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TITOLO TESI

An Input-Process-Output Approach to Interorganizational Teams: The Influence of Work Group Diversity, Trust and Shared Leadership on Communication Network and Team Outputs.

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Sommario

Chapter 1 - Introduction

1.1 Interorganizational Network (ION) and their governing team

In order to face the increasing challenges concerning markets and technology, firms opt to collaborate with other organizations to share their own resources, to negotiate their jointly actions and to produce more creative and innovative outcomes (Van Gils, 1998). Joint Ventures, Alliances and Consortia are specific forms of Interorganizational Collaboration, that might have the characteristic to be defined as "Interorganizational Network" (ION): *"a group of three or more organizations connected in ways that facilitate the achievement of a common goal. [...] Network members can be linked by many types of connections and flows, such as information, materials, financial resources, services, and social support."* (Provan, Fish and Sydow; 2007: pp. 7).

A tipical ION could be an agreement between three or more transport firms deciding to coordinate their own fuel purchases using a common organization, like a Consortium, in order to obtain major discounts and benefits from fuel suppliers.

In order to improve and to optimize more efficiently their collaborations, the firms involved in an ION usually set up an interorganizational govern system: for example the board of directors of a Consortium or the Chief Executive Officer (CEO) in a Joint Venture.

IONs evolve, develop, change and transform themselves according to the ION's members actions and decisions; the inter-organizational collaboration usually requests a "control room" that in general is composed by the partners firm's entrepreneurs and/or the managers: a context where the knowledge, the information, the behaviours and the learning at an individual and group level, could become decisions that affect the inter-firm network on the whole. Provan and Kenis (2008) describe three main types of network ,each one characterized by a specific inter-firm collaboration govern system:

- *The Partecipated-Governed Network* characterized by a *shared partecipant governance*; a group of peers, generally composed of entrepreneurs or representatives of each network's firms, who exploit the reciprocal trust and multiple and dense relationships among group's members in order to: to create the firm's goals alignment or integration; coordinate and manage the interfirm collaboration, and the work's activities of each network's partner; define problems and take decisions together.

- The *Lead Organization-Governed Networks;* its peculiarity is a *lead organization governance*: a firm, part of the network, for its best competence and/or power, is designated and

legitimized to act on behalf of the ION; actually, in order to achieve a specific and defined goal, the firm has to manage and to coordinate, in a centralized way, the partners' activities and at the same time it has to garrison the relationship with clients, suppliers and stakeholders.

- The *Network Administrative Organization* (NAO) is characterized by an *external governance*: the network's partners have decided to commit their reciprocal coordination and the management of common activities to an external "network broker"; for example a director or a network's facilitator or an external consultant, who has to garrison and control the achievement of the goals that the network's members have set for themselves.

In this paper we will focus on the network described by Provan and Kenis (2008) as *The Partecipated-Governed Network (*for conciseness SPG)*, in particular the focus of our interest is on the team of entrepreneurs/directors of each firm/organization of an ION, where each team member has to achieve two main objectives: to represent the interests and needs of their own organization and to achieve the goals of the interorganizational collaboration.

The *SPG* model represents on the one hand an organizational context where members of the ION take decisions and set the interorganizational activities and on the other hand a social context where they can share information, knowledge and idea and where the mutual learning (Knignt and Pye, 2005) can produce and diffuse creative and innovative behaviors among the entrepreneurs.

1.2 The unit of analysis: the SPG as an interorganizational team form

These SPG teams can be considered a type of interorganizational team with specific characteristics (Drach-Zahavy (2011):

- as in cross-functional teams (i.e., group of people with different functional role that work together in order to achieve a common organizational goal), the members of SPG teams possess distinct and sometimes conflicting organizational identities, bonds and involvement (Luo, 2001; 2006);

- they are often temporary task teams in charge of dealing with plethora of demands, conflicts, and time pressure;

- these teams, more than traditional ones, have to manage many different activities, from interfirm coordination and integration activity to networking and boundary spanners activities, from political and institutional negotiation to produce new and innovative products and/or services (Knight, 2002; Powell, Koput, & Smith, 1996; Drach-Zahavy, 2011);

- as in self-managing teams, the group members use a peer-based control process in order to monitor the persistence and effectiveness of their individual and collective efforts to achieve the team's goals (Steward, Courtright, Barrik, 2011);

- these teams are generally composed of boundary spanners members (Janowicz-Panijatan, Noorderhaven, 2009; Drach-Zahavy, 2011), and in the SPG case they are corporate-level boundary spanners (Janowicz, 2004; Janowicz-Panijatan, Noorderhaven, 2009): entrepreneurs or executive managers who have the power to influence directly the strategic direction of the ION and at the same time they also direct and take decisions about their own firms.

Studies have typically portrayed the interorganizational teams as relatively stable groups, that need regular and frequent meetings in order to face the constant need to manage various aspects of their inherent heterogeneity and in order to respond to the changeable and uncertain requests from their interorganizational environment (Baron-Epel et al., 2003; Green, 2000; Gulati & Singh, 1998; Naidoo &Wills, 2000; Yan & Louis, 1999). In other words, from the Organizational perspective the *SPG* in an inter-organizational context, is so important because:

- this form of governance seems to produce more innovative and creative outputs than in other ION's governace systems (Provan e Kenis, 2008);

- the team and the shared governance that the team has to achieve are more sensitive to psycho-social and group factors (like trust, identification, sharing of information and knowledge among teams' members, etc.); in other words, these factors could affect the effectiveness of the ION governance and the effectiveness and stability of the interorganizational collaboration (Soda, 1998).

On the other hand, the *SPG* is a border line unit of analysis where Organizational Psychology research has to adapt and rearrange its theoretical concepts and research methods in order to improve the knowledge about a new, prominent and challenging social and organizational phenomenon as the ION is. Only few studies (Luo, 2001; 2006) have paid attention to the organizational and psycho-social factors that foster the attachment of boundary spanners, people who working across the organization boundaries, to the inter-organizational Joint Venture project, but no studies have ever done research about the effects that working in an inter-organizational team could have, for example, on the entrepreneurs' commitment in the ION project.

In particular, communicational exchanges among team members represent the conduits (Oh et al., 2006) that allows the group members to discuss and converse: the two main behaviors that enable not only the exchange of ideas and information among the team members, but also the building and the continuous renewal of team cohesion, the management and the resolution of the rivalries and the arising conflicts in the team (Quaglino & Cortese, 2003).

For these reason it's often necessary for researchers to take into account the communication inside a team as the "process" that could help the comprehension of how teammates realize, build and develop their tasks inside the inter-organizational team. In this research we used a model that mixes, in a multidisciplinary and multilevel perspective, different but complementary concepts integrating organizational and economic factors (i.e. interorganizational trust) together with psycho-social factors (i.e. trust in team, shared leadership, work group diversity, ION commitment and team identification). In order to test the research hypothesis we adopt different methods to consider and analyze these theoretical constructs (i.e. team's communicational exchange, and team's interpersonal ties analyzed through social network analysis).

1.3 Objectives of the research

At present, few studies (Drach-Zahavy, 2011) have considered how and in which way psychosocial factors and team dynamics affect the interorganizational network management team.

The three studies presented in the following of this dissertation would like to highlight, with the help of Social Network Analysis (SNA), how the team communication network features:

- represent a critical factor in the promotion and diffusion of individual innovative behaviors inside the team;

- are factors improving the ION commitment at individual level;

- facilitate the information exchange and the coordination of individual efforts to govern the interorganizational collaboration and to improve the interoganizational team's performance and the work group satisfaction.

Special attention will be paid to investigate the relationship among some factors that characterize the ION management teams (i.e., interorganizational trust, trust in team, work group diversity, shared leadership, identification) and the density of the communication network among members.

In order to achieve this goal, this study considers two main theoretical perspectives articulated together: the Relational and SNA Perspective and the Work Team Perspective, The goal is to test if the team communication network characteristics are process factors that can mediate the relationship between the team input factors (i.e., work group diversity, friendship network density), the team process (i.e. trust in team, interorganizational trust) and the team outputs (i.e. team performance, work group satisfaction, ION affective commitment, individual innovative behaviors). In other words, the study would like to bring its contribution to a wider and emergent paradigm be suggested by Rousseau et al. (1998) that uses together psychology and social network perspectives,

a more fruitful method to understand complex and new organizational phenomena like interorganizational teams and interorganizational networks. The novelty and innovativeness of the study can be summarized as follow:

- the discussion considers and takes into account the interorganizational team that manages the Interorganizational Network, a specific unit of analysis inside a relevant organizational system;

- as suggested by many authors (Zaheer et al, 1998; Janowicz and Noorderhaven, 2002; Costa and Bijlsma-Frankema, 2007) the research considers how different kinds of trust (interorganizational trust and team trust) are related and how each of them is related with the team communication network's density and with the team outputs;

- the research shows how work group diversity can affect the interorganizational team processes and outputs;

- the discussion takes into account the team identification and the shared leadership processes in order to understand how these factors can affect the interorganizational team outputs and the individual innovative behaviours inside the team;

- the research shows how the social capital, in terms of interpersonal relationships among ION's entrepreneurs, affects the team processes (interorganizational trust; trust in team), the team communication density and the team outputs.

1.4 Theoretical Model and Hypotheses

In this study, the theoretical model (see Figure 1) is designed according to the input-process-output model (Guzzo & Shea, 1992). The model puts in an unidirectional order the variables included in it: some input variables (i.e., work group diversity, friendship network density) have a direct influence on process variables (trust in team and interorganizational trust, shared leadership, team's communication network density), consequently have direct effects on team outputs (team effectiveness variables and individual innovative behaviors). The model complexity (numerous construct and relations among constructs) as made us decide to examine it into three sub-models: the theoretical hypotheses included in each sub-model are tested separately using three different studies, the results of each study are presented in the following three chapters.

In chapter 2, the study that considers the influence of work group diversity on team outputs (team performance, work group satisfaction and ION affective commitment) through the team identification, shared leadership and communication network density will be presented.

In chapter 3, the study that takes into account the hypotheses related to the influence of friendship network density on team effectiveness (team performance, work group satisfaction and ION affective commitment) through three different team processes (interorganizational trust, trust in team and team's communication network density) will be presented.
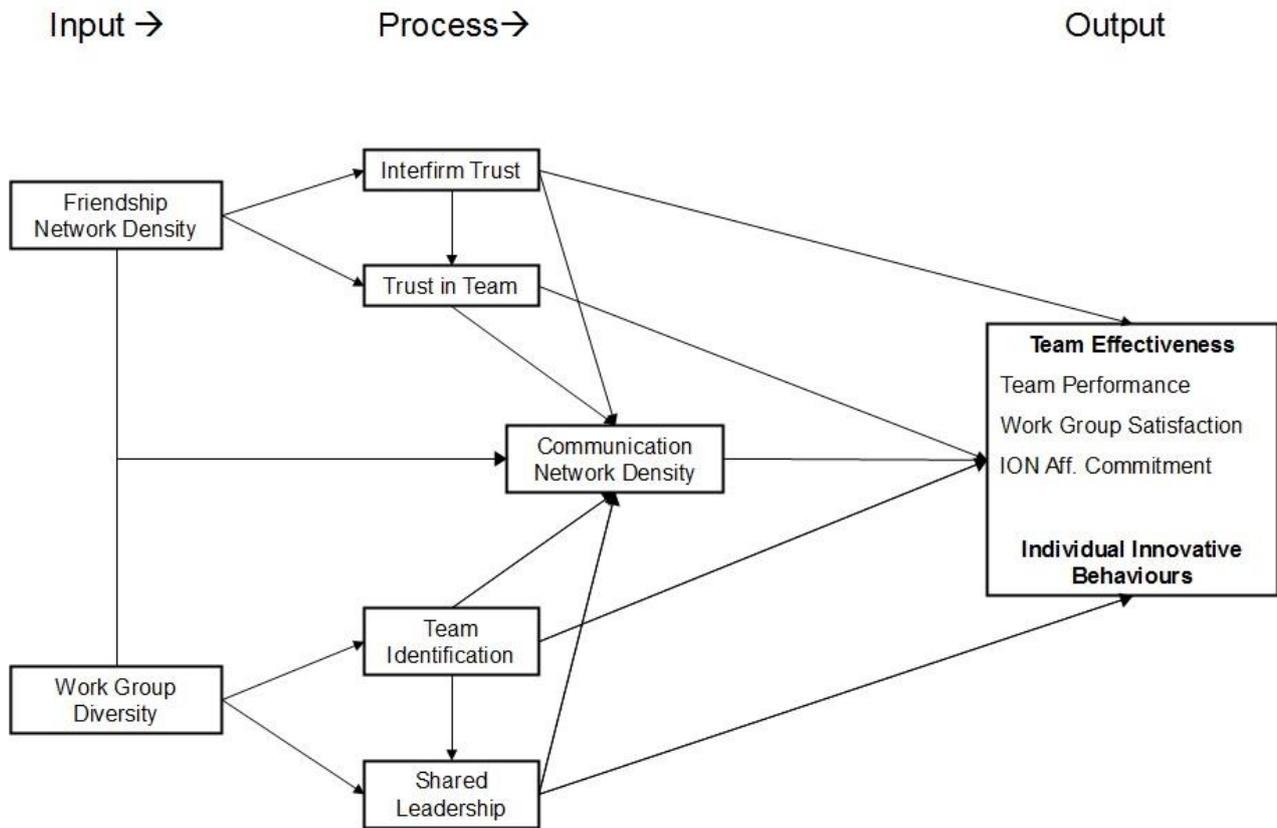
Figure 1: the general theoretical model

Finally, in chapter 4 the a last study will be presented. This study considers trough a multilevel modeling how trust in team and shared leadership can affect the frequency of the individual innovative behaviors of the team members.

The chapter 5 is the general discussion chapter where all studies' results and conclusions are summarized and where the theoretical and practical implications are underlined, the research limitations and the future research directions are described.

In the following parts of this introduction, the procedure followed in order to collect the research data and the sample are described. The measures and the analytical procedures used to test the hypotheses of each study are described in each relative chapter.

1.5 General Method

Data Collection Procedure

Through a specific list, indicating the winners of "Reti 2010", given by Regione Emilia (http://imprese.regione.emilia-romagna.it/Finanziamenti/industria-artigianato-cooperazione-servizi/progetti-per-reti-di-imprese), it was possible to pinpoint 276 IONS, and among those to specify 143networks among enterprises, for logistic and economic reasons, were easily reachable by the researcher's group.

A telephone and/or e-mail contact was possible with 98 of these nets and with the representative-coordinator of the net to whom the modality, terms and costs of the participation in the study were explained.

The procedure followed to collect the data was divided in two consecutive phases: in the first one, a semi-structured interview was administered to the representative-coordinator of the companies' network, thanks to which it was possible to gain information about the governance, structural, and organizational characteristics of the net, other than data referring to the composition of the net and of the governing team.

The information were used to arrange a multiple choice questionnaire which was subsequently administered to the entire governing team of each network.

The aim of the questionnaire was that of gaining information and data regarding the characteristics and the individual perceptions of the entrepreneurs and the managers of the networks of companies; according to their availability, it was possible to administer the survey in two ways: either via e-mail, together with a specific kit for the compiling, or in the presence of a researcher that had administer the survey to the members of the team, at the end of one of their meetings.

With this procedure, 57 interviews, to coordinators and representatives of the net, have been carried out; the interviews identified 53 nets governed with a Shared governance system and therefore they were included in the second phase of the collection of data. Among the 53 companies that were contacted, 35 with the communal the agreement of all the members of the ruling team, gave their consensus to proceed with the second phase of the study.

A total number of 143 questionnaires have been administered, and of those, 104 (for 30 governing team) have been correctly filled in and sent back with a returning ratio of 72,72%. The average returning ratio of each team was 83,08%; however 2 groups and their related surveys, have been excluded due to the low ratio of answers that would not permit a suitable representation and reliability of the index at team level.

The Sample

The participants of the study were 101 workers (81 entrepreneurs, 17 managers and 3 professionals) divided in 28 IONs with legal and operative branch in Emilia-Romagna (north east of Italy). These companies participated in a public regional call named "Reti 2010", which was directed to financially support the setting up of a inter-firms' network which had to realize innovative products and services.

Each ION was composed on average by 3,89 (SD = 1,25) from a minimum of 3 enterprises to a maximum of 7 enterprises and the 17,9% of the IONs was created in order to develop new products, the 35,7% to develop new services and the 46,4% was founded in order to develop both new products and innovative services. The new services and products were designed in the 37,5% for international's end markets, in the 28,7% for the national's market and in the 35,7% for the Emilia Romagna Region's clients. The agreement among network's firms partners has been formalized with a symmetric profit sharing in the 75% of the cases and with an a-symmetric profit sharing in the 25% of the cases. On average, each firm had already developed about 3,62 (SD = 2,19) past collaborations with the firms of their own present interfirm network and the 68% of these firms are also contemporary involved with another interfirm collaborations. In the data collection phase, all the IONs were in the alliances implementation period; in other words each IONs had already spent about two years and half in the ideation and in the design of the new product/services and, at that time, all of them were still working to develop and realize their innovations. Each ION was governed by a group of entrepreneurs and managers; these groups have meetings one time in a year in the 10,7% of the cases, one time a month in the 60,7% of the cases and one time a week in the 28,6% of the cases. The 28 teams were formed by an average of 5,30 members (SD = 2,23: Min.= 3; Max.= 9) and lasted for an average of 26,81 months (SD= 19,521). Participants were 79,2% males and 20,8% females, with an average age of 46,89 (SD=9,746).For what concerns the education, the highest scholar degree was for 48,4% of the participants a high school degree, for the 46,6% a college degree, a master or PhD and for the remaining 5% of the participants it was a middle school degree or a certificate of attendance to professional courses.

Chapter 2 - Social Capital, Trust and Communication in the Teams that govern Interorganizational Networks

2.1 Introduction

In order to face the increasing challenges concerning markets and technology, firms opt to collaborate with other organizations to share their own resources, to negotiate their jointly actions and to produce more creative and innovative outcomes (Van Gils, 1998) costituiscono sistemi composti da organizzazioni con interessi e caratteristiche più o meno convergenti, che sono tra loro autonome, legalmente e giuridicamente indipendenti, ma che a livello funzionale risultano tra loro interdipendenti e connesse attraverso interattive e reciproche relazioni di scambio (Berkowitz, 1982).

Joint Ventures, Alliances and Consortia are specific forms of Interorganizational Collaboration, that could have the characteristic to be defined as "Interorganizational Network" (ION): *"a group of three or more organizations connected in ways that facilitate the achievement of a common goal. [...] Network members can be linked by many types of connections and flows, such as information, materials, financial resources, services, and social support."* (Provan, Fish and Sydow; 2007: pp. 7). An example of ION can be represented by a three or more transport firms deciding to coordinate their own fuel's purchases by a common organization, like a Consortium, in order to obtain major discounts and benefits from the fuel's suppliers.

The creation of a network between organizations, and the maintaining the effectiveness of interorganizational collaboration were often linked to the concept of trust: a factor on the one hand to reduce the costs associated with the creation, coordination and control interorganizational alliance, and the other a lubricant to facilitate the development of interdependence and coordination in accomplishing the task between firms partners (Gulati & Singh, 1998). In other words, trust in relationships between companies favors the emergence and development of inter-organizational routines (often informal) (Zollo.et. al., 2002) can facilitate interaction and exchange of information and knowledge between partners at different organizational levels, between individuals belonging to different companies, going to groups and teams, to arrive at the level of organizations. In this sense, the trust would improve the flow of information between firms

at different levels, encouraging their capacity for mutual adaptation through social mechanisms and informal governane (Soda, 1998), and bringing them to limit the use of hierarchical mechanisms and/or contractual government which are known, while promoting compliance with the commitments of the Covenant, on the other hand increase the costs at the time of coordination and control of interorganizational collaboration (Gulati & Singh, 1998; Gargiullo & Gulati, 1999).

2.1.1 The Team and the ION's governance

In order to improve and to optimize more efficiently their collaboration, firms involved in an ION usually set up an interorganizational govern system: for example the board of directors of a Consortium or the Chief Executive Officer (CEO) in a Joint Venture.

Such govern system is a kind of "control room" that in general is composed by the partners firm's entrepreneurs and/or the managers: a context where the knowledge, the information, the behaviours and the learning at an individual and group level, could become decisions that affect the inter-firm network on the whole. As described in the Chapter 1, there are different ways that people use to govern an ION (Provan and Kenis, 2008), in this study we take into account the Shared Partecipant Governance or SPG: a group of entrepreneurs or representatives of each network's firms, who exploit the reciprocal trust and multiple and dense relationships among group's members in order to govern and to manage the the interfirm collaboration.

To build a team to face organizational problems or needs don't mean to obtain certainty good results: are so many the factors that could facilitate or obstacle the group functioning and, in the second stage, they could affect the expected group effectiveness or the amount of efforts made by the team's members (Chmiel, 1998). In the present study we will adopt a social-cognition perspective in order to explain not only the SPG group efficiency/efficacy but also how the teammates trough the interactions inside the team and their work group attitudes could built the team's effectiveness (Chmiel, 1998; Quaglino e Cortese, 2003). Special attention will be paid to understand in which way the SPG team's members discussion, information sharing and knowledge building affect the way in which group's members arrive to define common beliefs, attitudes and moods (Zappalà, 1998).

Theoretical model and referential construction

The theoretical model which was used as reference point for the testing of the research hypotheses, organizes the different theoretical constructions that are the aim of the research itself according to the Input-Process-Output logic, proposed by Guzzo & Shea (1992): such subdivision allows the set

up of the relation among the theoretical construction according to a one-way logic of influence that goes from left to right that is, the construction (rectangle) on the left, influences (arrow) the construction (rectangle) on its right.
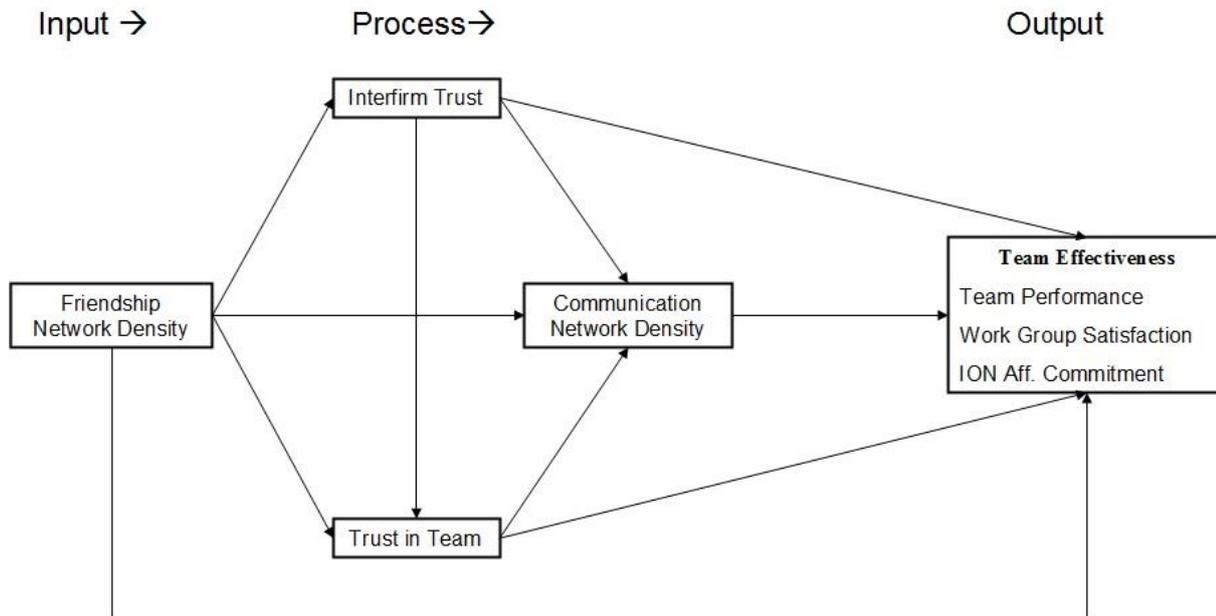
Figure 2.1: Theoretical Model

Following will be described the theoretical model object of the study, starting from the description of the team's outputs, to pass then from left to right, to the description of the different team processes and inputs. For every construction will be described the relations of influence that each of them has on the other variables included in the model.

2.1.2 Team effectiveness

The term team effectiveness represents a variety of products and results that the team has produced through the synergic activities carried out by its members, and that, during their measurement can result hardly distinguishable because of their simultaneous presence. In order to improve the measurement of the efficiency, Costa et al. (2001) propose a differentiation between:

• Team performances, meant as the quantity and quality of the outputs produced by the team (for example, how many innovative solutions the team had produced or how many projects it had developed).

• Effects that the teamwork has produced on the psychological characteristic of the team's members (for example, attitudes, abilities, satisfaction, commitment, stress, etc.).

- Effects that the teamwork has produced on its members behaviors (for example, the turnover ratio, or absenteeism levels, etc.)

Particularly, for what it concerns the measures of the performance, Hoegl & Gemeuden (2001) sustain that it is important to consider the degree of success obtained by the team in meeting the expectations and requirement of those who had to evaluate the results of the team itself, whether they are clients, superiors or the same team members.

