My own performance is dependent on receiving accurate information from the others
- The way I performe my job has a significant impact on the others
- My work requires me to consult with others fairly frequent