Referring to that, the authors propose to measure the performance according to 2 parameters:

- The degree reached by the team in meeting the expectation connected the quality of the results (for example: the strength of the product, the trustworthiness of the service etc.)

- The degree reached by the team in meeting the result within the time and budget limit expected.

Moreover such teams typology are based on peer-based control (Steward et al., 2011): the members of the team are the managers of the team's roles and task that will be completed; in this way, in order to reach the common goals, the group mates will have to maximize their mutual adjustment and supervision while trying to: to maximize individual performances; to integrate the individual contributions in the group performance; to favor satisfying work conditions that will motivate every member of the team to commit himself in the reaching if the objectives, that are aims of the inter-organizational cooperation.

2.1.3 The team's communication network and its characteristics

As mentioned on previous paragraphs, social psychology and organizations studies have shown how teams (as specific examples of small social groups) can be employed as organizational unit able to process information and solve different problems in an innovative and efficient way (Hinsz, Tindale and Vollrath, 1997). In order to achieve that purpose, it's essential for the members of the team to communicate between them to define and share aims and rules that will be used to coordinate each other, to solve conflicts and as a way of assimilation of the singular contribution provided by each member to the teamwork (Quaglino & Cortese, 2003; Sarchielli, 2003).

Discussion and conversation become the ways that allow the members of the team to exchange ideas and information and also to build and renew their cohesion, making them able to solve and face rivalry and hypothetical conflicts that may arouse while aiming to a certain purpose. Interaction and exchange of knowledge, can give to the team's members the possibility to share and reformulate their respective view of the task, and of the technical tools and resources needed to

accomplish it; they can also define the team itself and the situation in which it operates (Depolo, 1998; Kozlowski et al., 2000).

Through communicational interchanges, team-mates develop an important condition of inter-subjectivity which forms what *social cognition* calls "representation or mental schemes, shared amid group's members"(Depolo, 1998) : repeated interaction between the members of the team allows them, on the one side, to negotiate and level their respective perceptions on the basis of a shared converging point; on the other side, interactions, help the creation of information streams but also the exchange of knowledge and ideas, utilized in the connection and integration of the individual performances within the activities of the group.

The communication network inner to an ION's ruling team, emblematize a privileged way through which, businessmen and representatives of the partners companies, can have access to a common context where the interchange of important information and details, influences the individual behavior (Brass, Galaskiewicz, Greve, Tsai, 2004).

As it was previously described, researches that utilize *Social Network Perspective* for the analysis of teams and works groups, have highlighted how, within the team or work group, the position held by one of its member in the relational and exchange network, has an influence on the trend of his behaviors and perceptions.

Different studies witnessed the effects that a subject's centrality in the network has on his satisfaction for the work conducted in group (Shaw, 1964 in Speltini, Palmonari, 1999; Dean & Brass, 1985), on the access to the information owned by the group (Brass, 1985; Anderson, 2008), on his own identification with the organization (Jones et al., 2010) or on the effect that his suggestions (as a leader) produce on his subordinates (Sparrowe & Liden, 2005).

There are still few study projects which are focalized on the relation that the characteristics of the "whole network" or global network inner to the work team (Oh, Chung, Labianca, 2006; Brass et al., 2004) have on the performances and processes of the team itself.

In this study we will consider in particular, the network's density within the team. This index is one of the most utilized for the description of the characteristics of a global level network, and it's defined by Wasserman and Faust (1994) as the overall level of connection in a network.

In every intra-group network therefore, there is a maximum number of possible interactions between the people that form it. For instance, in a communicative network within a team of 5 people the maximum number of interaction will be 20: each subject is able to communicate with at most 4 other people in the team, the computation of the interactions is therefore of 5 people * 4 possible interactions = 20 interactions.

Density is referred to the proportion of the interactions and exchanges concretely carried out between the members of the team and the highest possible number of these interactions given that particular intra-team network. The value of a network's density depends on the type of relational data used to reconstruct the net.

With binary directed matrix, where the links or interactions between actors of the net, are codified simply with absence or presence, density corresponds to total number observed links, divided by the number of potentially possible links. In this case the value of density may vary between 0 and 1 and it is calculated with the following formula (Wasserman & Faust, 1994; Scott, 1997; Mazzoni, 2006):

$$Density = L/n(n-1)$$

where:

L = is the number of lines and n = is the number of dots in the chart; a density equal zero means that there are no link or messages inside the group whereas a density equal 1 means that all the subjects have interacted with each other.

Table 2.1: Matrix directed with dichotomous data

	A	B	C	D	E
A	0	1	1	1	1
B	1	0	1	1	1
C	1	1	0	0	0
D	1	1	0	0	0
E	1	1	0	0	0

L = 1+1+1+1+1+1+1+1+1+1+1+1+1+1=14

Number of possible interactions= n(n-1) = 5*(5-1) = 4*5= 20

Density = L/n(n-1) = 14/20= 0,7

A second way of measuring density is found in case in which the interactions between the actors of the network are calculated through a scale of values, that is, measured not simply on the base of the presence or absence of the relation, but on the frequency or the total amount of exchanges that take place between each couple of intra-group network's actors.

A measure of cohesion that is more intuitive then that of density, is the average degree of bonds found in the net which reveals the average number of connections for each person (Average Degree). This average index is calculated by the addition of all the links directed with values divided by the number of possibly directed links: in this case, density will correspond to the average value of the interactions (Scott, 1997; Mazzoni, 2010).

We can take as example a team composed by 5 people that interact with each other with a frequency that may vary between never=0 and every day= 4. The matrix that represents the interactions taking place between the couples of group's members and the calculus of the density index deriving from the mentioned matrix will be:

Table 2.2: Directed Matrix with non-dichotomous data

	A	B	C	D	E
A	0	4	3	3	3
B	4	0	3	3	3
C	3	3	0	0	0
D	3	3	0	0	0
E	3	3	0	0	0

$\sum$ frequency of the interactions = 4+4+3+3+3+3+3+3+3+3+3+3+3+3= 44

Number of possible interactions = n(n-1) = 5*(5-1) = 4*5= 20

Density (Average Degree) = $\sum$ of the interactions n(n-1) = 44/20= 2,2

Where "n" represents the number of members of the team.

The value of density (Average Degree) obtained from the calculus is of 2,2 on a scale that goes from a minimum of 0 (no interactions) to a maximum of 4 (interactions carried out every day). Unlike the previous one, the index thus calculated, will contain 2 dimensions of the network interrelated to each other:

• From the one side, just as the density index with dichotomous data, it will supply a measure the network's grade of inclusion, that is, an indication concerning the degree of connection between the people of the intra-team network;

• From the other side, it supplies and indication of the average intensity or frequency of the exchanges between the actors of the network.

• To this end, the density (Average Degree) of the intra-team network represents a construction which can be allocated between the definitions of *configured unit properties* and *shared unit properties* proposed by Kozlowsi et al. (2000). The construction of Density (Average Degree) indeed, puts together:

• An index of the dispersion of the connections inner to the network, obtained from the measure (presence/absence) of the interactions between couples of people, which is typically employed as measurement belonging the teams that emerge from the configuration of certain characteristics of the members of the team at individual level (Chan, 1998);

• An index of the average intensity or frequency of the exchanges taking place between couples of members, an average which is usually utilized to measure how specific characteristic at individual level, are shared also at team level (Chan, 1998).

According to Wasserman and Faust (1994) the density index based on matrix directed with values, would offer a thoroughly and reliable form of the intensity of the exchanges within the group, giving of them a measure of the concentration or average strength at network level in its entirety. In this studies, we will take into account the second one level of analysis and specifically we will consider the whole network made by communication interactions among SPG's teammates. Particularly We will expect that:

H1: high communications network density will favors a better adaptation and coordination of the efforts made by the ION's government team, it favors better team's performances (H1a), an higher

satisfaction for the work completed through the group (H1b) and an higher involvement of the members of the group in the inter-organizational collaboration (H1c).

2.1.4 Trust in ION's government team

The concept of trust has been described both in economic and social science literature as "a psychological state comprehending the intent to be vulnerable on the basis of a positive expectation of the intention and the behavior of the other" (Rousseau et al., 1998; Kramer, 1999).

In ION and IOR, trust is present only as long as one subject (for example a person, a group, or an organization) decides intentionally to take risks (risk taking) sharing his personal resources or exposing himself to potential lost (Coleman, 1990) while trying to the task for which is necessary the contribution or the attitudes of another subject (for example a person, a group, or an organization), attitudes towards which the first subject held positive expectations. In other words, in the attempt to build a state of mutual interdependency between the parties (Parkle, 1993; Curall & Inkpen, 2002; 2003) a subject, defined as trustor, who attributes trust voluntarily, decides to become vulnerable to a second actor, who is the target of the process of attribution and is called trustee.

The choice operated by the trustor of becoming vulnerable to the trustee, can be linked both to cognitive and perceptive aspects (for example: reliability of the trustee, convenience, predictability of the situation etc.), and to affective-motivational aspects (for example: trust in the other, sympathy, sincerity etc.) (Kramer, 1999). In both cases, there is trust, according to Rousseau et al. (1998) e Curall & Inkpen (2003) only if :

- There is a condition of potential risk for the trustor,

- The trustor chooses voluntarily to become vulnerable (for example because he is forced to do so or he has nothing to lose);

- The trustor knows that without the other's collaboration the target or the desired result will never be reached (condition of interdependency.

The possible risks connected to the participation in an alliance or network amid companies are numerous, the most frequents are (Curall & Inkpen, *ibidem*):

- The risk that one of the partners of the inter-organizational collaborations, usurps the knowledge or the strategic resources of one of the other partners;

- The risk that some of the partners may not supply to the network the resources or the commitment that are needed to reach the target, or interrupt their stream.

- The risk that, once the alliance is formed, one or more partners will reveal themselves to be not enough competent or sufficiently strong to carry out the tasks estimated in the collaboration agreement.

Trust is generally considered as a psychological state that is able to influence behaviors (for example, cooperatives or sharing ones, etc..) and decisions at different organizational levels (Rousseau et al, 1998). In the inter-organizational contest, and especially we refer to ION and IOR, it is necessary differentiate between trust in people (interpersonal) and trust that can be developed between companies (inter-organizational) (Zaheer, Perrone, McEvily, 1998; Curall & Inkpen, 2002; 2003). Inter-organizational trust in relationship held among companies is thus defined as: *"...the degree of trust felt towards a partner organization by the members of a focal organization"* (Zaheer et al., 1998: pag 142). This is a distinct type of trust even if it is correlated with the interpersonal trust (the confidence that one person has towards a member of another partner organization). In other terms trust, can be represented as:*"...the will of a group to be vulnerable to another group actions, basing themselves on the expectation that the second group will carry out actions that are important for the first group, despite the fact that the former do not have the possibility to supervise or control the latter"* (Mayer, 1995, p.712).

In the two types of trust so far described, interpersonal and inter-organizational one, the evaluation of the risk and the decision to trust another actor, are always connected to psychological evaluation made by the individual boundary spanners (Zaheer et al., 1998), that is, actors who operate in the limits of theirs organization but within the area of interaction and collaboration amid organization which is substantiate and defined through the collaboration agreement. Such individual evaluations and perceptions can be shared in a stronger or weaker way, even at group level and more precisely, at level of the organization to which one belongs to (Curall & Inkpen, 2002).

In spite of the fact that the differentiation between interpersonal and inter-organizational trust in the collaborations among companies has been cleared since long time, only very few studies have investigate how those kind of perceptions develop within and at level of a group, and there are still no studies that have investigate the role played by this type of perception on the operation of teams and inter-organizational groups (Curral & Inkpen; 2002; Klein et al., 2000; Costa & Bijlsma-Frankema, 2007).

In particular in ION's government teams, the members are often entrepreneurs, managers, or directors of one of the partner companies of the network and therefore their double role (as managers of ION and directors of a company) allows them to have at the same time, the perception of:

- the characteristics of the other companies and the perception of the collaboration dynamics that develop in the network
- the characteristics of the team members and of the intra-team collaboration dynamics;

These two typology of perceptions, if shared and negotiate within an inter-organizational team, can create a shared vision of both the group and the ION, which is able to influence the development of trust at intra-team and inter-organizational level.

2.1.5 Types of trust in ION's government teams

Another interesting differentiation was proposed by Janowicz and Noorderhaven (2004), who have demonstrated that in Joint Ventures the interorganizational trust among partners at the strategic and at the operational level have different sources: in specific, at the top management level, interorganizational trust was based on the cognitive evaluation of the partner and of the JV agreement, while at the operational level trust was based on shared experiences and common identities among gatekeepers, the people who work together across the firms' boundary in the interorganizational collaboration.

Newell e Swan (2000) differentiated three kinds of trust: the competence trust, based on the evaluation of the trustee's ability to perform a task; the companion trust, based on the goodwill and personal friendship, and the commitment trust, based on the safety and reliability of the institutional mechanism provided by the contractual agreement among ION partners.

Other than a multilevel conception that considers the different levels at which are collocated those who give and those who gain trust, it is important to understand for each level of analysis included in the model what are the related dimensions of trust (Seppanen et al., 2007). It is licit to expect a type of trust based on the strategic calculation of convenience and reliability of the trustee, when the evaluation and the ascription process happen at inter-organizational level (company-company) (for example, delay in the payments or in the delivery of materials, competence in the execution of the work assigned etc.). It is also right to expect that the quality of the social relations and the dispositional characteristics of the trustee (for example, his personality or his socio-economic

background, or again his beliefs etc.) are the elements that characterize the most, the interpersonal and intra-group level of the inter-organizational relations.

The study of the inter-organizational relations that employ multilevel and multidimensional conceptions of trust, seems to be rather developed, but still little attention is paid to the study of these relations intra-group's trust level (Costa & Bijlsma-Frankema, 2007).

Numerous are the contribution that work and organizational psychology have given to the comprehension of how trust can influence the operation and the efficiency of teams and workgroups. About trust at group level, Costa & Anderson (2010) saw how high level of trust among the team members is correlated to a high level of cooperative behaviors, low level of monitoring behaviors and high level of group task performance (Costa & Anderson; 2010). Similarly, the study of Raes et al. (2006) demonstrated that groups with a low and instable level of trust presented high level of task and relational conflict and had poor performance in comparison to groups with more stable patterns of trust. In teams with high levels of trust, differences of opinion and conflicts that can arise in the execution of task are not perceived as personal attacks, but are clarified and resolved through a constructive and open discussion among the team members (Simons and Peterson, 2000). According to Costa et al. (2001) and Costa and Anderson (2010) trust at group level is based on the evaluations that the trustor express on the characteristics, competences, motivations, intentions and behaviors of the trustee. Evaluations that are usually based on:

• the certainty that, the trustee is behaving according to the expectation and the implicit or explicit commitment taken in respect to the other members of the group;

• the certainty that the trustee is behaving honestly in the negotiation and in the formulation of the agreements;

• the certainty that the trustee will not try to take advantages on the other members if the occasion happens;

• the fact that in the group, the members will be generally disposed to communicate with each other, will be able to accept someone else's influence and will be capable of resolving problems and tasks in a cooperative way (Inkpen e Currall, 1997).

We can expect that the perception of trust in between the members of the ION Management Team and the cooperation behaviors employed in the resolutions of problems and conflicts found in the execution of a task, can be associated to processes dealing with the exchange of information and the

negotiation between the members of the team, that will be even more connected and included in the group's communications network. In teams with high levels of trust, differences of opinion and conflicts that can arise in the execution of task are not perceived as personal attacks, are clarified and resolved through a constructive and open discussion among the team members (Simons and Peterson, 2000). Finally, in team with high level of trust the effects of the misattribution process (Simons & Peterson, 2001) will be more inclined to be contained within specific limits: in other words, divergences of opinions and the conflicts that emerge in the execution of a task will not be perceived as personal charges, which at group level can weaken or interrupt the exchange of information (Raes et al., 2006), but will be taken as incomprehension that can be settle and cleared through a sincere and constructive discussion between the team members.

Dyer and Chu (2003) showed that high level of trust collaboration have a positive effect on the interorganizational performance because it favors a greater sharing of information and knowledge among partners. In the same direction moves the theory elaborated by Janowicz and Noorderhaven (2004), who saw how the diverging dimensions of inter-organizational trust (based on the calculation of convenience at strategic-management level and also, based on the similitude's perception of the socio-demographic characteristics at operative managers level) would be related to higher levels of knowledge exchanges between companies and to higher levels of inter-organizational learning.

H2: high levels of inter-organizational trust (H2a) and high levels of trust in team (H2b) will ease the exchange of knowledge between entrepreneurs and mangers of the ION's ruling team, in this way increasing the level of communication network density of the team.

On the other side, low levels of interpersonal or inter-organizational trust can bring the members of the ION's management team to interrupt or slow down the realization of the collaboration among companies with possible repercussion on the inter-organizational performance (Currall & Inkpen, 2002). In particular, high level of trust among the team members is correlated to a high level of cooperative behaviors, low level of monitoring behaviors and high level of group task performance (Costa & Anderson; 2010). Similarly, the study of Raes et al. (2006) demonstrated that groups with a low and instable level of trust presented high level of task and relational conflict and had poor performance in comparison to groups with more stable patterns of trust.

H3: high levels of inter-organizational trust (H3a) and high levels of trust in team (H3b) will improve the team's performance.

Trust has another important function, that of helping the team in dealing with the tasks that develop in situations of uncertainty (for example: an inadequate control of the members on the results and on the resources at their disposal). In such situations, trust helps maintaining high levels of cooperation and it limits the control exercised on the other members behavior.

This practice at team level, may lead to a greater satisfaction (team satisfaction) and willingness of the same members of the team in remaining in the team or in the organization itself (team/organization commitment). Such aspects become crucial when dealing with ION's government team, because the desertion of one of the members often correspond to the exit from the project of his own company as well.

H4: high levels of inter-organizational trust are positively associated to a greater satisfaction of the team members regarding the work accomplished in group (H4a) and the willingness of the same members to continue their commitment within the inter-organizational cooperation (H4b).

H5: high levels of trust in team are positively associated to a greater satisfaction of the team members regarding the work accomplished in group (H5a) and the willingness of the same members to continue their commitment within the inter-organizational cooperation (H5b).

2.1.6 Phases of the development of an inter-organizational alliance and types of trust

Throughout the evolution of the inter-organizational alliance, trust at different levels plays different roles (Currall e Inkpen, 2003). The life cycle of the alliances between organizations is usually characterized by three main phases (Doz, 1996):

1. the negotiation and formation phase,
2. the implementation and operation phase,
3. the phase of evaluation.

Each one of the described phases is characterized by a specific configuration of inter-organizational trust (Currall and Inkpen, *ibidem*):

- in the phase of formation of the alliance, the evaluation of the partners characteristics (for example, its reputation, competences, resources etc.) made by the managers and directors of the other companies it is fundamental to negotiate and establish the terms and conditions of the agreement which will represent the base of the alliance;

- in the phase of management, operation and realization of the collaboration activities stated in the inter-organizational agreement, it is often more important the trust developed at interpersonal and inter group level between managers belonging to different partners organizations (for example ION management team). This type of trust is essential to ease the interaction and the exchange of knowledge and information that are useful to integrate and re-adapt the activities and the government structure of the alliance, as answer to events or changes that may happen in the inside (for example, innovations, accidents etc.) or on the outside (for example, variation in the referential market, new technologies, etc.) of an inter-organizational cooperation.

- in the final phase of evaluation, the partners revise the outcomes of the inter-organizational performances, evaluated regarding the achieved results, the merits and the responsibilities taken by the partners organizations and by the people that have collaborated in the realization of the tasks estimated in the agreement: according to such experiences and evaluations, the organizations adapt their idea of trust felt towards the partners, and will decide if continue or not the inter-relational cooperation, and if modify the agreement terms and the structure of the governance of the collaboration amid organizations.

It is important to highlight how the different types of trust at different organizational levels and the interpersonal and inter-organizational types of trust, differs from one another, but at the same time are linked to the process of development of the inter-organizational cooperation (Currall and Inkpen, 2003). Trust based on the good reputation of the companies involved in the alliance, strong commitment and expectation of the companies regarding the possible results provided by the collaboration, together with pervious relations and inter-organizational experience, may represent elements that are fundamentals during the formation of the alliance.

Such inter-organizational trust becomes an important factor even on the the following phases of realization of the agreement: if the partners have mutually trusted each other, and have create an inter-organizational agreement with terms that are not excessively restricting or binding, then it will be possible for those who will concretely realize the agreement to interact and create in a more spontaneous way, the social relations that are needed for the development of interpersonal and intragroup trust, which is essential to adapt the terms of the agreement to hypothetical environmental variations or variables that have not been foreseen during the formalization of the agreement, and that might stop or slow down the realization of the inter-organizational goals.

H6: in the phase of realization of the inter-organizational alliance, high level of trust between organizations are positively associated to higher levels of trust in the ION's government team.

H7:inthe phase of formation of the alliance, high level of trust in team mediate the association between inter-organizational trust, ION government team's performance (H7a), work team satisfaction (H7b) and ION affective commitment (H7c).

2.1.7 Trust and Social Capital

The factors that may have a positive or negative influence on the development of trust in inter-organizational cooperation are many. Currall and Inkpen (2003) divide such factors between those that are collocated at company level and have an influence on trust at inter-personal level, and those which are collocated at individual level and have an influence on trust at inter-company level. In the first category are included:

- the resources utilized in the alliance by the partners companies or by others institutions, a factor that may have a positive influence on trust between managers and employees involved in the alliance favoring their commitment in the inter-organizational cooperation;

- the legal and contractual guardianship, provided by the national or international juridical system in which operates the collaboration and that may function as a deterrent to reduce the uncertainty and variability linked to the possible behaviors of the partners companies, so as to support the risk assumption and trust based behaviors between managers and employees of the different companies;

- similarity in the management style, intended as the degree of resemblance of the companies in terms of risks assumption, decision management, authority and organizational structure; those are elements that have a sure influence on the companies' ability to work together, and consequently, on the levels of conflict and inter-personal trust that will be created between managers and employees involved in the inter-organizational collaboration.

The second typology of causes, that is, those factors that at personal level can influence trust between organizations, include:

- the continuity of the participation of the managers at the inter-organizational cooperation, which will permit the development of inter-personal trustworthy relations between managers, with the possibility of better and more profitable information and resources exchanges, that may be transferred even at level of the belonging company;

- the quantity and quality of the information exchanged at inter-personal level between managers and employees, will ease the transit of feedbacks that will be useful for the

comprehension of the alliance's performance, and for the reductions of the uncertainty margins related to the execution of the task. This exchange of information results to be fundamental, both in the firsts stages of implementation of the alliance because it favors the mutual adaptation, and in the phase of evaluation of the future of the inter-organizational relations. High levels of inter-personal trust may help the exchange of such information which will be useful for the improvement and development of trust at the organizational level as well;

- the diffusion of multiple relations between managers of different organizations, both vertically (middle manager with top manager) and horizontally (middle manager with other middle managers)in order to develop a social-network which is able to improve the degree of enclosure of the same managers within the processes of negotiation and building of the alliance, favoring in this way the motion of trust from the inter-personal level to the organizational one.

An interesting factor linked to trust and performances in the inter-organizational relations is presented by the Social Capital.

H8: high density in inter-personal relations of friendship between team members will favor high levels of trust in team.

H9:high level of density in networks of friendship between entrepreneurs and managers members of ION's government team will favor the development of high levels of inter-organizational trust.

H10:high density in inter-personal relations of friendship between members of the team will favor better performances of the ION's government group (H10a),a greater satisfaction for the workgroup (H10b) and a greater sensation of involvement and commitment in the tasks and in the activity of the ION (H10c) .

2.1.8 Social Capital and the team's communication network

The influence of social network structure on the group's effectiveness and group's outputs was extensively underlined by the small group studies that used the Social Network Perspective's models and tools. In particular, many scholars focused their studies on the influence that individual members ego-network characteristics (i.e. centrality, frequency and variety of interactions among group's members) have on other individual variables. For example, members with a high network centrality are: more satisfied for the results of the group, have more easy access to information inside the group (Anderson, 2008), more identified with the organization (Jones & Volpe, 2010).

An interesting study of Kratzer et al. (2004) showed that in 44 Dutch innovation teams the creative performance of the group was related to the team communication network characteristics; in

particular the low level of interaction among members and the presence of cliques (subgroups whose members communicate prevalently only with the other members of the same subgroup) decreased the capacity of the team to generate new ideas, methods, inventions or applications.

At the present time, few studies have instead paid attention to the team/group as unit of analysis and on the relationship between the team's communication or social ties "whole network" characteristics (Brass et al., 2004; Oh, Chung, Labianca, 2006) and the performance of the group/team itself.

To understand the role of Social Network Analysis in the study of teams and group it's necessary to make a distinction. Communication exchange is important for the knowledge and information sharing and diffusion, but also it has got another fundamental role in the work group process: the interaction among team's members helps them to define and manage uncertainty in order to develop a common and social-built definition of specific work situations. Through a social influence process people inside a group (or organization) tend to develop a common and shared perception of the situation that help them to face problems and to arrange and integrate their common work's activities in order to achieve the goal. Two main social processes are involved in the building of these common perceptions: a more instrumental and work-related way as the information/knowledge exchange among unit members and a more affective way as the social comparison process made by each teammate with other colleague (Simmel, 1950; Zhoar & Tenne-Gazit, 2008). The second source of Social Influence is related to a social identity process that brings people to adopt and to be influenced by other people who are perceived more cognitive and emotive close to them. In other word, people inside the team tends to exchange and use interpretations of events made by those teammates they consider friends or more similar to them. friendship ties represent the connection among individuals thanks to social comparison take place and where it's more probable that the communication process is not only related to instrumental information exchange, but also it represents the conduits where the exchange of interpretations and definitions (from the social comparison process) take place as socially oriented communication (Rico et al., 2009), for example, communication that encourages collaboration and mutual support among team's members (Levine & Moreland, 1990).

In this sense, task and socially-oriented communication are different mechanism of social influence that could coexist as partially overlapping inside the team's communication network, but the second one type is related, through the social comparison process, to the team's friendship network. These

two networks, communicational and friendship network, are distinct and for each one we will consider specific network features.

In the social network perspective, structural density represents the proximity of the actors inside a network (Balkundi & Harrison, 2006) and represents the ratio between direct ties in a network and the total number of possible ties in this network (Wasserman & Faust, 1994). In the team's communication network, density indicates the proportion of teammates involved in the communication flow made by task-related and socially-related interactions (Zhoar & Tenne-Gazit, 2008). Instead, density in the team's friendship network indicates the extent to how much the actors establish direct personal relationships with other members: higher density in the team's friendship network promotes the social comparison process and consequently improves the amount of socially-related exchanges among team's members. Thus we hypothesized that:

H11: higher density in the team's friendship increases the exchange of information and consequently the density of team's communication network.

H12: high density in the ION's ruling team communications network, has a positive influence on the relation between inter-organizational trust (H12a),team trust (H12b),friendship network density (H12c) and team efficiency.

H13: high density in the ION's ruling team communications network has a positive influence on the relation between inter-organizational trust (H13a),team trust (H13b),friendship network density (H13c) and on the contentment for the work accomplished in team.

H14: high density in the ION's ruling team communications network has a positive influence on the relation between inter-organizational trust (H14a),team trust (H14b),friendship network density (H14c) and ION affective commitment.

2.2 Objectives and theoretical research model

At the present, few studies (Drach-Zahavy, 2011) have considered how and in which way psychosocial factors and team dynamics affect the interorganizational network management team. Thus, this paper investigates if:

- the density of the team communication network is a critical factor in the promotion SPG team effectiveness (team performance, work group satisfaction and ION Affective Commitment);

- how different type of trust (interfirm and intrateam) could facilitate the informational exchange and the coordination of individual efforts to govern the interorganizational collaboration and to improve the team's performance, work group satisfaction and the commitment to the ION;

- how the social capital among SPG team's members could affect the amount of trust among firm and among teammates, facilitate the exchange of information, knowledge and social support and finally could affect the SPG team effectiveness (team performance, work group satisfaction and ION affective commitment).

In order to achieve this goal, the study will consider two theoretical perspectives: the Relational and SNA Perspective and the Work Team Perspective. Below are presented the Theoretical Model and the research hypotheses.
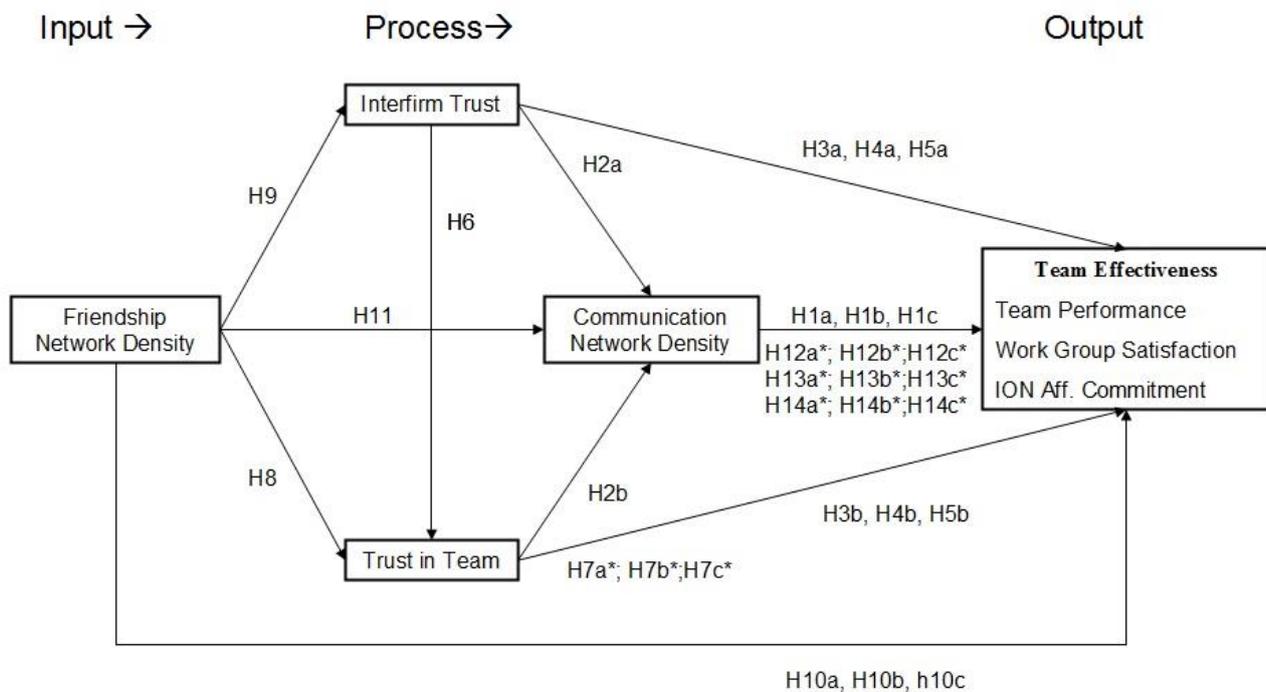
Note: * Mediation Hypothesis

Figure 2.2: Theoretical Model with Research Hypotheses

2.3 The Method

2.3.1 The Procedure

Through a specific list, indicating the winners of "Reti 2010", given by Regione Emilia (http://imprese.regione.emilia-romagna.it/Finanziamenti/industria-artigianato-cooperazione-servizi/progetti-per-reti-di-imprese), it was possible to pinpoint 276 IONS, and among those to

specify 143networks among enterprises, for logistic and economic reasons, were easily reachable by the researcher's group.

A telephone and/or e-mail contact was possible with 98 of these nets and with the representative-coordinator of the net to whom the modality, terms and costs of the participation in the study were explained.

The procedure followed to collect the data was divided in two consecutive phases: in the first one, a semi-structured interview was administered to the representative-coordinator of the companies' network, thanks to which it was possible to gain information about the governance, structural, and organizational characteristics of the net, other than data referring to the composition of the net and of the governing team.

The information were used to arrange a multiple choice questionnaire which was subsequently administered to the entire governing team of each network.

The aim of the questionnaire was that of gaining information and data regarding the characteristics and the individual perceptions of the entrepreneurs and the managers of the networks of companies; according to their availability, it was possible to administer the survey in two ways: either via e-mail, together with a specific kit for the compiling, or in the presence of a researcher that had administer the survey to the members of the team, at the end of one of their meetings.

With this procedure, 57 interviews, to coordinators and representatives of the net, have been carried out; the interviews identified 53 nets governed with a Shared governance system and therefore they were included in the second phase of the collection of data. Among the 53 companies that were contacted, 35 with the communal the agreement of all the members of the ruling team, gave their consensus to proceed with the second phase of the study.

A total number of 143 questionnaires have been administered, and of those, 104 (for 30 governing team) have been correctly filled in and sent back with a returning ratio of 72,72%. The average returning ratio of each team was 83,08%; however 2 groups and their related surveys, have been excluded due to the low ratio of answers that would not permit a suitable representation and reliability of the index at team level.

2.3.2 The Sample

The participants of the study were 101 workers (81 entrepreneurs, 17 managers and 3 professionals) divided in 28 IONs with legal and operative branch in Emilia-Romagna (north east of Italy). These companies participated in a public regional call named "Reti 2010", which was directed to financially support the setting up of a inter-firms' network which had to realize innovative products and services.

Each ION was composed on average by 3,89 (SD = 1,25) from a minimum of 3 enterprises to a maximum of 7 enterprises and the 17,9% of the IONs was created in order to develop new products, the 35,7% to develop new services and the 46,4% was founded in order to develop both new products and innovative services. The new services and products were designed in the 37,5% for international's end markets, in the 28,7% for the national's market and in the 35,7% for the Emilia Romagna Region's clients. The agreement among network's firms partners has been formalized with a symmetric profit sharing in the 75% of the cases and with an a-symmetric profit sharing in the 25% of the cases. On average, each firm had already developed about 3,62 (SD = 2,19) past collaborations with the firms of their own present interfirm network and the 68% of these firms are also contemporary involved with another interfirm collaborations. In the data collection phase, all the IONs were in the alliances implementation period; in other words each IONs had already spent about two years and half in the ideation and in the design of the new product/services and, at that time, all of them were still working to develop and realize their innovations. Each ION was governed by a group of entrepreneurs and managers; these groups have meetings one time in a year in the 10,7% of the cases, one time a month in the 60,7% of the cases and one time a week in the 28,6% of the cases. The 28 teams were formed by an average of 5,30 members (SD = 2,23: Min.= 3; Max.= 9) and lasted for an average of 26,81 months (SD= 19,521). Participants were 79,2% males and 20,8% females, with an average age of 46,89 (SD=9,746).For what concerns the education, the highest scholar degree was for 48,4% of the participants a high school degree, for the 46,6% a college degree, a master or PhD and for the remaining 5% of the participants it was a middle school degree or a certificate of attendance to professional courses.

2.3.3 Measures

In order to develop and use the survey scales for the Italian contest, all the items of the questionnaire have been translated and back-translated by two English mother-tongue translators. For every scale, 4 independent judges have analyzed the validity of the content of each item, while the feedbacks of an pilot group of 10 entrepreneurs were used to validate and to improve the efficacy of the items of the survey before it was administered. All the measures and the analysis of the present study are referred to the team level.

Team Outputs

To measure the effectiveness of the team, the following 3 different measures were used.

Team Performance

It was used the Hoegl & Gemuenden scale (2001) on the perception of the effectiveness and efficiency of the team according to its members. The instrument is composed by 9 items (α =.93) (an example is: "*Considering the results, this team can be considered as a success*) measured on a 5 point Likert scale (from 1: "*completely disagree*", to 5: "*completely agree*"). In order to check the structure of the team performance, we conducted an exploratory principal-components (PCA) factor analysis using a varimax rotation using the data collected on the 210 participants (101 entrepreneurs and mangers and 109 degree students) whom collaborate in interorganizational teams or work groups. The unique factor that emerged was identified as a team performance factor and it explains the 62% of the total variance. The final version of the shared leadership scale included all the 9 items of the original scale. Table 2.3 presents these items with their component loadings, mean and standard deviation and communalities.

Table 2.3: Rotated Principal Components Analysis Factorial Structure of Team Performance with Items Rearranged by Component

Item (written in a shorter form)	Component: Team Performance	Mean	S.D.	Communality
1. The team obtained successful outcomes	.819	3.50	.999	.671
2.All clients' demands satisfied until now	.848	3.71	1.020	.719
3.Goals reached from organizational perspective	.805	3.47	1.027	.647
4.Clients' view about Team empowered by performance	.567	3.27	1.057	.321
5.Goals reached until now are high-class	.853	3.52	.984	.727
6.Clients satisfied by outcomes' quality	.811	3.63	.965	.657
7. Team satisfied by outcomes reached	.815	3.54	1.045	.665
8.Activities fulfilled within scheduled timings	.816	3.69	1.168	.665
9.Activities fulfilled within planned budget	.709	3.86	1.021	.502
Eingenvalue	5.575			

Note. N = 210; items are translated from Hoegl & Gemuenden (2001).

Team Performance was made operational through the aggregation of the mark obtained by the team members using composition referent–shift consensus model (Chan, 1998).

Work Group Satisfaction

To measure the work group satisfaction, it was used a Smith and Barclay scale (1997) of 6 items (α = .81) which measured how much the members of the team are satisfied of the work accomplished as a team (an example is:" *We are satisfied of each other for the contribution that we gave to the team*"). Every participant expressed his degree of accordance with the items through a 5 point scale

(from 1: "*completely disagree*", to 5: "*completely agree*"). In order to check the structure of the work group satisfaction, we conducted an exploratory principal-components (PCA) factor analysis using a varimax rotation using the data collected on the 210 participants (101 entrepreneurs and mangers and 109 degree students) whom collaborate in interorganizational teams or work groups. The unique factor that emerged was identified as a work group satisfaction and it explains the 64,7% of the total variance. The final version of the work group satisfaction scale included all the 6 items of the original scale. Table 2.4 presents these items with their component loadings, mean and standard deviation and communalities.

Table 2.4: Rotated Principal Components Analysis Factorial Structure of Work Group Satisfaction with Items Rearranged by Component

Item (written in a shorter form)	Component: Work Group Satisfaction	Mean	S.D.	Communality
1.Work relationships... could be better ®	-.567	3.20	1.068	.322
2.Are pretty satisfying for us	.864	3.61	1.007	.746
3.Pleased about work relationship with other members	.894	3.77	1.010	.799
4.pretty good ones compared to past ones	.898	3.60	1.036	.807
5.Pleased about others' contribution	.792	3.59	1.004	.628
6.Other members like to work with me	.763	3.60	.842	.583
Eingenvalue	3.885			

Note. N = 210; items are translated from Smith e Barclay (1997). R = reversal of item scores

The degree of satisfaction expressed for the teamwork was made operational through the aggregation of the marks obtained by the group members using a composition referent-shift consensus model (Chan, 1998).

ION Affective Commitment

In order to calculate the ION affective commitment, was used a 4 item scale (α =.66) proposed by the Organizational Commitment of Allen and Meyer (1990), which was translated for the Italian context by Pierro et al. (1992) and was adapted for this specific context of ION. Each member of the team expressed his degree of agreement to statements referring to the affective commitment and attachment to the company's network, on a 5 point scale (from 1 completely disagree, to 5 completely agree) (for example: The companies network to which I participate with my company, has a strong meaning for me). The affective commitment towards one's own companies network

was made operational through the aggregation of the marks obtained by the members of the team, using a composition model of the direct-consensus type (Chan, 1998).

Team Processes and Input

As follows will be displayed the measures used in the model for the calculus of the process and inputs variables.

Team's communication network density

To measure the communication network, was used an adapted version Cummings and Cross (2003) scale translated and back-translated in Italian, was used to each participant was given a list containing all the team member's names. This list was obtained by a preliminary interview administered to the legal representative of the companies' network. Each member of the network's government team, indicated how frequently he exchanged different types of communicative interactions with a particular person, on a 5 point scale (0: *never*, 1: *monthly*, 2: *weekly*, 3: *every day*, 4: *more than once a day*). The scale was composed by 4 items, one for each type of communicative interaction (face to face, via e-mails, telephone, and through social media). Following, is proposed an example of item: "How often do you exchange face to face communication with:

1 A. Arora _____

2 J. Cohen _____

3 N. Dewalt _____

4 E. Devereux _____

Data for each type of communication observed in each group were entered in the four matrix corresponding to the type of communication elaborated through Netminer 3 software. These four matrix, were merged, through the Merge function, in the final matrix. The sub-function MAX selected for each cell of the four matrix, the highest communication frequency value and puts it in the final matrix. In this way, it was possible to recreate a directed matrix of adjacency *person*person* (or NxN), in which was indicated highest communication frequency for every couple of team members considering the 4 types of communications (Krackhardt, 1987; Krackhardt & Kilduff, 2002). The matrix referred to the communicative interaction person*person was, then, used to analyze the global structure of the communication network and to acquire, through the

software Unicet 6 (Borgatti, Everett & Freeman, 1999) , the density index (Scott, 1997) proper to each team.

Inter-organizational trust

To measure trust at inter-organizational level within strategic alliances, were used 5 items (α =.94) taken from the scale of Norman (2002). Every member of the team evaluated his own degree of agreement with the proposed information, on a 5 point Likert scale (from 1: "*completely disagree*" to 5: "*completely agree*").An example of the proposed item is: "*We trust that the decisions made by the other organizations of the net, will be for the entire network benefit*", or " *We trust that the organizations that form the network will respect the planned agreement*". In order to check the structure of the interorganizational trust, we conducted an exploratory principal-components (PCA) factor analysis using a varimax rotation using the data collected on the 101 entrepreneurs whom collaborate in interorganizational teams. The unique factor that emerged was identified as a interorganizational trust and it explains the 84,16% of the total variance. The final version of the interorganizational trust scale included all the 5 items of the original scale. Table 2.5 presents these items with their component loadings, mean and standard deviation and communalities.

Table 2.5: Rotated Principal Components Analysis Factorial Structure of Interorganizational Trust with Items Rearranged by Component

Item (written in a shorter form)	Component: Interorganizational Trust	Mean	S.D.	Communality
1. Trust other firms keep their words	.881	3.94	.794	.777
2. High trust level with other firms in the network	.951	3.90	.928	.905
3. Other firms' decisions benefit the network	.935	3.90	.862	.874
4. Other firms' decisions benefit my firm	.901	3.86	.856	.811
Eingenvalue	3.367			

Note. N = 101; items are translated from Norman (2002).

Inter-organizational trust was operazionalized through the aggregation of the marks obtained by the team members using composition referent-shift consensus model (Chan, 1998).

Trust in team

The Trust in Team was measured with 8 items (α =.92) concerning the individual perceptions of the trustworthiness and cooperative behaviors of the teammates driven from the 21-items "Trust in Team" scale developed by Costa et al.(2001) and validated by Costa & Anderson (2010). Each participant evaluated the proposed statements on a scale from 1 (*completely disagree*) to 5 (*completely agree*). An example of item is "*When we have to make a decision, we assay the opinions of each member of the group*", or "*In this team we frankly discuss the problems we are dealing with*". In order to check the structure of the trust in team, we conducted an exploratory principal-components (PCA) factor analysis using a varimax rotation using the data collected on the 210 participants (101 entrepreneurs and mangers and 109 degree students) whom collaborate in interorganizational teams or work groups.. Before the analysis we excluded the 6 items of the original propensity to trust sub-scale and an item from the original monitoring behaviors sub-scale because the 4 independent judges and the 10 entrepreneurs' pilot group have distinguish these items as less pertinent with the research's goal or less understandable for the Italian culture. We conducted the PCA factor analysis on 14 items. The three factor that emerged were identified as: a first component named trust in team, that explains the 42% of the total variance; a second component named monitoring teammates, that explains the 17% of the total variance; a third component named distrust in team, that explains the 7,6% of the total variance. In order to test the research hypothesis we decided to take into account only the trust in team component, because literature has already shown that monitoring and distrust are conceptually different construct although related to trust (Rousseau et al., 1998; Kramer, 199; Costa and Bijlsma-Frankema, 2007). The final version of the trust in team scale included 8 items from the original scale. Table 2.6 presents these items with their component loadings, mean and standard deviation and communalities.

Table 2.6: Rotated Principal Components Analysis Factorial Structure of Trust in Teams, Monitoring Teammates and Distrust in team with Items Rearranged by Component

Item (written in a shorter form)	Comp.1: Trust in Team	Comp.2: Monitoring Team's members	Comp.3: Dis-trust in Team	Mean	S.D.	Com m.
7. Count upon each other	.846	.014	-.112	3.76	1.032	.729
8. Fully trust others' abilities to perform tasks	.786	-.149	-.118	3.57	1.043	.653
9. Keep their word	.680	-.249	-.163	3.78	1.022	.551
10.Some people... have concealed goals ®	-.385	.179	.694	1.64	.979	.661
11.Often try to free themselves from engagements ®	-.077	.124	.771	1.97	1.021	.616
12.People try to honestly look after others' business	.758	.135	-.238	3.69	.844	.649
13.Cooperative environment	.873	.022	-.089	3.94	1.012	.771
14.Problems are openly discussed	.796	.037	-.173	4.01	.968	.665
15.Each opinion is cosidered in decision-making	.825	-.005	-.097	4.01	.951	.690
16.Some people withold important information ®	-.215	.172	.752	1.79	1.023	.641
17.Most of people are open to help/suggestions	.747	.105	-.217	3.88	.902	.617
18.People check on others' work	.184	.730	.192	2.95	1.106	.603
19.People check if promises are kept	.037	.858	.135	2.78	1.049	.756
20.Most of people check up on others' work	-.210	.791	.097	2.16	1.022	.679
Eingenvalue	5.833	2.385	1.064			

Note. N = 210; items are translated from Costa e Anderson (2010). R = reversal of item scores

Trust in Team was made operational through the aggregation of the marks gained by the team mates using a "referent-shift consensus" composition's model (Chan 1998).

Team's Friendship Network Density

For the measurement of the inter-personal relations in teams and workgroups, was used an adapted version of the scale proposed by Labianca et al.(1998).To each participant was given a list containing the names of the others group members. In correspondence to each name the participant had to indicate the type of relation that linked him to that person, choosing from one of the possible answers supplied with the list of names: *family or relative*; *friend*; *acquaintance*; *I don't know this person*; *I prefer to avoid this person*.

The data collected through the use of the questionnaire were then regrouped in one matrix where have been selected through the function LAYER and the command SPLIT of the software Netminer 3, only the relations of friendship: in this way it was possible to rebuild a directed matrix of adjacency person*person (or N x N),in which was indicate the sole the presence or absence of a friendship connection for each couple of team members (Krackhardt, 1987; Krackhardt & Kilduff, 2002). The matrix of the friendship relations was subsequently used to analyze the global structure

of the communications network and to obtain in Ucinet 6 software (Borgatti, Everett & Freeman, 1999) the density index (Scott, 1997) for every team.

2.4 Preliminary Analysis

2.4.1 Descriptive analysis and Data aggregation

The descriptive statistics and those referring to the distribution of the variables that are the object of the study, are extensively provided in Table 2.6.

Table 2.6: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Dependent Variables									
Team Performance	28	2.167	4.333	3.292	0.601	-0.018	0.441	-0.800	0.858
Work Team Satisfaction	28	2.806	4.500	3.568	0.472	0.426	0.441	-0.359	0.858
ION Aff. Commitment	28	3.000	4.667	3.743	0.445	0.369	0.441	-0.278	0.858
Independent Variables									
Communication Network Density	28	0.667	3.667	1.694	0.808	0.868	0.441	0.062	0.858
Trust in Team	28	2.750	4.917	3.884	0.564	-0.247	0.441	-0.506	0.858
Interfirm Trust	28	2.667	5.000	3.945	0.602	0.003	0.441	-0.396	0.858
Friendship Network Density	28	0.000	0.850	0.355	0.279	0.335	0.441	-1.024	0.858

Further information regarding averages and variables correlations are extensively presented on Table 2.7.

Table 2.7: Descriptive Statistics and Correlations for all the team level variables

	Mean	S.D.	1	2	3	4	5	6
1. Team Performance	3.292	0.601						
2. Work Team Satisfaction	3.568	0.472	0.684**					
3. ION Aff. Commitment	3.743	0.445	0.611**	0.542**				
4. Communication Network Density	1.694	0.808	0.126	0.156	0.480**			
5. Trust in Team	3.884	0.564	0.546**	0.795**	0.570**	0.201		
6. Interfirm Trust	3.945	0.602	0.574**	0.773**	0.433*	-0.044	0.780**	
7. Friendship Network Density	0.355	0.279	-0.022	0.332	0.244	0.481**	0.418*	0.224
N = 28 (Aggregate); p < ,05*; p < ,001**.								

The dependent variables which are the objects of the study, show a standard average and deviance which are very similar to the values obtained in precedent studies on team performance and work satisfaction (Hoegl & Gemuenden, 2001; Muethl et al, 2009; Costa et al, 2001; Costa, 2003;), and a little higher in respect to those regarding the affective commitment (Costa et al, 2001; Costa and Anderson, 2011). For what it concerns the dependent variables, the values of average and standard deviation result to be in accordance with the values of communication network density and friendship network density of the precedent studies taken as reference (Costa, 2003; Costa and Anderson, 2011), whereas the same values result to be a little higher regarding the average (but not the standard deviation) than those of the construction of inter-organizational trust (Norman, 2002).

Considering the correlations (see Table 2.7.) the dependent variables show a significant correlations among them, in particular team performance is correlated with work team satisfaction (r = .684, p<.000) and ION affective commitment (r = .611, p< .000); the two last constructions are also correlated with each other by means of r = .542 (p< .000). Regarding the independent variable instead, we can notice how the communication and friendship network density are significantly correlated with each other (r= .481, p< .000);furthermore, the latter shows to a positive correlation with trust in team (r = .418, p< .000). Inter-organizational and team trust, show another important correlation both between them (r = .780, p< .000) and with the dependent variables object of the study, with values varying from .433 (p< .005) to .795 (p< .001).

In order to verify that the structure of the communication and the friendship network were actually two different interactive structures in each of the teams involved in the research, it was conducted an analysis of the similarities between the data structure of the two networks. In order to do so, we have confronted all the cells indicating some relations between the members of the team in each of the two matrix N X N, using the procedure of correlation between matrix and the quadratic assignment procedure test (QAP; Hubert & Shultz, 1976; Zohar & Tenne-Gazit, 2008) of the software Netminer3: high values of such correlations point to an high similarity in the data structure of the matrix and, consequently, in the structure of the relations (communicative or of friendship) in which the team members are involved.

The importance of the obtained result, was verified with a non parametric permutation test, that generates a casual distribution resultant from the permutation of the columns and the lines of the matrix object of the analysis (Zohar & Tenne-Gazit, 2008). The outcome of the analysis indicates an average correlation coefficient for groups of the 0,37 (SD = .35) but the different correlations for groups resulted not to be significant: meaningless and the low level of the correlations' magnitude

brought us to consider the communication and the friendship network as different interactive structures.

The within group agreement was verified and calculated previous to the aggregation of the individual marks at team level. The Interrater Agreement Index (rwg) (James et al., 1993) was calculated on the scores of Trust in Team (rwg = .86, rwg median = .92, rwg range = .56), Inter-organizational Trust (rwg = .80, rwg median = .85, rwg range = .73), Team Performance (rwg = .86, rwg median = .95, rwg range = .56), Work Team Satisfaction (rwg = .88, rwg median = .93, rwg range = .58), ION Affective Commitment (rwg = .86, rwg median = .93, rwg range = .58).The majority of groups had show an high level of accordance on both the measures placed at group level. The data aggregation was justified, as suggested by different researchers (Janz, Colquitt, & Noe, 1997), by the fact that the median agreement index was higher than the limit criteria of .70: the results acquired are thus comparable with those observed in others studies dealing with team and work group that used the same criteria (Naumann and Bennett, 2000; Costa et al., 2001; Hoegl & Gemuenden, 2001).

To evaluate the reliability and the coherence of the averages obtained through the aggregation of the data at group level, were calculated the Intra-class Correlation index (ICC1 e ICC 2) (James, 1982; James et al., 1984). The results of the ICC1 and ICC2 were calculated on non-aggregated data, using the group affiliation as independent variable. The index were of 0.33 and 0.66 for the Inter-organizational scale, while for to the Trust in Team scale they were 0.41 and 0.73, for the Team Performance one they were 0.41 and 0.74, Work Team Satisfaction index were 0.30 and 0.63, finally, for the ION Affective Commitment scale they were 0.35 and 0.68.All the scales showed a significant variance between groups: for Inter-organizational Trust, $F(27, 73) = 2.949$, $p = .001$; for Trust in Team, $F(27, 73) = 3.826$, $p < .001$; for Team Performance, $F(27, 73) = 4,379$, $p<.000$;for Work Team Satisfaction, $F(27, 73) = 2.742$, $p<.000$; for ION Affective Commitment, $F(27, 73) = 3.148$, $p<.000$. The results demonstrated a sufficient amount of intra-group homogeneity and infra-group variance to both justify the aggregation of the scales at team level and proceed with the testing of the variables at team level.

2.5 Results

2.5.1 The Procedure

In order to test the hypotheses and the mediation hypotheses included in the theoretical model we have used the path analysis techniques. The theoretical model used is composed by multiple

relationships and mediation effects among variables that with difficulties could be analyzed with the three variables model proposed by Baron e Kenny (1986) (Edwards and Lambert, 2007). The path analysis allows to test different influence relationships among variables through consecutive steps and with different regression models.

For each regression equation used, the path analysis procedure allowed us to decompose the correlations among variables into direct effect, indirect effects and total effect (Alwin and Hauser, 1975; MacKinnon et al., 2000; Edwards and Lambert, 2007). Through a boostrapping esteem was possible to obtain a random distribution based on the random sampling of 1000 cases extracted from the previous sample with case replacement possibilities. The boostrap results were used in order to create the confidence interval around each direct effect, indirect effect and total effect obtained through the path analysis technique (Edwards and Lambert, 2007). For each computed confident interval were identified the effect's values that represent the percentile points corresponding to the confident interval the percentiles corresponding to the bounds of the confidence interval (2.5 percentile and 97.5 percentile). If these bounds exclude zero, then the effect (direct, indirect or total) is statistically significant (percentile methods). To remedy to the fact that the median of the bootstrap estimates can deviate from the estimate of the full sample, the bounds of the confidence interval were adjusted using the bias corrected percentile method (Efron & Tibshirani, 1993; Stine, 1989). This method has become recommended in tests of mediated effects (MacKinnon et al., 2004).

2.5.2 Results

For clarity and simplicity reasons, we will present the data driven from the analysis divided in 2 main components: the first one is dealing with the relations between independent and mediating variables, exclusive of the 3 typology of team's outputs (that is, relations that remain constant at the variation of the dependent variables); the second part of the results, regards the relations between dependent variables (the team's outputs) and independent ones (team's processes and inputs) that are the object of the study. The results are shown in charts 2.8, 2.9, 2.10.

Friendship network density, Interfirm Trust, Team Trust e Communication Network Density

From the model analysis we can deduct that the density of the friendship network (that we will refer to as FD), has a direct effect of .482,on the level of Inter-organizational Trust (hereafter IT),which

with the bootstrapped bias corrected percentile method 95% confidence interval test, result not to be significant (the confidence interval containing zero: -.146; 1.121). Such result disproves the hypothesis H9, which saw in the higher density of the friendship network as the factor predicting the level of inter-organizational trust. The FD, shows also a total direct effect of .844 on the level of Trust in Team (hereafter TT),which in turn is composed by 2 sub-effects: one directed from FD to TT of .517 which is statistically significant (bootstrapped 95% confidence interval not containing zero: .180; .990), the other sub-effect is undirected, composed by the path FD→IT→TT of ,327 and is not significant (bootstrapped 95% confidence interval containing zero: -.044; .795).The latest result confirms the hypothesis H8, that is, the friendship network density influences positively the level of trust in the ION's government team members. FD indicates a significant total effect on the Communication Network Density taking place within a team (henceforth CD), in particular, to the augmenting of one unit of FD corresponds the augmentation of 1.352 of the CD (bootstrapped 95% confidence interval not containing zero: .370; 2.135). Such effect is also composed by 4 different effects, 3 that are positive and one that is negative: the direct effect of FD on CD which is 1.250 (bootstrapped 95% confidence interval not containing zero: .40; 2.193) and the indirect ones of FD→IT→CD (-.260), FD→TT→CD (.222), FD→IT→TT→CD (.140), none of which is significant (bootstrapped 95% confidence intervals o each indirect effects containing zero: see table 2.8).

The significance of the direct effect FD→CD, confirms the H11 hypothesis ,according to which high levels in the friendship network density may lead to the intensification of the information and knowledge exchanges between team members, and to the consequent increase in the density of the communication network.

For what it concerns the different types of trust, the IT demonstrates a significant positive effect on the level of TT, has anticipated by the hypothesis H6: the augmenting of one unit of TT increases by .678 the unit TT (bootstrapped 95% confidence interval not containing zero: .458; .850).

Both the IT and the TT don not show any significant association with the CD: the path IT→CD results to have a total effect of .249 (bootstrapped 95% confidence interval containing zero: -.711; .065) composed by a non-significant directed total effect of -.54 (bootstrapped 95% confidence interval containing zero: -1.358; .241) and by a non-significant undirected one IT→TT→CD of 0,291 (bootstrapped 95% confidence interval containing zero:-.175; 1.003); the path TT→CD has non-significant effect of .429 (bootstrapped 95% confidence interval containing zero:-.386; 1.317). The insignificance of the directed effects of IT and TT on the CD makes us repel the hypotheses

H2a and H2b which foreseen the two type of trust as predictive factors of the communication network density.

Following will be described the results of the analysis considering the relations between variables and the 3 types of team outputs.

Effects of Communication Network Density on Team Effectiveness, Work Team Satisfaction and ION Affective Commitment

The communication network density, is significantly associated only to one of the three types of team outputs. In particular the results show that: contrary to what was expected by the hypothesis H1a, the direct relation of the CD with the Team Performance (hereafter TP) is of .193 and is not significant (bootstrapped 95% confidence interval containing zero: -.068; .44); contrary to what was expected by the hypothesis H1b, the direct relation of the CD with the Work Team Satisfaction (henceforth WS) is .048 and is not significant (bootstrapped 95% confidence interval containing zero: -.11; .16); as anticipated in hypothesis H1c, the CD has a positive effect on the ION Affective Commitment (hereafter AC) which is of .279 and results to be statistically significant (bootstrapped 95% confidence interval not containing zero: .109; .475).

Effects of Friendship Network Density on Team Effectiveness, Work Team Satisfaction and ION Affective Commitment

The FD has a statistically significant effect on TP of -.812 (bootstrapped 95% confidence interval not containing zero: -1.2; -.263), but regarding to what was foreseen in the hypothesis H10a the effect observed is the opposite, to the augmenting of the FD, corresponds a decrease in the TP. It is relevant that the total effect FD→TP is not statistically significant and presents a very low magnitude value (-.056, con bootstrapped 95% confidence interval containing zero: -.688; .722): such result derives from the fact that the sum of the indirect lane between the two variables seems to diminish the direct effect that the FD has on the TP, dragging it basically to zero. The insignificance of the path FD→CD→TP (.241, con bootstrapped 95% confidence interval containing zero: -.004; .797) makes us refuse the mediating hypothesis H12c which foresaw a positive mediation of the CD regarding the effect produced by the FD on the TP.

Concerning the relation between FD and WS, the direct effect results not to be significant (bootstrapped 95% confidence interval containing zero: -.230; .39) and of magnitude equal to .023: the hypothesis H10b is therefore disproved. The hypothesis H13c which foresaw the mediation of the CD regarding the relation FD→WS ,is also disproved: the indirect effect is of .06 is not significant (bootstrapped 95% confidence interval containing zero: -.082; .276).

An interesting information regards the relation between FD and WS which presents a total effect of .559 and is a significant result (bootstrapped 95% confidence interval not containing zero: .032; 1.074); the total effect is composed by two indirect sub-path, both statistically significant: the first one FD→TT→WS is .188 (bootstrapped 95% confidence interval not containing zero: .016; .509) and the second one FD→IT→TT→WS is .119 (bootstrapped 95% confidence interval not containing zero: .003; .532). The two results, even if not included in the research hypothesis, highlight that the FD within the ION's government teams has an impact on the WS, but such impact is positively mediated by the levels and types of trust felt between the team members.

The direct effect of FD on AC is not significant (-.343, con bootstrapped 95% confidence interval containing zero: -.830; .149), disproving the hypothesis H10c of a direct and positive relation between the two constructs. However, the analysis of the indirect effects has shown the path FD→CD→AC to be a positive effect and statistically significant (.349, con bootstrapped 95% confidence interval not containing zero: .089; .898): the result confirms the hypothesis H14c, according to which the communication network density seems to mediate between the friendship network density and the ION affective Commitment.

Effects of Trust in Team on Team Effectiveness, Work Team Satisfaction and ION Affective Commitment

The relation of the TT on the TP has a direct effect of .352 but is not statistically significant, (bootstrapped 95% confidence interval containing zero: -.18; 1.18) therefore the hypothesis H3 is disproved. In the same way the mediation path TT→CD→TP foreseen in hypothesis H12b, is not statistically significant, for this reason the mediation hypothesis is rejected. The direct effect between TT and WS is .363 and is statistically relevant (bootstrapped 95% confidence interval not containing zero: .04; .76): the hypothesis H4b is thus confirmed. Instead, the hypothesis H13b is not confirmed as the path TT→CD→WS is 0,021 with a bootstrapped 95% confidence interval containing zero : -.03; .218. Regarding the relation between TT and AC, the direct effect of the first

variable on the second one, results to be .332 not statistically significant (bootstrapped 95% confidence interval containing zero: -.094; 1,031) and the mediation effect TT→CD→AC is .12 non-significant as well (bootstrapped 95% confidence interval containing zero: -.056; .337): therefore, the hypothesis H5b and H14b are disproved.

Effects of Interorganizational Trust on Team Effectiveness, Work Team Satisfaction and ION Affective Commitment

The path IT→TP shows a significant total effect of .602 with bootstrapped 95% confidence interval not containing zero: .29; .873; and from the decomposition of the effects we can notice how neither the direct effect of IT on TP (0,411 with bootstrapped 95% confidence interval containing zero: -.34; .93) nor the others mediating effects predicted by the hypothesis are significant; in particular, for the latter types of effects IT→TT→TP and IT→CD→TP are respectively of .239 (with bootstrapped 95% confidence interval containing zero: -.107; ,85) and of -.104 (with bootstrapped 95% confidence interval containing zero: -.471; .029). The hypothesis H3a and the mediating hypotheses H12a and H7a are thus not confirmed. Regarding the effects of IT on WS the direct effect of the first one on the second one result of .34, statistically not significant (with bootstrapped 95% confidence interval containing zero: -.03; .666): the hypothesis H4a is not confirmed. Concerning the mediating relation between the two variables: the path IT→TT→WS is .246 statistically relevant (with bootstrapped 95% confidence interval not containing zero: .048; .627) and therefore the hypothesis H7b is confirmed, while the result for the path IT→CD→WS doesn't confirm the hypothesis H13a (-.026, with bootstrapped 95% confidence interval containing zero: -.21; .031). Finally, for what it concerns the path between IT and AC, the overall effect is statistically significant .287 with bootstrapped 95% confidence interval not containing zero: .052; .494), but the direct effect IT→AC (.131 with bootstrapped 95% confidence interval containing zero: -.44; .461) and the indirect effects IT→TT→AC (.225 with bootstrapped 95% confidence interval containing zero: -.038; .805) and IT→CD→AC (-.151, with bootstrapped 95% confidence interval containing zero: -.426; .018) are all not significant: the hypothesis H5a, H7c and H14a are thus not confirmed.

able 2.8: Team Performance as the team output

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
FD-->IT		0,482	-0,146	1,121						
	FD-->IT				0,482	-0,146	1,121			
FD-->TT		0,844*	0,246	1,442						
	FD-->TT				0,517*	0,18	0,99			
	FD-->IT-->TT							0,327	-0,044	0,795
FD-->CD		1,352*	0,37	2,135						
	FD-->CD				1,25*	0,4	2,193			
	FD-->IT-->CD							-0,26	-1,191	0,078
	FD-->TT-->CD							0,222	-0,124	0,91
	FD-->IT-->TT-->CD							0,14	-0,037	0,959
FD-->TP		-0,056	-0,688	0,722						
	FD-->TP				-0,812*	-1,2	-0,263			
	FD-->IT-->TP							0,198	-0,06	0,904
	FD-->TT-->TP							0,182	-0,063	0,835
	FD-->CD-->TP							0,241	-0,004	0,797
	FD-->IT-->TT-->TP							0,115	-0,029	0,746
	FD-->IT--> CD-->TP							-0,05	-0,407	0,005
	FD-->TT-->CD-->TP							0,043	-0,013	0,29
	FD-->IT-->TT-->CD-->TP							0,027	-0,003	0,278
IT-->TT		0,678*	0,458	0,85						
	IT-->TT				0,678*	0,458	0,85			
IT-->CD		-0,249	-0,711	0,065						
	IT-->CD				-0,54	-1,358	0,241			
	IT-->TT-->CD							0,291	-0,175	1,003
IT-->TP		0,602*	0,29	0,873						
	IT-->TP				0,411	-0,34	0,93			
	IT-->TT-->TP							0,239	-0,107	0,85
	IT-->CD-->TP							-0,104	-0,471	0,029
	IT-->TT-->CD-->TP							0,056	-0,017	0,329
TT-->CD		0,429	-0,386	1,317						
	TT-->CD				0,429	-0,386	1,317			
TT-->TP		0,435	-0,186	1,102						
	TT-->TP				0,352	-0,18	1,18			
	TT-->CD-->TP							0,083	-0,034	0,452
CD-->TP		0,193	-0,068	0,44						
	CD-->TP				0,193	-0,068	0,44			

*Note: N = 28 (Aggregate); * = bootstrapped 95% confidence interval not containing zero*

Table 2.9: Work Team Satisfaction as the team output

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
FD-->IT		0,482	-0,146	1,121						
	FD-->IT				0,482	-0,146	1,121			
FD-->TT		0,844*	0,246	1,442						
	FD-->TT				0,517*	0,18	0,99			
	FD-->IT-->TT							0,327	-0,044	0,795
FD-->CD		1,352*	0,37	2,135						
	FD-->CD				1,25*	0,4	2,193			
	FD-->IT-->CD							-0,26	-1,191	0,078
	FD-->TT-->CD							0,222	-0,124	0,91
	FD-->IT-->TT-->CD							0,14	-0,037	0,959
FD-->WS		0,559*	0,032	1,074						
	FD-->WS				0,023	-0,230	0,39			
	FD-->IT-->WS							0,164	-0,016	0,678
	FD-->TT-->WS							0,188*	0,016	0,509
	FD-->CD-->WS							0,06	-0,082	0,276
	FD-->IT-->TT-->WS							0,119*	0,003	0,532
	FD-->IT--> CD-->WS							-0,012	-0,169	0,006
	FD-->TT-->CD-->WS							0,011	-0,011	0,122
	FD-->IT-->TT-->CD-->WS							0,007	-0,004	0,133
IT-->TT		0,678*	0,458	0,85						
	IT-->TT				0,678*	0,458	0,85			
IT-->CD		-0,249								
	IT-->CD				-0,54	-1,358	0,241			
	IT-->TT-->CD							0,291	-0,175	1,003
IT-->WS		0,575*	0,408	0,714						
	IT-->WS				0,341	-0,03	0,666			
	IT-->TT-->WS							0,246*	0,048	0,627
	IT-->CD-->WS							-0,026	-0,21	0,031
	IT-->TT-->CD-->WS							0,014	-0,017	0,161
TT-->CD		0,429	-0,386	1,317						
	TT-->CD				0,429	-0,386	1,317			
TT-->WS		0,384*	0,103	0,763						
	TT-->WS				0,363*	0,04	0,76			
	TT-->CD-->WS							0,021	-0,03	0,218
CD-->WS		0,048	-0,11	0,16						
	CD-->WS				0,048	-0,11	0,16			

*Note: N = 28 (Aggregate); * = bootstrapped 95% confidence interval not containing zero*

Table 2.10: ION Affective Commitment as the team output

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
FD-->IT		0.482	-0.146	1.121						
	FD-->IT				0.482	-0.146	1.121			
FD-->TT		0.844*	0.246	1.442						
	FD-->TT				0.517*	0.18	0.99			
	FD-->IT-->TT							0.327	-0.044	0.795
FD-->CD		1.352*	0.37	2.135						
	FD-->CD				1.25*	0.4	2.193			
	FD-->IT-->CD							-0.26	-1.191	0.078
	FD-->TT-->CD							0.222	-0.124	0.91
	FD-->IT-->TT-->CD							0.14	-0.037	0.959
FD-->AC		0.377	-0.15	0.88						
	FD-->AC				-0.343	-0.830	0.149			
	FD-->IT-->AC							0.063	-0.114	0.457
	FD-->TT-->AC							0.172	-0.015	0.632
	FD-->CD-->AC							0.349*	0.089	0.898
	FD-->IT-->TT-->AC							0.108	-0.008	0.645
	FD-->IT-->CD-->AC							-0.073	-0.337	0.004
	FD-->TT-->CD-->AC							0.062	-0.019	0.275
	FD-->IT-->TT-->CD-->AC							0.039	-0.005	0.233
IT-->TT		0.678*	0.458	0.85						
	IT-->TT				0.678*	0.458	0.85			
IT-->CD		-0.249								
	IT-->CD				-0.54	-1.358	0.241			
	IT-->TT-->CD							0.291	-0.175	1.003
IT-->AC		0.287*	0.052	0.494						
	IT-->AC				0.131	-0.44	0.461			
	IT-->TT-->AC							0.225	-0.038	0.805
	IT-->CD-->AC							-0.151	-0.426	0.018
	IT-->TT-->CD-->AC							0.081	-0.026	0.242
TT-->CD		0.429	-0.386	1.317						
	TT-->CD				0.429	-0.386	1.317			
TT-->AC		0.452	-0.117	1.165						
	TT-->AC				0.332	-0.094	1.031			
	TT-->CD-->AC							0.12	-0.056	0.337
CD-->AC		0.279*	0.109	0.475						
	CD-->AC				0.279*	0.109	0.475			
Note: N = 28 (Aggregate); * = bootstrapped 95% confidence interval not containing zero										

Models Fits

The test of the model fit assesses the improvement in fit that results from adding the three paths that distinguish Model 4 (using the terminology and models proposed by Jeffrey Edwards in his

Research Methods Seminars) (see Figure 2.3), the model with only the direct effect of CD on the team's outcomes, from Model 5 (see Figure 2.4), where each independent variable has got a direct effect on the team's outcome; this test was conducted for all the three theoretical models accounted in this study: the model with team performance as a team output; the model with work group satisfaction as a team output; the model with ION affective commitment as a team output.
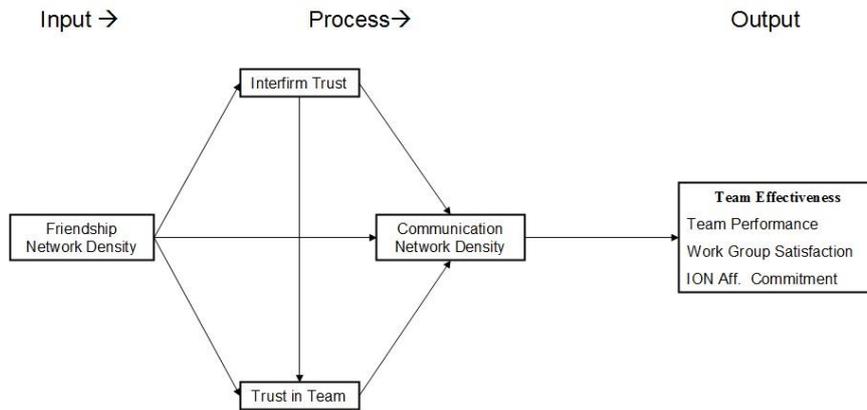

Figure 2.3: example of Model 4, effects of friendship network density on team outputs mediated by interorganizational trust, trust in team and communication network density
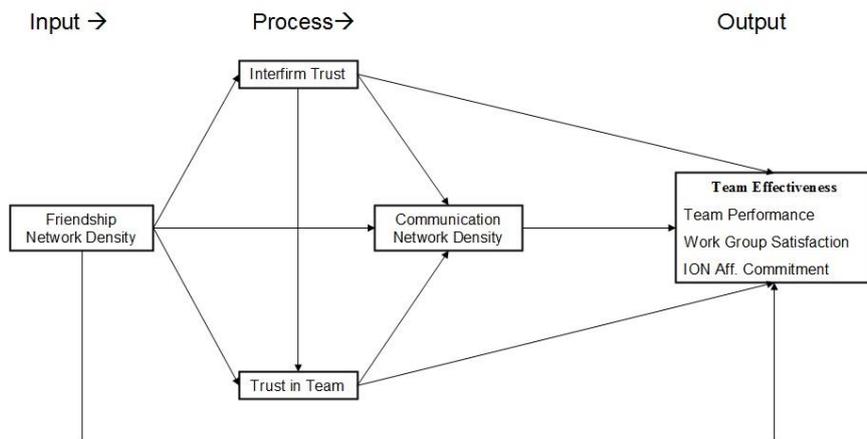

Figure 2.4: example of the Model 5, effects of friendship network density on team outputs mediated by interorganizational trust, trust in team and communication network density with direct effects included.

The test of the model fit assesses the improvement in fit that results from adding the three paths that distinguish Model 4, the model with only the direct effect of CD on the team's outcomes, from Model 5, where each independent variables have got a direct effect on the team's outcome; this test was conducted for all the three theoretical models accounted in this study.

Specifically, for the model with team performance as the team's outcome, adding the three paths from independent variables to the dependent variable (FD→TP, IT→TP and TT→TP) , increased the multivariate R2 from .783 to .880, which was statistically significant at p = .002. Thus, adding the three paths as a set improved the fit of the model. Based on the coefficients for the last one version's model, it appears that the improvement in fit was primarily the result of the path from FD to TP, and after that for the path from TT to TP and for the path from IT to TP (see table 2.8).

For the model with Work Team satisfaction as the team's outcome, adding the three paths from independent variables to the dependent variable (FD→WS, IT→WS and TT→WS), improve the R2 from .784 to .933, which was statistically significant at p < .000. Thus, adding the three paths as a set improved the fit of the model. Based on the coefficients for Model 5, it appears that the improvement in fit was primarily the result of the direct path from TT to WS, and from the indirect path mediated by TT: FD→TT→WS; FD→IT→TT→WS; IT→TT→WS (see table 2.9).

For the last one model, that one with ION affective commitment as the team's outcome, the R2 improve from .790 for the model 4, to the .891 for the model 5. This improvement was statistically significant at p = .001. Based on the coefficients for Model 5, it appears that the improvement in fit was primarily the result of the indirect path from FD→CD→AC (see table 2.10).

2.6 Discussion

The verification of the theoretical hypotheses through the testing with path analysis has allowed us to highlight some interesting theoretical and methodological aspects, especially in relation to the output of the ION's government team. The team performance of these groups seems to be influenced in a negative way by the friendship network density: this result seems to lead in the opposite direction of both the hypothesis developed in this study and of some of the main results of the groups and teams studies that consider social capital (Parise and Rollang, 2010, Costa et al., 2009; Jones and Fox, 2010): while normally, in the groups the high level of social capital promotes better performances of the group itself, in an ION's government team the density of friendly relations between entrepreneurs and managers seem to reduce that level.

This fact doesn't seem to be easily explained by the literature considered. However, one possible explanation for this contradictory connection may be linked to a particular psycho-social individual phenomena such as irresponsibility or social loafing (George, 1992; Guzzo and Shea, 1992) in regard with the target of the inter-organizational collaboration: perceiving themselves as members

of a group of friends could bring the team mates to ménage the group activities with more interpersonal (and less organizational) logic, this fact could lead in turn, to a more extemporaneous and less organized management of the work relations, leading the group to combine the efforts of its members in an ineffective way, poorly oriented to the object of the team governance.

The density of the friendship relations seems always to have other important implications regarding the outputs of an ION's government team. These effects, however, are not the expression of the direct effects of the density of friendship relations on the output, but they derive from the mediation relationships with other variables included in the theoretical model of this study. The density of the network of friendship between the members of the team seems to facilitate the Team Work Satisfaction through two mediation paths: a first path is mediated only by confidence in the team, the second path is characterized instead, by the double mediation in sequence of the inter-organizational trust and the team trust. In this sense, even for the ION's government team, is confirmed the importance of the relationship between social capital and trust (Costa and Peiro, 2009; Costa et. al., 2009, Costa, 2012; Costa and Anderson, 2012) and of their influence on the satisfaction of working in a team shared as a group. A merit of this study is to highlight, in the specific context of the ION's government team, the importance of the inter-organizational trust as an additional factor that can have a positive impact on the effects that the social capital and the trust in the team produce in the satisfaction atmosphere for the team-work . The inter-organizational trust, regarding the ION's government team, affects directly not only the overall level of trust between team members, but it (which alone affects directly the level of satisfaction in the work team) helps to increase the general level of satisfaction of the working relationships in the team. The ION's affective commitment, and the friendship network density seems to influence indirectly, through the density of the Communications Network Team, the emotional responsibility and commitment of the team members in inter-organizational project. Essentially, as required by the hypothesis, the presence of solid relations of friendship between members of the team may promote socially-oriented communicative exchanges (Zhoar & Tenne-Gazit, 2008) that are known to promote mutual support and encouragement among team members (Rico et al, 2009) and consequently may have favored a higher affective-emotional participation of the team members in the inter-organizational activities that the team itself is called to control.

In conclusion, this study has highlighted the importance of considering different types of trust in the study of a ION's government team: inter-organizational trust, in particular, introduces a further element of distinction in the comprehension of the psychosocial and group dynamics within these

organizational realities. From the theoretical point of view, as expected by Costa & Peiro (2009), this research show a possible integration and articulation between different types of constructions of trust (inter-organizational trust and trust in team) in the study of inter-organizational networks; constructs that were born and have been developed in different disciplines (psychology, sociology and economics), but in this research are used and articulated for the ION's government study, which are organizational units where both the constructs play a key role in the function of the team. Another innovative aspect of this study is that it relates the constructs from psychology and science organizations with constructs and theories that usually found expression in the Social Network Perspective. In particular, the combined use of measures driven from social capital and network communications between team members with different types of trust, has permitted us to give a possible answer to the needs of integration and synthesis of these two different perspectives, also proposed by Rousseau et al. (1998) and Costa & Peiro (2009).

One of the most important limit of this study is found in the insufficient number of participants both in terms of teams and entrepreneurs or managers that have taken part in the research: the economic crisis that since long time, has been afflicting the small and medium sized Italian companies, is one of the principle causes that surely have had a negative influence on the participation ratio in the research.

However is desirable that future researches to focalize their attention only on specific theoretical construction so as to simplify the phases related to the supplying and the collection of data in order to ease the collaboration of managers and entrepreneurs.

From the methodological point of view, another limit is surely linked to the use of self-report measures of the constructions that are the aim of the study: objective measures, of the team performance, as well as the behaviors and decisional processes within these particular teams, realized also by the observation and measurement through check-list, of the communicative interactions between each couple of members, might give further indications that will be surely more precise and less influenced by subjective factors of distortion such as social desirability, individual motivation and the participant's capacity of attention

The correlation cross-section drawing adopted in this study, allows to have a first and important map of the group process and of the relations between variables within the ION's government teams. However it is necessary to verify such relations also, trough longitudinal drawings that are able to test the causal relations and the evolution of change/stability process and patterns between variables, trough times (Roe et al., 2012).

From the theoretical point of view, the result of this study on teams that govern networks and inter-organizational collaborations, has highlighted the need to perfect and calibrate the conceptual, theoretical and methodological instruments on the basis of the organizational context that is observed. Instruments that were made available by previous researches in the field of psychology of the organizations and that are utilized to understand teams and workgroups. Still from the theoretical point of view, the application of the current models to explain the operation of teams and workgroups may reveal itself to be inadequate for the comprehension of the relations between trust, social capital and performance of the inter-organizational ION's government teams. In this way, the methodology of the case study and that of multiple case study, may represent a useful way to test, discuss and improve the theoretical model that are used at present, tarring them, from a conceptual and theoretical point of view, on the basis of the specific organizational situation that is studied (Yin, 2003).

It is undeniable the need to test the foreseen capacity of such models through quantitative (longitudinal and cross-sectional) and simulative studies (Bell and Kozlowski, 2007; Bell, Kanar and Kozlowski, 2008), that allow to simulate and predict on the basis of the gathered data, the possible evolutions of the organizational systems and theoretical constructs, object of the research.

In the end, from the application point of view, the results obtained in the present study, warn entrepreneurs and managers on the unwise use of techniques or practices of counseling that may favor friendship relations without a proper organizational-managing counterbalance, aiming to maintain the attention and the effort of the team members pointed towards the accomplishment of the task object of the company's network. The outcomes of the present study do not give any answers in response to which practice are more effective in the managing of the inter-dependency relations between team members, however, the results highlight the need to a more accurate and systematic study of the effect that the aforesaid practice might have on ION's government teams, as suggested by Donati & Zappalà (2013).

In the forthcoming future, is desired that the different forms of collaboration among companies, started to pursuit economic and commercial opportunities, may be combined with accurate studies that permit the development of knowledge, which is useful not only to give an answer to the cognitive needs of the scientific community, but also and especially, to answer the support and guidance requirements of the entrepreneurial and managerial one.

Chapter 3 - Does the Work Group Diversity make the difference in Identification and Shared Leadership prosesses inside the ION governement teams ?

3.1 Introduction

Since many time, organizational literature studied which characteristics bring to the creation and constitution of the Inter-Organizational Networks (IONs); researcher are interest in organizational partners 'needs (Arino, de la Torre, Ring , 2001; Luo, 2006; Arya and Lin, 2007), what are the contextual and market features (Uzzi, 1997; Gulati and Sigh, 1998; Luo, 2006; Arya and Lin, 2007), the structural network characteristic of the interorganizational relations collaborations (Grandori and Soda, 1995; Powel et al., 1996; Soda, 1998; Ahuja et al., 2012) that push the organizations to become members of an interorganizational collaboration.

Specifically, research has underlined how organizational competence complementary (Ritter and Gemünden, 2003; Luo, 2001), cultural and goals similarity-diversity of the partner organizations (Evans and Mavondo, 2002) and similarity in terms of organizational size, markets and business (Gulati and Gargiullo, 1999; Human and Provan, 2000; Meeus and Faber, 2006) are organizational factors that can affects the ION duration and effectiveness.

Psychosocial and organizational psychology literature applied to team and work groups underlines the importance to take into account team members diversity-similarity as a factors that affects the team processes and performance (Lau and Murnighan, 1998; Zappalà, 2004). In particular, the organizational demography perspective (Zappalà, *ibidem*) takes into account how age, team tenure, gender, ethnical and religious membership and socio-cultural background affect some fundamental group processes as the informational exchange and processing, the decision making process, the interpersonal team conflict and the group-cohesion of the team (Zappalà and Fraccaroli, 2008)

Until now, few studies in the interorganizational relations and in the interorganizational team field have considered the role that work group diversity plays on the team functioning and on the team effectiveness (Wincent et al, 2010). Especially, neither study has taken into account how the demographic diversity among entrepreneurs and managers who compose the team that govern ION

could influence the team's governance capacity on the interorganizational collaboration ((Donati and Zappalà, 2013).

The current study has tries to give an answer to this issue, taking with specific attention to the influence mechanisms that the demographic work group diversity has on psychological processes (as team identification), group processes (as shared leadership and communicative interactions among team members) and team outputs (as team performance or the work group satisfaction)

The theoretical model used to guide the current study is based on the Guzzo an Shea's (1992) Input→Process→Output logic. This conceptual arrangement allows to describe the relationships among the different theoretical constructs with an unidirectional influence logic, from the left to the right of the model.
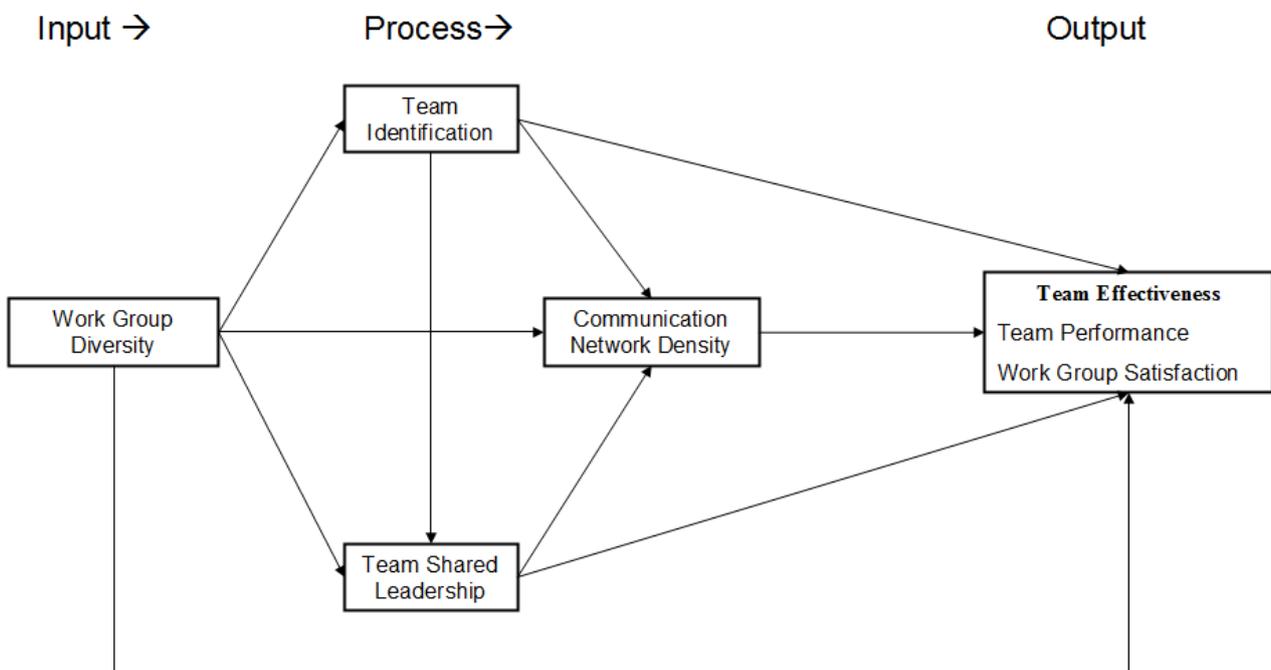

Figure 3.1: the theoretical model

Below, we present the theoretical model of the study. It's described starting from the team outputs, and moving from the right to the left, we describe the team processes and the team input; for each construct we describe the specific influence relationship has with the others variables included in the model.

3.1.1 Team effectiveness: Team Performance and Work Group Satisfaction

The term team efficiency represents a variety of products and results that the team has produced through the synergic activities carried out by its members, and that, during their measurement can result hardly distinguishable because of their simultaneous presence. In order to improve the measurement of the efficiency, Costa et al. (2001) propose a differentiation between:

- Team performances, meant as the quantity and quality of the outputs produced by the team (for example, how many innovative solutions the team had produced or how many projects it had developed...)
- Effects that the teamwork has produced on the psychological characteristic of the team's members (for example, attitudes, abilities, satisfaction, commitment, stress, etc.)
- Effects that the teamwork has produced on its members behaviors (for example, the turnover ratio, or absenteeism levels etc.)

Particularly, for what it concerns the measures of the performance, Hoegl & Gemeuden (2001) sustain that it is important to consider the degree of success obtained by the team in meeting the expectations and requirement of those who had to evaluate the results of the team itself, whether they are clients, superiors or the same team members. Referring to that, the authors propose to measure the performance according to 2 parameters:

- The degree reached by the team in meeting the expectation connected the quality of the results (for example: the strength of the product, the trustworthiness of the service etc.)
- The degree reached by the team in meeting the result within the time and budget limit expected.

Moreover such teams typology are based on peer-based control (Steward et al., 2011): the members of the team are the managers of the team's roles and task that will be completed; in this way, in order to reach the common goals, the group mates will have to maximize their mutual adjustment and supervision while trying to:

- maximize individual performances,
- integrate the individual contributions in the group performance,
- favor satisfying work conditions that will motivate every member of the team to commit himself in the reaching if the objectives, that are aims of the inter-organizational cooperation.

3.1.2 The Intra-team Communication Network and its characteristics: the network density

Social psychology and organizations studies have shown how teams (as specific examples of small social groups) are considered as organizational unit that process information and solve different problems in an innovative and efficient way (Hinsz, Tindale and Vollrath, 1997).

In order to achieve that purpose, it's essential for the members of the team to communicate, to define and share aims and rules that will be used to coordinate each other, to solve conflicts and as a way to mix together the singular contributions provided by each member to the teamwork (Quaglino & Cortese, 2003; Sarchielli, 2003).

Discussions and conversations become the ways that allow the members of the team to exchange ideas and information and also to build and renew their cohesion, making them able to solve and face rivalry and conflicts that may arouse while aiming to reach a certain purpose. Interaction and exchange of knowledge, can give to team members the possibility to share and reformulate their respective view of the task, the technical tools and resources needed to accomplish it, and also define the team itself and the situation in which it operates (Depolo, 1998; Kozlowski et al., 2000).

Through communicational interchanges, team-mates develop an important condition of inter-subjectivity which forms what *social cognition* calls "*representation or mental schemes, shared amid group's members*"(Depolo, 1998): repeated interaction between the members of the team allows them, on the one side, to negotiate their respective perceptions on the basis of a shared converging point; on the other side, interactions, help the creation of information streams but also the exchange of knowledge and ideas, utilized in the connection and integration of the individual performances within the activities of the group.

The communication network of an ION's team, represents an useful way through which businessmen and representatives of the partners companies can have access to a common context where the interchange of important information and details, influences the individual behavior (Brass, Galaskiewicz, Greve, Tsai, 2004).

An useful and interesting way to conceptualize, to analyze and to understand interpersonal and communication processes is offered by the social network perspective. This perspective is characterized by the interest on relationship among actors; actors, called nodes or vertices, can be persons or teams, organizations, country, region and so on (Kenis & Oerlemans, 2008) and they are connected through recurrent relationship patterns that make up the system's social structure (Wellman 1988; Wellman and Berkowitz, 1988). In other word, each actor of a social system is linked to another one through relations that connect the two actors and define the substantive relationship that exist between one person, the ego (i.e., the focal teammate) and the other one, the

alters (those related to ego) (Kenis & Oerlemans, *ibidem*). Each dyad could be made by multiple type of links (i.e. friendship, working relationship, formal contracts, giving/receiving advice, resources exchange, etc) and each dyad could be characterized by specific property (i.e. the strength of the relationship, the frequency of contacts, the tenure and the duration of the relationship, the type of contents exchanged, the reciprocity, and so on) (Wasserman & Faust, 1994; Soda, 1998). Another interesting concept of the social network perspective comes from the idea of embeddedness (Granovetter, 1985): the network of interconnected relationships where actors are embedded represent the social structure that provides them opportunities and/or constrains for their behavior. In this conceptualization, the focus of the attention shifts from the relationship features among two actors to the network of relationship among many actors: the network of relationships with its own structural characteristics becomes a variable. In this perspective, it is possible to consider two main levels (Kenis & Oerlemans, *ibidem*; Mazzoni, 2006; Provan et al., 2007):

- the ego-network level's characteristics, that is the structural features (i.e. centrality, broker relationships, structural equivalence, etc.) of the local network of relationships in which a specific actor is involved;

- the whole network level's characteristics, refers to the structural properties (i.e. network centralization, density, cliques, fragmentation and structural holes, etc.) of the network of relationships among more actors.

As it was previously described, research that utilizes *Social Network Perspective* for the analysis of teams and works groups, has highlighted how, within the team or work group, the position held by one of its member in the relational and exchange network, has an influence on his behaviors and perceptions.

Different studies report the effects that a subject's centrality in the network has on his satisfaction for the work conducted in group (Shaw, 1964 in Speltini, Palmonari, 1999; Dean & Brass, 1985), on the access to the information owned by the group (Brass, 1985; Anderson, 2008), on his own identification with the organization (Jones et al., 2010) or on the effect that his suggestions (as a leader) produce on his subordinates (Sparrowe & Liden, 2005).

There are still few studies focalized on the relation between characteristics of the "whole network" or global network of the work team (Oh, Chung, Labianca, 2006; Brass et al., 2004), and the performance and processes of the team itself (Clark, 2003)

In this study we will consider in particular, the density of the network. This index is one of the most utilized for the description of the characteristics of a global level network, and it's defined by

Wasserman and Faust (1994) as the overall level of connection in a network. Thus, we hypothesized that:

H1: in order to govern the ION, higher level of communication network density is positively associated with an higher level of team performance (H1a) and to an higher level of work group satisfaction (H1b).

3.1.3 Shared Leadership and Team Outputs

Leadership is commonly thought as the influence that a member of a group exercise on the other members behavior in order to guide the team towards a specific target.

Studies on leadership are centered on what Bass (1985) defines as transformational or transitional leadership: the first typology is based on values, on long term goals and on the subordinate's motivations, that the leader will use as incentives to promote wellness, empowerment and more effective performances of the subordinates them. The second type of leadership is centered instead, on the exchange of significant resources (money, rewards, penalties etc.) between leaders and subordinates that enables the leader to motivate and influence his subordinate towards the realization of a specific task (Speltini & Palmonari, 1999).

Both the kinds of leadership use a vertical approach to leadership, that is, they are focused on the asymmetric relation that connects a leader, with a strong power of influence, to a subordinate, with less power of influence. In the case of shared leadership the ability to influence is not exercised by a specific member of the group, but it's expressed through the interactive influence that the members mutually exercise on each other, in order to reach the common targets (Pearce & Conger, 2003).

This last type of leadership was mostly studied in teams with high level of autonomy that have to develop high use of knowledge tasks, in dynamic and complex context, with high interdependency level between the members of the team (Yukl, 1998): for example a team formed by engineers belonging to different organizations, geographically displaced, that are asked to develop new software through virtual teams collaboration, or ,again, a team of businessmen that have to create new commerce in markets or productive sectors characterized by high dynamicity and environmental instability (Ensley et al., 2000; Ensley, et al., 2006). In particular, team shared leadership seems to promote some individual behaviors that improve team functioning and the group effectiveness (Muethel et al., 2009), as:

- a continuously conversation and discussion among team members about the pertinence of the adopted strategy in order to achieve the team's goals;

- an higher knowledge and meanings sharing among group members so that the group can develop common behavioral codes that helps teammates to integrate their competences and abilities (Levin and Cross, 2004);

- a opened team climate, a social context where every group member and his contribute are accepted in order to accomplish the task, so improving the work group satisfaction and commitment;

- a proactive information exchange behaviors among teammates (Watson, Michael & Sharp, 1991).

In other words, the shared leadership brings the group to improve its own flexibility and adaptability to the work and the environment uncertain thus it favoring re-arrangement and re-integration of team members knowledge, competences and skills though an effective information and meanings sharing. For these reasons we hypothesize that:

H2: higher level of shared leadership inside the team brings to higher level of communication network density;

H3: higher level of shared leadership improves the level of team performance (H3a) and at the same time it improves the team members' work group satisfaction (H3b);

H4: the communication network density is a partial mediator of the relationships among shared leadership and team performance (H4a) and of the relationships among shared leadership and work group satisfaction (H4b).

3.1.4 Team Identification, Team Processes and Team Outputs

According with Social Identity approach, individuals define themselves using multiple social identities that can be more or less prominent in relation to the reference social context (Ellemers et al., 2002). The perception of belonging a specific social category, and the psychological need to maintain a positive self-concept, bring people to evaluate in a positive manner who is considered member of the same in-group compared with who is considered member of other groups (van Dick, 2001). When someone defines his/her own social identity through his/her membership in a specific group, unit or organization, this person identifies him/herself with a particular social or

organizational context that becomes his/her identification process target (Ashforth, Harrison & Coley, 2008). Identification represents a cognitive state that brings a person to edge with a specific social group or category to be collaborative, more motivated and committed in order to achieve the group goals and also to be involved in extra-role behaviors (Hakonen & Lipponen, 2007).

Identification with a specific organization or group a cognitive step that involves affective end evaluative aspects (Van Dick, 2001). When people of a particular organization o group define themselves using the same attributes that they could use to define their organization, it means that these people perceive themselves as cognitive and emotive part of a "larger whole (work group, organization, etc.)" (Rousseau, 1998; p.217), a wider social entity where people recognize themselves as "we" and where people are sharing a communal fate.

Luo (2001) shows how in the Chinese International Cooperative Joint Ventures, the boundary spanners' affective attachment to the interorganizational collaboration is positively related to the interorganizational performance evaluated trough the return of investments (ROI) and through the subjective perception of the alliance members.

The identification with a specific group motivates the person: to show more frequent extra-role behaviors and a more higher commitment with his/her in-group members; to help colleagues to solve work and task related problems; to maintain a group climate that facilitates the conflicts resolution and that fosters interpersonal and cooperative relations among group members (Ashforth, Harrison & Coley, 2008). Haslam (2001) has observed that individuals show major propensity to information sharing with their own team colleagues than with the members of other teams, both if the interdependence among the team members is cooperative or competitive. In team that governs ION is legitimate to expect that stronger team identification brings the entrepreneurs and the manager to become more involved in the interorganizational collaboration activities: in order to maintain of a positive social reputation, team members will be more interested in the achievement of the ION's goals and in the creation of a work and relational context satisfying for all the teammates. For this reason, we hypothesized that:

H5: higher level of team identification (as a team level property) is positively related to higher level of team performance (H5a) and higher level of work group satisfaction (H5b).

In order to achieve team's goals, entrepreneurs and manager more identified with the team will be more willing to cooperate and to share information and meanings with people who are considered members of the own in-group: team members will tend to communicate more frequently with their

colleagues to improve the quantity and quality of the information possessed by the work group and at the same time to share meanings in order to develop a common way of interpreting the team and the team's task. This consideration brings to hypothesize that:

H6: higher level of team identification (as a team level property) is positively related to an higher level of communication network density.

As van Knippenberg et al. (2004) have shown, to identify with a specific group brings people to accept and to interiorize more easily group values and norms. Team values and norms will become a psychosocial mechanisms able to affect and influence the team member conduct (Riketta and Nienaber. 2007): more identified a person is in a group, more this person considers the group's goals as his/her own goals and he/she shows more intention to collaborate and to engage with other group members in order to achieve these goals.

When the identification becomes shared and widespread among all the teammates, is legitimate to expect that each team member feels that a good work group is his/her own responsibility and he/she is more committed to the group and to its members in order to produce the optimal coordination and integration among team members (Hannah et al., 2011). The team process resulting from this shared psychosocial process, will be that the team members will be more engaged in a more cooperative and shared managing of the team's activities. In the ION context, the entrepreneurs and manager more identified in the governance team will be more ready to commit themselves in a shared and cooperative forms of team's leadership. We hypothesize that:

H7: higher level of team identification (as a team level property) is associated to higher level of team shared leadership.

H8: the team shared leadership is a partial mediator of the relationship between team identification (as a team level property) and team performance (H8a) and of the relationship between team identification (as a team level property) and work group satisfaction (H8b).

3.1.5 Work Group Diversity, Team Processes and Team Outputs

Guzzo and Shea (1992) had shown how, in team and work groups, multiple input factors affect the information exchange need to the team members to arrange, coordinate and integrate (team processes) their reciprocal efforts and abilities (team input) in order to achieve/obtain a specific task/result (team output).

One of the input variables that affects the interaction and information exchange among team members is the team composition and the diversity among its members (Van Knippenberg & Shippers, 2007) in terms of: personal characteristics (i.e., value, attitudes, etc.), demographic characteristics (i.e., gender, age, work tenure, etc.) or task related characteristics (i.e., skills, abilities, social and technical competences, etc.). For example, in inter-professional work teams, being a member of a specific work or organizational category could influence the interaction with other team members. According with the Social Categorization Theory (Turner, 1985) and with Social identity Theory (Tajfel, 1982; Tajfel and Turner, 1986), professional differences among people inside a team could become the basis for perceptual discriminations that bring team members to prefer the interactions with members of their own group (in-group) than people considered members of categories different from the own (out-groups) (Speltini and Palmonari, 1999; Hogg and Abrams, 2001; Ricketta, 2005). Eisenhardt and Bourgeois (1988) had shown how demographic diversity, in terms of age, work seniority and communal work's experiences, brings to the arising of coalitions inside the governing boards during the decision making process. However, the work group diversity doesn't produce only negative effects; according to the information/decision making perspective (Huttermann and Boerner, 2011), the work group heterogeneity in terms of competence, knowledge and skills improves the innovative and creative team capabilities (van Kippenberg, de Dreu and Homan, 2004). In general, demographic diversity among team members has been related with low cohesion and cooperative processes inside team and work groups (Joshi and Jakson, 2003) and consequently with the group effectiveness. Nevertheless, researches have supplied contradictory results on this topic, especially in relation to the contents of work group diversity: age, gender, ethnicity, school level are examples of criteria used to evaluate diversity among team members. The effects of the different kinds of diversity on team functioning are not the same in all studies: while for example, gender diversity favors the sub-groups creation and undermine team cohesion and efficacy (Lewis and Gibson, 2002), age diversity decreases the sub-groups formation and it diminishes the interpersonal conflict level inside the team (Pelled et al., 1999). In the team that govern ION, group composition is the result of choices especially based on organizational and economic reasons (Arino, de la Torre, Ring, 2001) and/or on previous and frequent interorganizational collaboration among firms (Gulati, 1995). The team composition, especially for ION made by small and medium enterprises, is not an ex-ante projected choice, but the result of contingency needs related especially to the personnel resources and commitment that the ION members dedicate to the managing of the interorganizational collaboration. For this reason we

expect that the demographic team diversity among teammates affects the function of this kind of team. We hypothesize that:

H9: higher level of gender diversity diminishes team performance (H9a) and work group satisfaction (H9b).

H10: higher level of age diversity increases team performance (H10a) and work group satisfaction (H10b).

At present, few studies have inquired the relationship among heterogeneity of team members demographic characteristics with communication and integration process inside the team and with team performance. In this direction, the Balkundi et al.(2007)'s study has shown how the presence of interaction network structural holes makes more difficult for the team members to coordinate and to adapt their efforts in order to accomplish the task. An interesting results of this study is the role played by the age diversity on the team network fragmentations: 1) the higher level of age diversity among team members decreased the probability sub-groups formation on the age base diversity; 2) without sub-groups based on membership to a common age cohort, teams showed a better internal coordination in task execution along the time. In particular, neither study seems verify empirically these kinds of relationships in work groups and team inside interorganizational collaborations. In her study on advertising enterprise managers, Ibarra (1992) has shown that men and women tend to interact, communicate and create their social network especially with colleagues of their same gender. For this reasons we expected that:

H11: inside the team that govern ION, higher level of gender diversity is negatively related to the communication network density (H11a), while higher level of age diversity is positively related to higher level of communication network density (H11b).

Work group diversity, for its influence on the individual social categorization process, represents a factor that affects the coordination process among teammates in order to achieve the team goal, both in a positive manner and in a negative manner (van Knippenberg et al., 2004).

In particular, we expect that the team that governs ION composed by people with different gender will find more difficulties in the reciprocal adaptation and in the coordination process, because in these teams it's more probable that people perceive themselves as members of intra-team sub-groups; this brings to weaken the cooperativeness and the interdependence inside the team as a whole. Vice versa, the age diversity among group members decrease the probability that arise sub-groups based on the age cohort inside the team, thus

improving the cooperativeness and the interdependence among team members as whole. We hypothesize that:

H12: higher level of gender diversity is negatively related with team shared leadership (H12a), while higher level of age diversity is positively related with team shared leadership (H12b).

As we have mentioned previously, the demographic diversity inside the team is a critical factor for the social categorization process and for the group/team identification process (van Knippenberg et al, 2004; van Knippenberg et al, 2007, van Dick et al., 2008). In particular, van Knippenberg et al. (2007) have shown how gender diversity improves group identification only if team members believe that the diversity is a value added to the work group activities. Vice versa, if the people inside the team believed that gender homogeneous groups generally work better, then the working in a higher gender diversity group brings these people to not identify themselves with these kinds of group. For the developing of a common team identity, the presence of socio-demographic categories could affect the arising of sub-groups social categorization process and sub-groups identification process. This could bring teammates to develop a weak cognitive and affective involvement in the team as a whole. For age diversity, the different age cohorts could decrease the probability that social categorization and identification process can be based on different age cohort membership; in that way is less probable that people identify themselves with the age cohort and more probable that they use the team where they're working as the identification target.

H13: higher level of gender diversity is negatively related to team identification (as a team level property), vice versa higher level of age diversity is positively related to the identification with the team that govern the ION (as a team level property) (H13b).

3.2 Objectives and theoretical research model

At the present, few studies (Drach-Zahavy, 2011) have considered how and in which way psychosocial factors and team processes affect the functioning and the outcomes of the ION management team. Thus, this paper investigates if:

• the density of the team communication network is a critical factor in the promotion of team performance and work group satisfaction;

• if team identification and shared leadership facilitate the informational exchange and the coordination of individual efforts to govern the interorganizational collaboration and if they improve team performance and work group satisfaction;

- if work group diversity affects the level of team identification and shared leadership, facilitates or obstacles the exchange of information among teammates and finally if it affects team effectiveness (team performance and work group satisfaction).
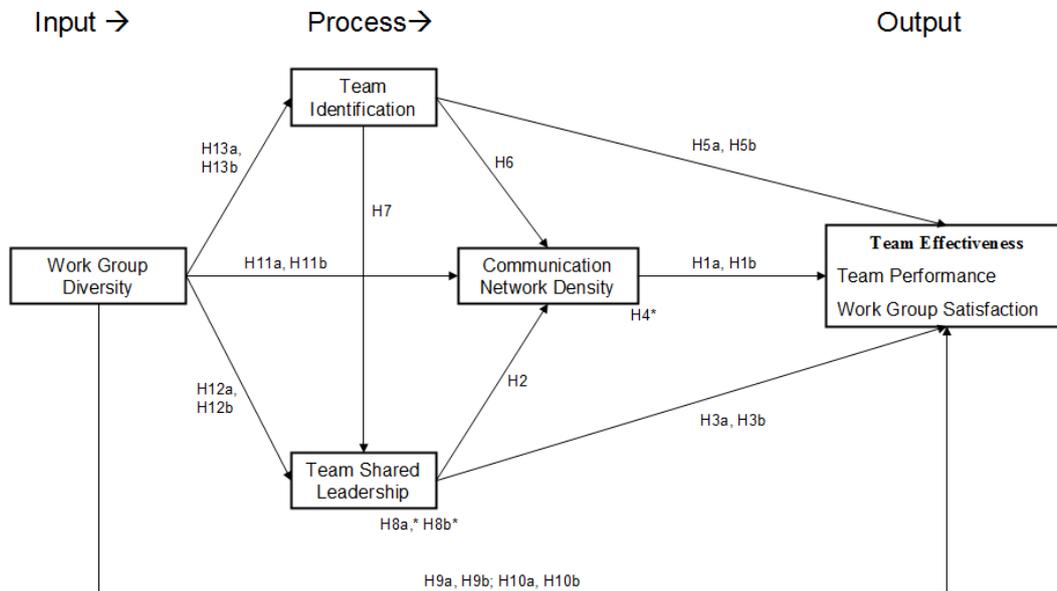
* = mediation hypothesis

Figure 3.2: Theoretical Model with Research Hypotheses

3.2.1 The Procedure

Through a specific list, indicating the winners of "Reti 2010", given by Regione Emilia Romagna, it was possible to pinpoint 276 networks between companies, and among those to specify 143 IONs that, for logistic and economic reasons, were easily reachable by the researcher's group.

It has been possible to have a telephone and/or e-mail contact with 98 of these nets and to the representative-coordinator of the net were explained the modality, terms and costs of the participation in the study.

The procedure followed to drive the data was divided in two consecutive phases: in the first one, a semi-structured interview was administer to the representative-coordinator of the companies' network, thanks to which it was possible to gain information about the governance, structural, and organizational characteristics of the net, other than data referring to the composition of the net and of the governing team.

The driven information were used to arrange a multiple choice questionnaire which was subsequently administered to the entire governing team of each network. The aim of the

questionnaire was that of gaining information and data regarding the characteristics and the individual perceptions of the entrepreneurs and the managers of the networks of companies; according to their availability, it was possible to administer the survey in two ways: either via e-mail, together with a specific kit for the compiling, or in the presence of a researcher that had administer the survey to the members of the team, at the end of one of their meetings.

With this procedure, 57 interviews, to coordinators and representatives of the net, have been carried out; the interviews identified 53 nets governed with a Shared governance system and therefore they were included in the second phase of the collection of data. Among the 53 companies that were contacted, 35 with the communal the agreement of all the members of the ruling team, gave their consensus to proceed with the second phase of the study.

A total number of 143 questionnaires have been administered, and of those, 104 (for 30 governing team) have been correctly filled in and sent back with a returning ratio of 72,72%. The average returning ratio of each team was 83,08%; however 2 groups and their related surveys, have been excluded due to the low ratio of answers that would not permit a suitable representation and reliability of the index at team level.

3.2.2 The Sample

The participants of the study were 101 workers (81 entrepreneurs, 17 managers and 3 professionals) divided in 28 companies' nets with legal and operative branch in Emilia-Romagna (north east of Italy). These companies have participated in a public regional announcement called "Reti 2010", which was directed to financially support the creation of a companies' network aiming to realize innovative products and services.

Participants were 79,2% males and 20,8% females, with an average age of 46,89 (SD=9,746).For what concerns the education, the highest scholar degree was for 48,4% of the participants a high school degree, for the 46,6% a college degree, a master or PhD and for the remaining 5% of the participants it was a middle school degree or a certificate of attendance to professional courses. The 28 teams were formed by an average of 5,30 members (SD = 2,23: Min.= 3; Max.= 9) and lasted for an average of 26,81 months (SD= 19,521).

3.2.3 Measures

In order to develop and rearrange the survey's scales for the Italian contest, all the items of the questionnaire have been translated and retro-translated by two English mother-tongue translators. For every scale, 4 independent judges have analyzed the validity of the content of each item, while the feedbacks of an experimental group of 10 entrepreneurs were employed to validate and to

improve the efficacy of the items of the survey before it was administered. All the measures and the analysis of the present study are referred to the team level.

Team outputs

Team Performance

It was used the Hoegl & Gemuenden scale (2001) on the perfection of the effectiveness and efficiency of the team according to its members. The instrument is composed by 9 items (α =.93) (an example is: "*Considering the results, this team can be considered as a success*") measured on a 5 point Likert scale (from 1: "*completely disagree*", to 5: "*completely agree*"). Team Performance was made operational through the aggregation of the mark obtained by the team members using composition referent –shift consensus model (Chan, 1998).

Work Group Satisfaction

To measure the work group satisfaction, it was used a Smith and Barclay scale (1997) of 6 items (α =.81) which measured how much the members of the team are satisfied of the work accomplished as a team (an example is:" *We are satisfied of each other for the contribution that we gave to the team*"). Every participant expressed his degree of accordance with the items through a 5 point scale (from 1: "*completely disagree*", to 5: "*completely agree*"). The degree of satisfaction expressed for the teamwork was made operational through the aggregation of the marks obtained by the group members using a composition referent-shift consensus model (Chan, 1998).

Team Processes and Inputs

Team's communication network density

To measure the communication network, was used an adapted version Cummings and Cross (2003) scale translated and back-translated in Italian, was used to each participant was given a list containing all the team member's names.This list was obtained by a preliminary interview administered to the legal representative of the companies' network. Each member of the network's government team, indicated how frequently he exchanged different types of communicative interactions with a particular person, on a 5 point scale (0: *never*, 1: *monthly*, 2: *weekly*, 3: *every day*, 4: *more than once a day*). The scale was composed by 4 items, one for each type of communicative interaction (face to face, via e-mails, telephone, and through social media). Following, is proposed an example of item: "How often do you exchange face to face communication with:

1 A. Arora _____

2 J. Cohen _____

3 N. Dewalt _____

4 E. Devereux _____

5 A. Eklund _____

 Data for each type of communication observed in each group were entered in the four matrix corresponding to the type of communication elaborated through Netminer 3 software. These four matrix, were merged, through the Merge function, in the final matrix. The sub-function MAX selected for each cell of the four matrix, the highest communication frequency value and puts it in the final matrix. In this way, it was possible to recreate a directed matrix of adjacency *person*person* (or NxN), in which was indicated highest communication frequency for every couple of team members considering the 4 types of communications (Krackhardt, 1987; Krackhardt & Kilduff, 2002). The matrix referred to the communicative interaction person*person was, then, used to analyze the global structure of the communication network and to acquire, through the software Unicet 6 (Borgatti, Everett & Freeman, 1999) , the density index (Scott, 1997) proper to each team.

Shared Leadership

The perception of Shared Leadership within the team, was measured with the scale developed by Muethel et al.(2009) that is composed by 7 items to which the participants have answered using a Likert scale of 5 points (from 1 "*completely disagree*" to 5 "*completely agree*"). In particular, the questionnaire is composed by 6 items referring to supportive behaviors and mutual adaptation of the members in the group (such as: "*All the members of the team offer advices to the others to improve the team's performances*") and 1 item referred to the perception of realization and management of Shared Leadership, made by the contribution of the members of the team (for example: "*The team counts on his members contribution to coordinate itself and reach his goals*"). In order to validate the shared leadership scale for the Italian context, the items were administered to a sample of 210 participants (101 entrepreneurs and mangers and 109 degree students) whom collaborate in interorganizational teams or work groups. We conducted an exploratory principal-components (PCA) factor analysis using a varimax rotation. The unique factor that emerged was identified as a shared leadership factor and it explains the 63,5% of the total variance. The final version of the shared leadership scale included all the 7 items of the original scale. Table 3.1 presents these items with their component loadings, mean and standard deviation and communalities.

Table 3.1: Rotated Principal Components Analysis Factorial Structure of Team Shared Leadership with Items Rearranged by Component

Item (written in a shorter form)	Component: Shared Leadership	Mean	S.D.	Communality
1.Each member is involved in leading behaviours	.744	3.09	1.092	.553
2.Each member suggests better performance	.814	3.48	1.032	.663
3. Each member meets others' needs	.815	3.50	1.013	.663
4. Each member acts promptly towards external influence	.828	3.11	.955	.685
5. Each member anticipates group's needs	.812	3.00	.920	.660
6. Each member goes beyond work objectives for better performance	.741	2.89	1.055	.548
7.The group can count upon each member for leadership	.819	3.31	1.172	.672
Eingenvalue	4.444			

Note. N = 210; items are tranlsated from Muethel et al.(2009)

The construction of Shared Leadership score was obtained through the aggregation of the individual answer to the Muethel et al. scale (2009). The Cronbach's alpha is .94. The Shared Leadership was made operational through the aggregation of the marks gained by the team-mates using a "*referent-shift consensus*" composition's model (Chan 1998).

Team Identification

In order to measure the team identification, it was used the cognitive organizational identification, a visual scale made and validate for the Italian context by Bergami and Bagozzi (2000). The scale measures the perception of group member overlap between one-self and the team and it offers eight different types of answers, from "A = *Far Apart*" to "H = *Complete Overlap*". The ION management team identification was computed through the aggregation of the individual score of all the team's members using a direct-consensus composition model (Chan, 1998).

Work Group Diversity

To evaluate the within team diversity, we used gender and age variables. For the gender diversity we used the Blau Index (Blau, 1977):

$$D = 1 - \sum_{i=1}^{N} p_i^2$$

Where p = proportion of individuals or objects in a category and N = number of categories.

A perfectly homogeneous team has got a diversity index score equals to 0. A perfectly heterogeneous team has a diversity index score equals to 1 (assuming infinite categories with equal representation in each category). For the age diversity we used the standard deviation in relation to the group's average age.

3.3 Preliminary Analysis

3.3.1 Descriptive Statistics and Data Aggregation

The descriptive statistics and the distributions of the study's variables are presented in a analytical way in Table 3.1.

Table 3.1: descriptive statistics of the team level variables

Variable	Min.	Max.	Mean	S.D.	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
Dependent Variables								
Team performance	2.17	4.33	3.29	.601	-.018	.441	-.800	.858
Work Group Satisfaction	2.81	4.50	3.56	.472	.426	.441	-.359	.858
Independent Variables								
Work Group Diversity_gender	.00	.50	.206	.215	.126	.441	-1.99	.858
Work Group Diversity_age	.71	24.04	6.69	4.94	1.82	.441	4.72	.858
Team Identification	2.00	6.67	5.08	1.06	-.995	.441	1.23	.858
Shared_Leadership	2.06	4.42	3.12	.592	.168	.441	-.327	.858
Comm. Network Density	.667	3.67	1.69	.808	.868	.441	.062	.858

The mean's variables and correlations among variables are presented in the Table 3.2.

Table 3.2: Means and Correlations for all the team level variables

	Mean	Std. Deviation	1	2	3	4	5	6
1.Team performance	3.292	0.601						
2.Work Group Satisfaction	3.568	0.472	.684**					
3.Work Group Diversity_gender	0.207	0.216	-.165	-.306				
4.Work Group Diversity_age	6.693	4.941	.305	.269	-.076			
5.Team Identification	5.081	1.058	.178	.358	-.400*	-.049		
6.Shared_Leadership	3.197	0.592	.732**	.839**	-.402*	.497**	.395*	
7.Comm. Network Density	1.694	0.808	.126	.156	-.024	.024	.040	.254

*Note: N = 28 (Aggregate); * = Correlation is significant at the 0.05 level (2-tailed); **= Correlation is significant at the 0.01 level (2-tailed).*

The dependent variables of the study show a mean and standard deviation similar to the scores obtained in previous studies on team performance and work group satisfaction (Hoegl & Gemuenden, 2001; Muethl et al, 2009). For the independent variables, the mean and standard deviation's scores seem to be in line with the previous studies used as a reference (Bergami and Bagozzi, 2000; Hoegl & Gemuenden, 2001; van Knippenberg et al, 2004; van Knippenberg et al, 2007; van Dick et al., 2008; Zohar and Tenne-Gazit, 2008; Muethl et al, 2009).

Regarding to the correlations (see Table 3.2), the dependent variables, team performance and work group satisfaction show significant correlations among them (r =.684, p<.000). Regarding to the independent variables, the shared leadership is significantly correlated with all the independent variables of the study, with team performance (r=.732, p < .000) and with the work group satisfaction (r =.839, p<.000), and also with age work group diversity (r=.497; p = .007) and with the team identification (r=.395; p= .037). The gender work group diversity is negatively correlated with the shared leadership (r =-.400; p =.034) and with the team identification (r=-.400, p= .035).

Before aggregating the individual scores at the team level, it was calculated and verified the "within group agreement". The Interrater Agreeement Index (rwg) (James et al., 1993) was calculated on the scores of shared leadership (rwg = .82, rwg median = .87, rwg range = .68), team identification (rwg = .65, rwg median = .78, rwg range = .39), team performance (rwg = .86, rwg median = .95, rwg range = .56), work team satisfaction (rwg = .88, rwg median = .93, rwg range = .58). The data aggregation, as suggested by several researchers (Janz, Colquitt, & Noe, 1997), was justified by the fact that the median agreement index was higher than the standard margin of .70: the results are thus

comparable to those observed in other studies, on teams and work groups which have used the same margin (Naumann and Bennett, 2000; Costa et al., 2001).

In order to estimate the level of reliability and coherence of the averages obtained through the data aggregation at group level, the index of Interclass Correlation (ICC1 e ICC 2) (James, 1982; James et al., 1984) were calculated for all the scales used in this study. The results of the ICC1 and ICC2 were calculated on non-aggregated data, with the use of group affiliation as independent variable. The indexes were of 0.29 and 0.62 for the shared leadership scale, of 0.16 and 0.47 for the team identification scale, of 0.41 and 0.74 for the team performance and of 0.30 and 0.63 for the work team satisfaction. All the scales showed a significant variance among the groups: for Shared Leadership, $F_{(27, 73)} = 2.647$, $p = .001$; for the team identification, $F_{(27, 73)} = 1.780$, $p = .027$; for the Team Performance, $F_{(27, 73)} = 4.379$, $p<.000$; for the Work Team Satisfaction, $F_{(27, 73)} = 2.742$, $p<.000$. The results revealed adequate measures of intra-group homogeneity and inter-groups variance, which justified the aggregation of the four scales at team level and allowed to proceed with the verification of the cross-level hypothesis.

3.4 Results

3.4.1 The Procedure

In order to test the hypotheses and the mediation hypotheses included in the theoretical model we have used the path analysis techniques. The theoretical model used is composed by multiple relationships and mediation effects among variables that with difficulties could be analyzed with the three variables model proposed by Baron e Kenny (1986) (Edwards and Lambert, 2007). The path analysis allows to test different influence relationships among variables through consecutive steps and with different regression models.

For each regression equation used, the path analysis procedure allowed us to decompose the correlations among variables into direct effect, indirect effects and total effect (Alwin and Hauser, 1975; MacKinnon et al., 2000; Edwards and Lambert, 2007). Through a boostrapping esteem was possible to obtain a random distribution based on the random sampling of 1000 cases extracted from the previous sample with case replacement possibilities. The boostrap results were used in order to create the confidence interval around each direct effect, indirect effect and total effect obtained through the path analysis technique (Edwards and Lambert, 2007). For each computed confident interval were identified the effect's values that represent the percentile points

corresponding to the confident interval the percentiles corresponding to the bounds of the confidence interval (2.5 percentile and 97.5 percentile). If these bounds exclude zero, then the effect (direct, indirect or total) is statistically significant (percentile methods). To remedy to the fact that the median of the bootstrap estimates can deviate from the estimate of the full sample, the bounds of the confidence interval were adjusted using the bias corrected percentile method (Efron & Tibshirani, 1993; Stine, 1989). This method has become recommended in tests of mediated effects (MacKinnon et al., 2004).

3.4.2 Results

Here we describe the results from data analysis. In order to give a more simple and clear exposition, the results will be presented in two sub-paragraphs: in the first one the dependent variable, the team performance, will be related to the team process variables (communication network density, shared leadership and team identification) and team input variable (work group diversity and age work group diversity); the results of these analyses will be presented in the table 3.3 and 3.4. In the second sub-paragraph, the results of the same analysis will be presented but considering the work group satisfaction as the dependent variable; the analytical results of these analyses will be presented in the table 3.5 and 3.6.

Effects of work group diversity, team identification, shared leadership and communication network density on team performance

The H1a hypothesis, that expected that the team performance (for conciseness TP) is directly affected by the team communication network density (for conciseness CD), was not confirmed both in the model with gender work group diversity as a team input (-.061, with bootstrapped 95% confidence interval containing zero: -.27; .05) and in the model with age diversity as a team input (-.069, with bootstrapped 95% confidence interval containing zero: -.25; .07). Contrary to the H2's expectation, the shared leadership (for conciseness SL) is not related with the CD, neither for the model with gender diversity as a team input (.533 con bootstrapped 95% confidence interval containing zero: -.06; 1.22), neither for the model with age group diversity as a team input (.368 con bootstrapped 95% confidence interval containing zero: -.45; 1.06). Even the mediation effect SL-->CD-->TP of the H4 hypothesis doesn't find confirmation, neither for model with gender diversity as a team input (-.025, with bootstrapped 95% confidence interval containing zero:-.141; .009), neither for the model with age diversity as a team input (-.037, with bootstrapped 95% confidence interval containing zero: -

.241; .01). As the H3a, the SL affects directly and in a significant way the TP, with value of .914 (with bootstrapped 95% confidence interval not containing zero: .56; 1,22) for the model with the gender work group diversity as a team input, and with value of .857 (with bootstrapped 95% confidence interval not containing zero: .56; 1,09) for the model with the age work group diversity as team input. The team identification (for conciseness ID) hasn't got direct and significant relations neither with TP (the H5a is disconfirmed), neither with the CD (the H6 is disconfirmed). In the model with the age diversity as team input, the ID shows a positive association with SL as expected by the H7 hypothesis (.235 con bootstrapped 95% confidence interval not containing zero: .10; .42). As expected in H8a, the ID affects the TP through the mediation path ID-->SL-->TP (.215, with bootstrapped 95% confidence interval not containing zero: .093; .416). Neither the direct effect of ID on SL, neither the indirect effect ID-->SL-->TP are significant in the model with gender diversity as team input.

Regarding to the work group diversity, neither the gender diversity (for conciseness GD) (-.057, with bootstrapped 95% confidence interval containing zero: -.190; .12) neither the age diversity (for conciseness AD) (-.018, with bootstrapped 95% confidence interval containing zero:-.040; .02) are directly associated with TP: so the H9a and H10a are disconfirmed. Regarding to the CD, neither the influence of gender diversity (.297, with bootstrapped 95% confidence interval containing zero:-1.02; 1.607), neither the age diversity (-.029, with bootstrapped 95% confidence interval containing zero:-.09; .04) are significant: the H11a and H11b are disconfirmed. The age diversity, as expected in H12b, is directly and positively associated with the SL (.062, with bootstrapped 95% confidence interval not containing zero: .04; .11), while the gender diversity has got a negative and not significant association with the SL (-.797, with bootstrapped 95% confidence interval containing zero:-1.85; .076): the H12a hypothesis doesn't find confirm. An interesting results, not been expected by research hypotheses, is related to the positive influence that the age diversity has on the TP through the SL mediation (.057, with bootstrapped 95% confidence interval not containing zero: .026; .101). Finally, while the age diversity hasn't got effect on the team ID (-.010, with bootstrapped 95% confidence interval containing zero:-.12; .04), the gender diversity has got a significant and negative effect on the team ID (-1.963, with bootstrapped 95% confidence interval not containing zero: -3.38; -.551) as it as expected: the H13a is confirmed while the H14b doesn't find confirm.

Table 3.3: Team Performance as the team output and Gender Diversity as the team input

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
GD-->ID		-1.963*	-3.38	-0.551						
	GD-->ID				-1.963*	-3.38	-0.551			
GD-->SL		-1.103*	-1.935	-0.316						
	GD-->SL				-0.797	-1.85	0.076			
	GD-->ID-->SL							-0.306	-0.872	0.038
GD-->CD										
	GD-->CD				0.297	-1.02	1.607			
	GD-->ID-->CD							0.073	-0.479	0.53
	GD-->SL-->CD							-0.332	-1.359	0.013
	GD-->ID-->SL-->CD							-0.128	-0.628	-0.022
GD-->TP		-0.46	-1.353	0.299						
	GD-->TP				-0.057	-0.190	0.12			
	GD-->ID-->TP							0.112	-0.139	0.571
	GD-->SL-->TP							-0.683	-1.762	0.051
	GD-->CD-->TP							-0.018	-0.311	0.047
	GD-->ID-->SL-->TP							-0.262	-0.894	0.02
	GD-->ID--> CD-->TP							-0.004	-0.098	0.028
	GD-->SL-->CD-->TP							0.02	-0.001	0.238
	GD-->ID-->SL-->CD-->TP							0.008	0	0.073
ID-->SL		0.156	-0.06	0.37						
	ID-->SL				0.156	-0.06	0.37			
ID-->CD		0.028	-0.254	0.309						
	ID-->CD				-0.037	-0.28	0.254			
	ID-->SL-->CD							0.065	0	0.275
ID-->TP		0.075	-0.099	0.292						
	ID-->TP				-0.057	-0.19	0.12			
	ID-->SL-->TP							0.134	-0.05	0.35
	ID-->CD-->TP							0.002	-0.015	0.046
	ID-->SL-->CD-->TP							-0.004	-0.035	0
SL-->CD		0.368	-0.45	1.06						
	SL-->CD				0.368	-0.45	1.06			
SL-->TP		0.832*	0.56	1.075						
	SL-->TP				0.857*	0.56	1.09			
	SL-->CD-->TP							-0.025	-0.141	0.009
CD-->TP		-0.061	-0.27	0.05						
	CD-->TP				-0.061	-0.27	0.05			

Note: N = 28 (Aggregate); * = bootstrapped 95% confidence interval not containing zero
Legend: GD = Gender Work Group Diversity; ID = Team Identification; SL = Team Shared Leadership; CD = Communication Network Density; TP = Team Performance.

Table 3.4: Team Performance as the team output and Age Diversity as the team input

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
AD-->ID		-0.010	-0.12	0.04						
	AD-->ID				-0.010	-0.12	0.04			
AD-->SL		0.060*	0.012	0.084						
	AD-->SL				0.062*	0.04	0.11			
	AD-->ID-->SL							-0.002	-0.035	0.011
AD-->CD		0.004	-0.042	0.072						
	AD-->CD				-0.029	-0.09	0.04			
	AD-->ID-->CD							0.001	-0.005	0.02
	AD-->SL-->CD							0.033	-0.003	0.093
	AD-->ID-->SL-->CD							-0.001	-0.028	0.004
AD-->TP		0.037*	0.001	0.063						
	AD-->TP				-0.018	-0.040	0.02			
	AD-->ID-->TP							0.001	-0.005	0.019
	AD-->SL-->TP							0.057*	0.026	0.101
	AD-->CD-->TP							0.002	-0.001	0.021
	AD-->ID-->SL-->TP							-0.002	-0.03	0.011
	AD-->ID--> CD-->TP							0	-0.003	0
	AD-->SL-->CD-->TP							-0.002	-0.02	0
	AD-->ID-->SL-->CD-->TP							0	0	0.004
ID-->SL		0.235*	0.1	0.42						
	ID-->SL				0.235*	0.1	0.42			
ID-->CD		0.032	-0.26	0.226						
	ID-->CD				-0.093	-0.41	0.11			
	ID-->SL-->CD							0.125	0	0.391
ID-->TP		0.110	-0.043	0.337						
	ID-->TP				-0.103	-0.24	0.08			
	ID-->SL-->TP							0.215*	0.093	0.416
	ID-->CD-->TP							0.006	-0.004	0.062
	ID-->SL-->CD-->TP							-0.009	-0.057	0.001
SL-->CD		0.533	-0.06	1.22						
	SL-->CD				0.533	-0.06	1.22			
SL-->TP		0.877*	0.547	1.158						
	SL-->TP				0.914*	0.56	1.22			
	SL-->CD-->TP							-0.037	-0.241	0.01
CD-->TP		-0.069	-0.25	0.07						
	CD-->TP				-0.069	-0.25	0.07			

*Note: N = 28 (ADgregate); * = bootstrapped 95% confidence interval not containing zero*
Legend: AD = Age Work Group Diversity; ID = Team Identification; SL = Team Shared Leadership; CD = Communication Network Density; TP = Team Performance.

Effects of work group diversity, team identification, shared leadership and communication network density on work group satisfaction

Regarding to the work group satisfaction (for conciseness WS), the team communication network density is not associated with this team output, neither for the model with the gender diversity as a team input (-.037, with bootstrapped 95% confidence interval containing zero: -.13; .10), nor for the model with the age diversity as the team input (-.051, with bootstrapped 95% confidence interval

containing zero:-.23; .09). So the H1b hypothesis is disconfirmed. As expected by the H3b hypothesis, the SL is positively associated with the WS, both in the model with gender diversity as a team input (.685, with bootstrapped 95% confidence interval not containing zero: .49; .91) and in the model with the age diversity as team input (.786, with bootstrapped 95% confidence interval not containing zero: .193; .93). Differently from what expected from the H2 hypothesis, the SL hasn't got a significant effect on the team CD, nor in the model with gender diversity as team input (.368, with bootstrapped 95% confidence interval containing zero: -.45; 1,06), nor in the model with age diversity as a team input (.533, with bootstrapped 95% confidence interval containing zero: -.06; 1,22). The H4 hypothesis that expects a mediation effect through the path SL-->CD-->WS is disconfirmed, both in the model with gender diversity as a team input (-.015, with bootstrapped 95% confidence interval containing zero: -.097; .02), both in the model with age diversity as a team input (-.027, con bootstrapped 95% confidence interval containing zero: -.183; .028).

The Team ID doesn't affect the WS neither for the model with gender diversity as a team input (.019, with bootstrapped 95% confidence interval containing zero: -.124; .13), neither in the model with the age diversity as a team input (-.017, with bootstrapped 95% confidence interval containing zero: -.07; .275). The H5b Hypothesis is disconfirmed. Differently from what expected from the H6 hypothesis, the ID doesn't affect the WS nor in the model with gender diversity as a team input (.019, con bootstrapped 95% confidence interval containing zero: -.124; .13), neither for the model with age diversity as a team input (-.093, with bootstrapped 95% confidence interval containing zero: -.41; .11). The ID is positively associated with the SL in the model with age diversity as a team input (.235, with bootstrapped 95% confidence interval not containing zero: .10; .42), while is not associated in the model with gender diversity as a team input (.156, with bootstrapped 95% confidence interval containing zero: -.06; .37). The H7 hypothesis is confirmed only in the model with age diversity as a team input. Regarding to the current model, the H8b hypothesis, that expects a mediation effect through the path ID-->SL-->WS, is conformed (.185, with bootstrapped 95% confidence interval not containing zero: .044; .311). No confirm for the same hypothesis becomes in the model with gender diversity as a team input (.107, with bootstrapped 95% confidence interval not containing zero: -.03; .266). Neither the GD (.121, with bootstrapped 95% confidence interval containing zero:-.384; .66), neither the AG (-.021, with bootstrapped 95% confidence interval containing zero: -.06, -.01) are associated with the WS: the H9b and H10b hypotheses are disconfirmed. Contrary to what expected from the H11a, the GD doesn't affect in a significant way the CD (.297, con bootstrapped 95% confidence interval containing zero: -1,02; 1,607). Also the AD is not associated to the CD (-.029, with bootstrapped 95% confidence interval containing zero: -

.09; .04): the H11b is disconfirmed. Differently from what the H12a expects, The GD is not directly associated with SL (-.797, with bootstrapped 95% confidence interval containing zero: -1,85; .076); also the GD is negatively associated with the ID (-1.963, with bootstrapped 95% confidence interval containing zero: -3,38; -.551) as it as expected from the H13a. Finally, The AD is positively associated, though with a weak magnitude, with the SL (.062, with bootstrapped 95% confidence interval not containing zero: .04; .11) as it as expected from the H12b hypothesis, but the AD it's not associate with the ID (-.010, with bootstrapped 95% confidence interval containing zero: -.12; .04) as expected in H13b.

Table 3.5: Work Group Satisfaction as the team output and Gender Diversity as the team input

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
GD-->ID		-1.963*	-3.38	-0.551						
	GD-->ID				-1.963*	-3.38	-0.551			
GD-->SL		-1.103*	-1.935	-0.316						
	GD-->SL				-0.797	-1.85	0.076			
	GD-->ID-->SL							-0.306	-0.872	0.038
GD-->CD		-0.09	-1.301	1.053						
	GD-->CD				0.297	-1.02	1.607			
	GD-->ID-->CD							0.073	-0.479	0.53
	GD-->SL-->CD							-0.332	-1.359	0.013
	GD-->ID-->SL-->CD							-0.128	-0.628	-0.022
GD-->WS		-0.669	-1.357	-0.029						
	GD-->WS				0.121	-0.384	0.66			
	GD-->ID-->WS							-0.037	-0.429	0.127
	GD-->SL-->WS							-0.546	-1.388	0.027
	GD-->CD-->WS							-0.011	-0.207	0.047
	GD-->ID-->SL-->WS							-0.21	-0.608	0.015
	GD-->ID--> CD-->WS							-0.003	-0.063	0.02
	GD-->SL-->CD-->WS							0.012	-0.004	0.144
	GD-->ID-->SL-->CD-->WS							0.005	-0.001	0.058
ID-->SL		0.156	-0.06	0.37						
	ID-->SL				0.156	-0.06	0.37			
ID-->CD		0.028	-0.254	0.309						
	ID-->CD				-0.037	-0.28	0.254			
	ID-->SL-->CD							0.065	0	0.275
ID-->WS		0.125	-0.06	0.316						
	ID-->WS				0.019	-0.124	0.13			
	ID-->SL-->WS							0.107	-0.03	0.266
	ID-->CD-->WS							0.001	-0.013	0.035
	ID-->SL-->CD-->WS							-0.002	-0.021	0.002
SL-->CD		0.368	-0.45	1.06						
	SL-->CD				0.368	-0.45	1.06			
SL-->WS		0.67*	0.477	0.856						
	SL-->WS				0.685*	0.49	0.91			
	SL-->CD-->WS							-0.015	-0.097	0.02
CD-->WS		-0.037	-0.13	0.1						
	CD-->WS				-0.037	-0.13	0.1			

*Note: N = 28 (Aggregate); * = bootstrapped 95% confidence interval not containing zero*
Legend: GD = Gender Work Group Diversity; ID = Team Identification; SL = Team Shared Leadership; CD = Communication Network Density; WS = Work Group Satisfaction..

Table 3.6 : Work Group Satisfaction as the team output and Age Diversity as the team input

Path	Sub-Path	Total Effect (Sum of direct and Indirect effects)	LL 95% CI	UL 95% CI	Direct effect	LL 95% CI	UL 95% CI	Estimate Indirect Effect	LL 95% CI	UL 95% CI
AD-->ID		-0.010	-0.12	0.04						
	AD-->ID				-0.010	-0.12	0.04			
AD-->SL		0.060*	0.012	0.084						
	AD-->SL				0.062*	0.04	0.11			
	AD-->ID-->SL							-0.002	-0.035	0.011
AD-->CD		0.004	-0.042	0.072						
	AD-->CD				-0.029	-0.09	0.04			
	AD-->ID-->CD							0.001	-0.005	0.02
	AD-->SL-->CD							0.033	-0.003	0.093
	AD-->ID-->SL-->CD							-0.001	-0.028	0.004
AD-->WS		0.026	-0.056	0.042						
	AD-->WS				-0.021	-0.06	-0.01			
	AD-->ID-->WS							0	-0.007	0.015
	AD-->SL-->WS							0.049	-0.016	0.077
	AD-->CD-->WS							0.001	-0.003	0.015
	AD-->ID-->SL-->WS							-0.002	-0.03	0.012
	AD-->ID--> CD-->WS							0	-0.003	0
	AD-->SL-->CD-->WS							-0.002	-0.015	0.001
	AD-->ID-->SL-->CD-->WS							0	0	0.003
ID-->SL		0.235*	0.1	0.42						
	ID-->SL				0.235*	0.1	0.42			
ID-->CD		0.032	-0.26	0.226						
	ID-->CD				-0.093	-0.41	0.11			
	ID-->SL-->CD							0.125	0	0.391
ID-->WS		0.166*	0.042	0.491						
	ID-->WS				-0.017	-0.07	0.275			
	ID-->SL-->WS							0.185*	0.044	0.311
	ID-->CD-->WS							0.005	-0.007	0.056
	ID-->SL-->CD-->WS							-0.006	-0.044	0.006
SL-->CD		0.533	-0.06	1.22						
	SL-->CD				0.533	-0.06	1.22			
SL-->WS		0.759*	0.271	0.884						
	SL-->WS				0.786*	0.193	0.93			
	SL-->CD-->WS							-0.027	-0.183	0.028
CD-->WS		-0.051	-0.23	0.09						
	CD-->WS				-0.051	-0.23	0.09			

*Note: N = 28 (Aggregate); * = bootstrapped 95% confidence interval not containing zero*
Legend: AD = Age Work Group Diversity; ID = Team Identification; SL = Team Shared Leadership; CD = Communication Network Density; WS = Work Group Satisfaction..

Models Fits

The test of the model fit assesses the improvement in fit that results from adding the three paths that distinguish Model 4 (using the terminology and models proposed by Jeffrey Edwards in his Research Methods Seminars) (the Figure 3.3), the model with only the direct effect of CD on the team's outcome, from Model 5 (the Figure 3.4), where each independent variable has got a direct effect on the team's outcome. This test was conducted for all the four theoretical models accounted in this study: the model with gender diversity as a team input and the team performance as a team output; the model with age diversity as a team input and the team performance as a team output; the model with gender diversity as a team input and the work group satisfaction as a team output; the model with age diversity as a team input and the work group satisfaction as a team output.
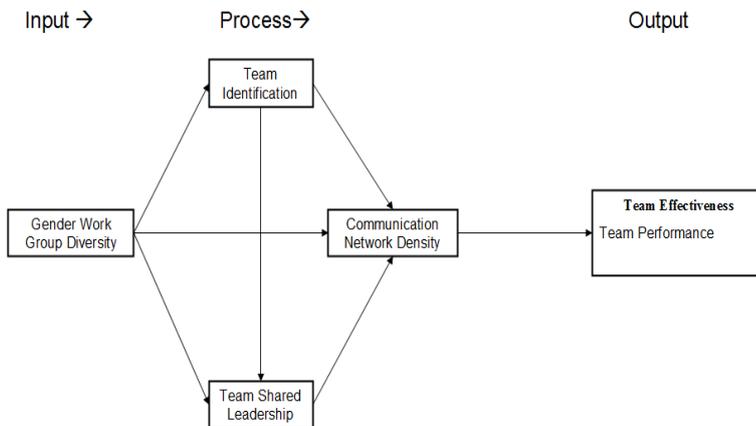
Figure 3.3: example of Model 4, effects of gender work group diversity on team performance mediated by team identification, team shared leadership and communication network density.
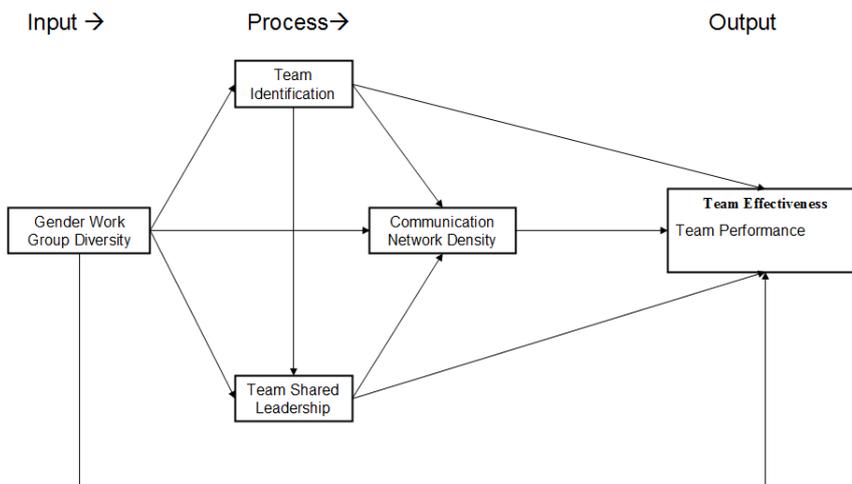
Figure 3.4: example of the Model 5, effects of gender work group diversity on team performance mediated by team identification, team shared leadership and communication network density with direct effects included.

Specifically, for the model with team performance as team outcome, adding the three paths from independent variables to the dependent variable (AD/GD→TP, ID→TP and SL→TP) , increased the multivariate R2: from .800 to .944, which was statistically significant at p < .000 for the model with GD as a team input; from .796 to .943, which was statistically significant at p < .000 for the model with AD as a team input. Thus, adding the three paths as a set improved the fit of the two models. Based on the coefficients resulting from the improved model, it appears that the improvement in fit was mostly the result of the path from SL to TP (see the path SL→TP showed in the table 3.3 and in the table 3.4).

For the model with work group satisfaction (WS) as team outcome, adding the three paths from independent variables to the dependent variable (AD/GD→WS, ID→WS and SL→WS), improves the R2: from .807 to .964, that was statistically significant at p < .000 for the model with GD as team input; from .796 to .943, that was statistically significant at p < .000 for the model with AD as team input. Thus, adding the three paths as a set improved the fit of the two models. Based on the coefficients for Model 5, it appears that the improvement in fit was mostly the result of the direct path from SL to WS in both the models (see the path SL→WS showed in the table 3.5).

3.4 Discussion

Although the figure 3.1 shows a unique theoretical model, de facto we have got two work group diversity variables as a team input (AD and GD) and two dependent variables as a team output (TP and WS). Actually we have tested 4 theoretical models. For this reason, we discuss firstly the results shared among the four models and then specific results for each model. The first general result is related to the role played by the shared leadership inside the ION management team. The team's capability of conduct through the proactive and collaborative contributes of all the team members is fundamental not only in order to achieve a good team performance, but also to develop a communal feeling of work group satisfaction among the teammates. As theorized from Ensley, et al. (2006) and from Muethel et al. (2009), the team that has developed this kind of sharing management of direction processes are those that, in complex tasks and/or uncertainly-unpredictable environment situations as is the ION governance, develop a better general performance. The team's members capabilities to interiorize the group's goals and norms are generally considered the bases that bring to the developing of the team's shared leadership (Hannah et al., 2011). In the models that considered the age diversity as a team input, the team identification process results a fundamental factors able to facilitate the process of a team shared managing (Hannah et al., *ibidem*): psychosocial attitudes of a better openness and cooperative willingness

with the other in-group members can surely facilitate the developing and fostering of this kind of team's process. Also the age diversity can have an effect, while very small, on the shared leadership: teams composed by entrepreneurs and managers with different age can developing a better capability of team guiding through shared ways. The ION governance team' shared leadership results a partial mediator that amplifies the effects of the team identification and of the age diversity both on the team performance and both on the work group satisfaction. As Muethel et al. (2009) have proposed and as Hannah et al. (2011) have hypothesized, the emerging of a shared managing of the team's activities, also for the team that govern the ION, seems more probable in the conditions where: the identity's interdependence among team members is more higher; the probability that team members use a social categorization process based on their socio-demographical characteristics in order to define their own identity is lower. A partial confirm of this thesis is the negative effect that the gender diversity plays on the ION management team's identification: groups not homogeneous for the gender characteristic show lower level of the team-mates identification in the team. From the psychosocial point of view seems to happen what expected from Hannah et al. (2011) and what Ibarra (1992) has demonstrated with her social network analysis study, more the gender membership becomes a salient and cognitively relevant category for the team's members, more the team's members tend to identify themselves with this demographical category and less with the category of the membership to the team. In future studies, it could be interesting to verify if the team's members diversity's beliefs could affect the identification processes (van Knippenberg et al, 2004; van Knippenberg et al, 2007; van Dick et al., 2008) and social categorization processes (Bergami and Bagozzi, 2000; Rikketta, 2005) of the ION management team's members and consequently, if these cultural aspects related to the diversity could foster or weaker the group process that brings to the team shared leadership.

Unexpectedly, all the hypotheses related to team communication network density are not confirmed. A partial justification of these results could be derived from the Oh et al (2004)'s study and from the Balkundi et. al. (2007)'s study. The authors have verified that, in teams and work groups, the communication network density or the informal-contacts network connectivity have an "inverted U-shapes relationship" with the team outputs, like the group performance, and with team input's factors, like the age diversity among teammates. Specifically, Peterson et al. (2011) have shown how the advice communication network centralization is able to moderate the relationship among advice communication network density and team performance. Furthermore the same authors have verified how the transformational leadership at the team level was affected and moderated both from the diversity, both from the level of the self-esteem perceived by the team's members. In this

sense, future studies ought to consider the possibility that intervening variables, both psychosocial or related to the communication network characteristics, could moderate the relationship among the team performance and the communication network density or the relationship among the shared leadership and the communication network density.

This study and its results underline the importance of psycho-social and group process in the teams that govern the IONs through a *shared participant governance* of the interorganizational relations (Provan and Kenis, 2008). In this kind of team, the team efficacy seems to be strongly and significantly connected to a leadership characterized as a direction of the team though the team itself. The process of influence among team identification and shared leadership seems to be affected from the demographic diversity among team's members. From the comparison among the gender diversity model's results with the age diversity model's results, becomes clear that the gender diversity is a factor that can affect negatively the team identification and it can diminish or cancel the positive effects that the team identification plays on the shared leadership in the ION management team.

For the practical and managerial implications, these results underline the substance that well-designed management consulting and training could have on the developing of a good team identification and on the fostering of the level of shared leadership of the team that governs the ION and, consequently, with positive consequences for the interorganizational collaboration governance efficacy. These training and consulting interventions, to be effective, ought to consider the effect that work group diversity could have on the function of this kind of team: psycho-social formation and interventions on the management of diversity inside work groups and teams, if well-projected and well-realized, could offer a fruitfully guide and support in order to create and develop a more effective ION management team or interorganizational team. In particular, given the higher velocity and the brief duration of these kinds of team, could be useful that the consulting and training interventions been concentrated not only in the team's forming phase (Tuckman, 1965), but also they ought to be prolonged to all the team's life phases, like the storming, the forming and the performing phase. The possibility to manage the work group diversity in an effective ways can facilitate the team not only at the beginning, when the entrepreneurs and managers get in touch for the first time, but it can be useful in the daily group functioning during all its duration long, because in this way, the team's members diversities don't become the reasons of intra-team conflicts and misunderstandings; conflicts that if are not well-managed could affect negatively the exchange of information among the group members and/or could affect negatively the arrangement, the

monitoring and the realization of the team's activities that each member has to achieve, singularly or through the group.

Chapter 4 - The individual innovative behavior in the ION's governing teams: a multilevel study

4.1 Introduction:

Since the 80's, literature has been widely debating at a theoretical level and confirming at an empiric level, the correlation between collaborative and *networking* process within the companies, and their capability of producing innovation. Interest on the matter has grown especially in relation to the need of many organizations to keep an effective propulsion to change by way of continuous innovation, that is a process through which a change in products, services, or organizational set-ups won't be an occasional event but will become a systematic and continuous procedure (Denicolai & Cioccarelli, 2008) that helps a company to anticipate and intercept the factors that may foster the success of the organizational action (Hamel and Prahalad, 1994).

In order to solve the strategic-organizational problem of continuous innovation, becomes fundamental that the people in the organizations commit themselves in the seeking of innovative solutions, throughout the retrieval and the improvement of their own knowledge and skills (Micelli, 2000, Winter, 2002). Inter- organizational collaboration becomes the occasion and the means by which the organizations and the people who works in it can exchange and integrate information, knowledge and experiences.

IONs would be the contest which enable companies to develop and maintain the ability of innovation proper to a certain group of organizations: recurring collaborations between organizations may provide the background through which generate, share and renew the knowledge and the competences owned by each organization. ION is a stage that helps the development of social and relational processes, such as social interaction and learning ability, which allow the articulation and the construction of knowledge and competences needed for the starting and maintaining of the continuous innovative process.

4.1.1 How ION's structural characteristics influence innovation:

*Coleman et al. (*1957*)* is certainly one of the first researcher to have exanimate, in a socio-relational prospective, the influence of the social network on innovation and particularly on his own member's innovative conduct.

The author noticed how the diffusion of a new medicine within a community of doctors was more influenced by the position held by the doctor within that network, than by his personal characteristics: the actors that were integrated and connected inside the network, had an higher tendency to adopt the prescription in respect of those who weren't. Recent studies have focused their attention on the influence that networks at an inter-organizational level have on innovation. Ahuja (2000), for example, measured the process of innovation in terms of patents issued; he verified that in the industrial-chemical field, the process of innovation was influenced by the number of indirect contact in which a company was involved: the higher the number of links with other companies, the higher the possibility to acquire information spread in the network. Such information were often employed to improve the innovative aspects of the company. This result brought to another important conclusion; the presence of *structural holes* (disconnection between partners of the net), diminished the number of innovation of the net's members: to the high presence of *structural holes* corresponded a low number of patents issued. The lack of relations between partners led to a reduced exchange of information, which made problematic, the access or simply the retrieval of new ideas necessary for the innovative process.

Another interesting fact was highlighted by the studies of Human and Provan (1997). The authors saw how the company's relational-structure of the network, influenced the results of the ION both in terms of organizational performances and of innovative outputs. Particularly, Human and Provan (*ibidem*) noticed how IONs with a non-centered type of government, were the one which mainly help the companies develop new lines of products. This happens because it supported the active participation of the companies to the exchange and the exploration of knowledge between competitors.

4.1.2 How innovation influences synergic relations inside the inter-organizational network

Inside inter-organizational networks, relations between synergic mechanisms, networking process and innovative outputs, appears bidirectional and reciprocal under specific conditions (Meeus and Faber, 2006). Gulati and Gargiullo (1999) for instance, noticed that in the formation of new

alliances between three different industrial sectors (new materials, cars industry and automation industry), the organizations that were more centered inside the network obtained the most positive collaborative results. A backing process would be generated: the most innovative companies improved their position inside the network (that is their centrality) and as a consequence, their possibility of participating in new inter-organizational collaboration increased.

According to Meeus and Faber's theory (2006), the influence of the innovative process on inter-organizational collaboration would be linked to two essential mechanisms: a mechanism of evaluation and feed-back regarding the performance, and a certain amount of rivalry inside the network that may bring the organizations to aim for a continuous improvement.

4.1.3 Innovative processes and ION's government teams

As mentioned on previous paragraphs, the ability to innovate and to find creative solutions to unusual problems, it's fundamental for the efficiency and the survival of the inter-organizational collaboration itself. Partnership between different companies requires to the people who represent them, a negotiation and often the ideation of original solutions which may coordinate and integrate additional information that weren't considerate by the organizations of the network at the beginning of the relational process, when the alliances and the agreements were being created. That because information of that type cannot be defined beforehand. Therefore the ruling team is asked to develop creative ideas or innovative solutions which in order to be realized requires the team's members: strong commitment and cognitive effort, effective communication skills and information sharing, wide knowledge and creative ideas (Keyton et al., 2008; Börner et al., 2010).The skills owned or developed by the team's members will enable them to solve different types of problems. Some of the problems concerning internal coordination and integration processes are very common in partnerships between companies (Denicolai, 2008; Denicolai and Cioccarelli, 2008).For instance we can mention:

• Problems concerning the integration and the adjustment of the different products or services provided by the companies in ION.

• The set-up and the organization of the common activities between different companies.

• Collaboration and coordination between the network's partners.

• Alteration in the organization's environment which may impact the accomplishment of the process that was the aim of the collaboration itself.

Innovative ideas and the support given to improve them are fundamental for the successful development of the inter-organizational collaboration, most of all, when they take place at the core of the group that rules the network itself. Support and improvement of innovative ideas become key factors in a wide range of situations such as: introducing or creating a shared informative system, elaborating procedures and regulations for the management of the orders between partner's companies, the establishment of inter-organizational project team, or again the ideation of a new product or service obtained thanks to the collaboration between the different companies in the network.

4.1.4 Group and Individual Innovation

According to the definition taken from Social and Organizational Psychology, innovation is: "*the introduction and the intentional application, within a role, a group or an organization, of ideas, process, products or procedures, which are new for the adoption unit, conceived to produce a significant benefit to the individual, the group or the society"*(West and Farr, 1990).

This definition highlights peculiar characteristics of innovation for instance: innovation is an intentional action which aims to create a benefit through the introduction and/or the application of a new item within a socio-organizational contest.

As mentioned before, one of the most important characteristic of innovation is its "novelty" aspect. This peculiar characteristic marks how a product, service, or process is new and unusual regarding to its insertion contest (Tidd, Bessant and Pavitt, 2001). Considered that, innovation as to deal with sociological and psychological aspects like perception, *frame of references* and cultural schemes that are used by people, groups and organizations to interpret whether and how an idea or concept has to be considered new compared to what is already known (Taatila, et al, 2006).

The innovative process that takes place in a group or an organization can be divided in 4 phases which are usually found in sequence; each phase is marked by a precise set of behaviors which are pursued by the people who work in it, in order to sustain the innovative process itself (Rank et al., 2004; Holman et al., 2005):

1. Idea Generation: is the phase linked to the creation of new and valuable ideas, employed for the improvement of the products and the process of the organization or the team.

2. Suggestion Making: is when suggestions and ideas are offered to the other members of the team.

3. Idea Promotion: is the phase concerning the promotion and the argumentation of one's proper ideas to the other team's members

4. Idea Implementation: the adoption and the implementation of the new ideas.

Holman et al (*ibidem*) have demonstrated the distinctions and the connections between the 4 phases. While the first phase is strongly related to intra-personal process, like one's orientation to learning and the level of problem-solving skills required by the task, the other phases seem to be related to social and inter-personal factors, such as the participation and the influence of the team's members on the decision-making process (Holman et al, 2005).

In small and medium organization especially, the effective creation and implementation of innovations and technical solutions runs often through the participation and collaboration of employees and managers to the renewal that is introduced by the innovative process. Not only the managers but also the employees can help pinpoint hypothetical dysfunctions in the productivity process and can actively contribute with their ideas and behavior to solve them.

Team-work is often the proposed strategy to increase creativity and innovation in the company. As it was previously highlighted, in order to answer efficiently to the market's requests, the entire organization has to take part to the changing process (West et al., 2004). The use of team-work within organizations is frequently connected to the introduction, in the same organizational contest, of technological and organizational innovations.

Different studies, from the one concerning socio-technical subjects to those dealing with virtual and dispersed team (Chmiel, 1999), have stressed how the team's member through their interactions and abilities are able to create the requirement needed for the socio-relational integration of the entire team, and as consequence , to develop and support innovation.
Organizational Psychology have described the influence that individual (for instance the worker's learning orientation, self-efficiency, role in the organization and how autonomously he/she can manage the tasks assigned) and group factors, have on creative problem-solving process in work contests (West and Anderson, 1996).

Cooperation, the group commitment (de Jong et al., 2004; Shalley and Gilson, 2004), as well as the mood felt towards innovation, (and particularly the dimension of "*safety in the participation*" and "*support for the innovation*") (Anderson and West, 1998) are some of the factors frequently connected both to higher group performances and organizational innovation.

4.1.5 Team's processes and Innovation

The Innovative process is therefore a composite result made up by the addiction of various factors which are found on different levels of analysis. Some of them, as stated before, are placed at an individual level (for example, problem-solving skills or the inner motivation to produce innovative results), some others instead, are placed at the working group level.

For instance, the creation of a new idea is certainly a manifestation of cognitive and motivational individual process, but at the same time, such individual processes occur and are activated only by the team's specific characteristics. The more the members of the group interact between them to exchange information and resources, the higher will be the probability for an individual cognitive system to be stimulated and to produce innovative ideas (West, Hirst, 2003).

Furthermore, interpersonal situations that are marked by trust, candor, and openness towards the partner's behavior, will help the team's member to feel free to propose their personal ideas, and at the same time to support or give feed-backs, even negative ones, to the others propositions. Teams that are characterized by a leadership that encourages members to participate in group activities, but also in open problem's discussions and in the integration of the different prospective and abilities of the team's member, will be the one to develop better performances even in terms of innovative results.

In this project are considered three major aspects related to the innovative behavior of the team's members: the trust given to the team, the leadership shared between team's members and the density of the communications network between the associate of the team. Whereas the first two concepts (trust and leadership) are located at a level which includes both group and the group's characteristic perceived at an individual level, the third concept results from the valuations that each member of the team gives of his/her communicative interaction with the team's colleagues, therefore it is located at group level only. Chan (1998) defines the first concept as *reference-shift consensus model,* that is to say, concept based on the consensus given to the valuations made by the members of the team with regard to a specific characteristic of the team itself. The last concept is defined, instead, as *dispersion model* (Chan, *ibidem*),that is where the concept at team level draw

its meaning from the dispersion of the valuations or of the characteristics of the members of the team itself (for example differences in the team related to the age of its members, and so on..).

4.1.6 Trust and innovation

The concept of trust has been described in economic and social science literature as "a psychological state comprehending the intent to be vulnerable on the basis of a positive expectation of the intention and the behavior of the other" (Rousseau et al., 1998; Kramer, 1999). With other terms, we can talk about trust only when the subject decides intentionally to take a risk or to share one of his resources, or again to expose himself to a loss (Coleman, 1990), in order to reach a goal for which is necessary the contribution of another person to whom the first subject held positive expectation (intended as a psychological state), and makes himself vulnerable trying to create an interdependence condition. Above of all, trust is a psychological state which, in the organizational contest, can ease several conducts suchlike: negotiation and conflict-solving (Zaheer et al. 1998), the diminishing of transitional and control costs of the resource's exchange at an intra and inter-organizational level (Williamson, 1985; Uzzi 1997), information sharing, and again, a cooperative behavior when dealing with situations of uncertainty and social dilemma (Uzzi, 1997; Kramer, 1999).

Literature on team and work groups, and particularly the one that relates the concept of trust to that of team performance or innovation, has highlighted the importance of trust at group level. Costa et al. (2001) have showed how trust, as a shared characteristic at team level, be an important factor associated to different team's outcomes like: Team Performance, Team Satisfaction Commitment and Relational Commitment. The perception of our own team's members as trustworthy and collaborative workers, willing to cooperate to reach the common goals, is an essential value needed to activate the safety environment necessary to improve the group's debate, and also to stimulate an open and direct confrontation on how to develop the team's task (Jhen, 1995). With a strong feeling of trust for the other members, divergence of opinions and conflict that may emerge in the realization of the tasks, will not be considered as critics to the self, but will be attributed to schemes of creative and constructive problem's solutions (Raes et al., 2006).

A general mood of trust between the members of the team it's also an important prerequisite able to influence the level of innovation of the entire group (West and Hirst, 2003), both directly, through the extent of autonomy and discretion that the team's member allowed themselves in execution of the group task, and indirectly, made by a higher level of support and collaboration amid the members while trying to find, valuate and develop new ways to accomplish the task.

H1: an individual perception of trust between team's members is positively associated to more frequent individual innovative behaviors in the dimensions of Idea Generation (H1a), Suggestion Making (H1b), Idea Promotion (H1c) and Idea Implementation (H1d).

H2: higher levels of trust between the group's members are more frequently associated to individual innovative behaviors in the dimensions of Idea Generation (H2a), Suggestion Making (H2b), Idea Promotion (H2c) and Idea Implementation (H3d), after the perception of trust in the team at the individual level as been controlled.

4.1.7 The team's communication network and its characteristics

As mentioned on previous paragraphs, social psychology and organizations studies have shown how teams (as specific examples of small social groups) can be employed as organizational unit able to process information and solve different problems in an innovative and efficient way (Hinsz, Tindale and Vollrath, 1997).

In order to achieve that purpose, it's essential for the members of the team to communicate between them to define and share aims and rules that will be used to coordinate each other, to solve conflicts and as a way of assimilation of the singular contribution provided by each member to the teamwork (Quaglino & Cortese, 2003; Sarchielli, 2003).

Discussion and conversation become the ways that allow the members of the team to exchange ideas and information and also to build and renew their cohesion, making them able to solve and face rivalry and hypothetical conflicts that may arouse while aiming to a certain purpose. Interaction and exchange of knowledge, can give to the team's members the possibility to share and reformulate their respective view of the task, and of the technical tools and resources needed to accomplish it; they can also define the team itself and the situation in which it operates (Depolo, 1998; Kozlowski et al., 2000).

Through communicational interchanges, team-mates develop an important condition of inter-subjectivity which forms what *social cognition* calls "representation or mental schemes, shared amid group's members" (Depolo, 1998): repeated interaction between the members of the team allows them, on the one side, to negotiate and level their respective perceptions on the basis of a shared converging point; on the other side, interactions, help the creation of information streams but also the exchange of knowledge and ideas, utilized in the connection and integration of the individual performances within the activities of the group.

The communication network inner to an ION's ruling team, emblematize a privileged way through which, businessmen and representatives of the partners companies, can have access to a common context where the interchange of important information and details, influences the individual behavior (Brass, Galaskiewicz, Greve and Tsai, 2004).

As it was previously described, researches that utilize *Social Network Perspective* for the analysis of teams and works groups, have highlighted how, within the team or work group, the position held by one of its member in the relational and exchange network, has an influence on the trend of his behaviors and perceptions.

Different studies witnessed the effects that a subject's centrality in the network has on his satisfaction for the work conducted in group (Shaw, 1964 in Speltini, Palmonari, 1999; Dean & Brass, 1985), on the access to the information owned by the group (Brass, 1985; Anderson, 2008), on his own identification with the organization (Jones et al., 2010) or on the effect that his suggestions (as a leader) produce on his subordinates (Sparrowe & Liden, 2005).

There are still few study projects which are focalized on the relation that the characteristics of the "whole network" or global network inner to the work team (Oh, Chung, Labianca, 2006; Brass et al., 2004) have on the performances and processes of the team itself.

In this study we will consider in particular, the network's density within the team. This index is one of the most utilized for the description of the characteristics of a global level network, and it's defined by Wasserman and Faust (1994) as the overall level of connection in a network.

According to Wasserman and Faust (1994) the density index based on matrix directed with values, would offer a thoroughly and reliable form of the intensity of the exchanges within the group, giving of them a measure of the concentration or average strength at network level in its entirety.

It is logical to expect that if the members of the group convey in a more frequent and inclusive way with each other, the probability that the different individual contributions, both in terms of supplying new ideas and in terms of supporting and implementing the one that are already shared among the group, will be more frequents. For this reason we can expect that:

H3: high levels of density in the communications network inner to the team are positively associated to high level in the behaviors of Idea Generation (H3a), Suggestion Making (H3b), Idea Promotion (H3c) and of Idea Implementation (H3d).

4.1.8 Shared Leadership and Innovation

Leadership is commonly thought as the influence that a member of a group exercise on the other member's behavior in order to guide the team towards a specific target.

Studies on leadership are centered on what Bass (1985) defines as transformational or transitional leadership: the first typology is based on values, on long term goals and on the subordinate's motivations, that the leader will use as incentives to promote wellness, empowerment and more effective performances of the subordinates themselves. The second type of leadership is centered instead, on the exchange of significant resources (money, rewards, penalties etc.) between leaders and subordinates that enables the leader to motivate and influence his subordinate towards the realization of a specific task (Speltini & Palmonari, 1999).

Both constructions utilizes a vertical approach to leadership, that is, they are concentrated on an asymmetric relation that connects a leader with a strong power of influence to a subordinate with less power of influence. In the case of shared leadership the ability to influence is not exercised by a specific member of the group, but it's expressed through an interactive influence that the members mutually exercise on each other, in order to reach the common targets (Pearce & Conger, 2003).

This last type of leadership was mostly studied in teams with an high level of autonomy that had to develop high intensity tasks and use of knowledge, in dynamic and complex contests which consider an high interdependency level between the members of the team (Yukl, 1998):for example a team formed by engineers belonging to different organizations, geographically displaced, that are asked to develop new software through virtual teams collaboration, or ,again, a team of businessmen that have to create new commerce in markets or productive sectors characterized by high dynamicity and environmental instability (Ensley & Pearce, 2000; Ensley, et al., 2006). Shared Leadership within teams would ease those proactive behaviors that are useful to reach the common targets such as: anticipation of the others member's informational needs, the activation and the facilitation of the information's stream, the reorganization and readjustment of the work strategies (Watson, Michael & Sharp, 1991), but also, a better interaction and participation of significant between the members of the team and the integration of the knowledge and the ability within the group (Levin & Cross, 2004).The awareness of an high level of participation of the workers, to the communication and decision-making processes of the organization, it's an important factor which may foreseen the number of patents that will be issued and the efficiency of the innovation produced by the organization itself. In particular, Gibson & Gibbs (2006) highlighted how shared leadership has a positive influence on the coordination between the members of the

team in the execution of the tasks assigned and in the adaptation of their own activity to the changes of the environment.

According to Pearce (1997) *Shared Leadership* would have heavy repercussions on the team's collaboration and innovative processes: that type of leadership would ease those processes of socialization and interaction between the group's members that are necessary to improve the cognitive and relational cohesion of the group itself (Ensley et al., 2000). Cohesion which would be fundamental to face in a new, and often, more efficient way, the problems and the complex requirements that the team will have to deal with.

H4: individual perception of the management of the team operated through Shared Leadership is positively connected to more frequent individual innovative behaviors in the dimensions of Idea Generation (H4a), Suggestion Making (H4b), Idea Promotion (H4c) and Idea Implementation (H4d).

H5: high levels of Shared Leadership in the team are associated to more frequents individual innovative behaviors in the dimensions of Idea Generation (H5a), Suggestion Making (H5b), Idea Promotion (H5c) and Idea Implementation (H5d), but only when the perception of Shared Leadership at an individual level are controlled.

4.2 The theoretical multilevel model

In order to test all the hypothesis, a multilevel approach has been chosen. In this way it was possible to evaluate and express, on several levels, the presumed relations between dependent variables, that is, the different typologies of individual innovative behaviors, and the independent variables that are the target of the study.

These last variables, in particular, have been considered both at individual level (trust in the team or shared leadership perceived by every member of the team) and at team level (the shared perception of trust and of shared leadership and the density of the communication network amid the team mates).

To facilitate the analysis of possible "composition effect", it has been chosen to divide the theoretical model into two sub-models, both multilevel, but easier to understand and prove. In particular, to highlight the level at which trust in the team and shared leadership would influence

individual behavior and the magnitude of these influences, it was necessary to test these two independent variables, in two separate models.

Hypothesis H3a, H3b, H3c, H3d, which are connected to the influence that the density of the communication network has on innovative behaviors have been checked twice as they appear included in both models.

As it is possible to notice from figure 4.1 and Figure 4.2, each model takes in consideration the two constructions of Trust in the Team and Shared Leadership separately. This type of articulation simplifies the verifying procedure of the hypothesis and is also able to show in a clear and precise way to which level (of individual perception and/or shared perception between the members of the team) each construction displays its influence on the 4 types of *Individual Innovative Behaviors* considered at an individual level.

For the models both, it has always been considered and verified the cross-level effect of the intra-team network's density on the behaviors corresponding to *Idea Generation*, *Suggestion Making*, *Idea Promotion* and *Idea Implementation*, all studied at individual level.
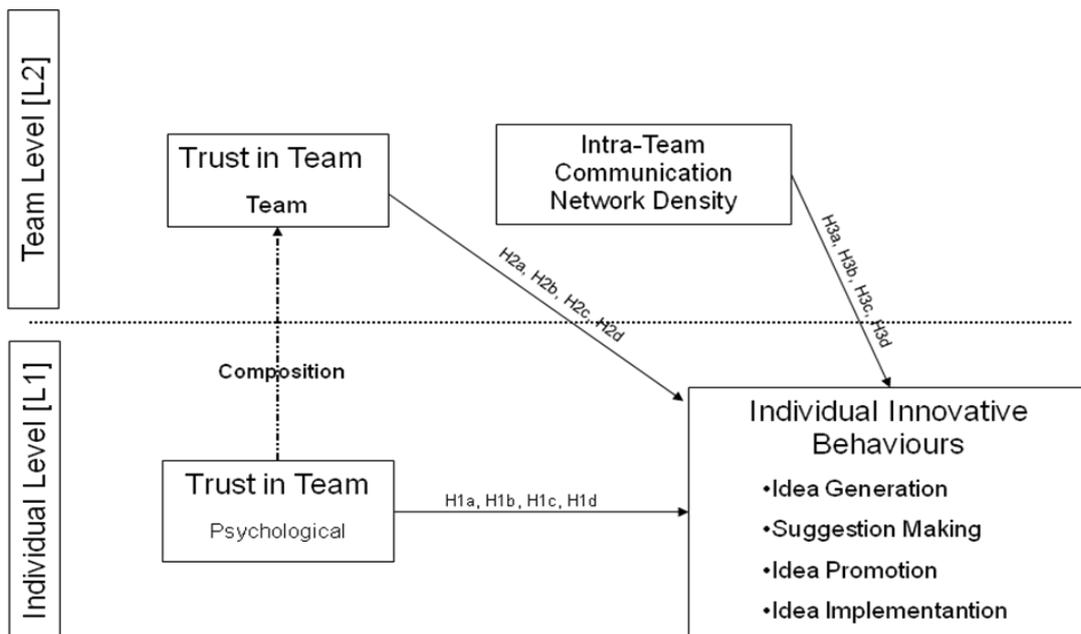

Figure 4.1: Model 1 – Trust in team and Intra-team Communication Network Density on Individual Innovative Behaviors
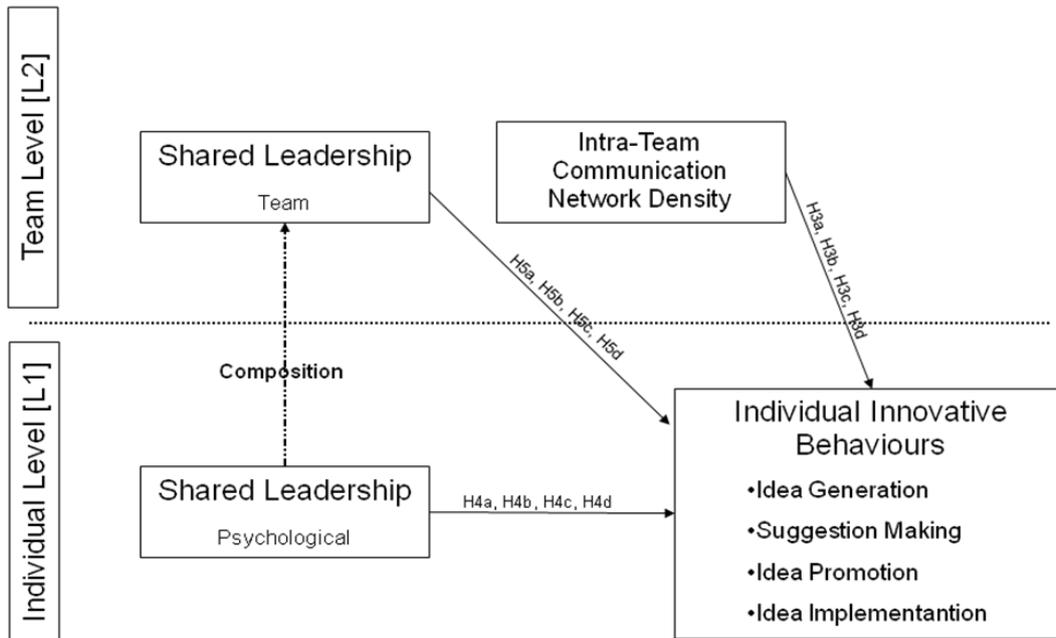
Figure 4.2: Model 2 – Shared Leadership and Intra-team Communication Network Density on Individual Innovative Behaviors

4.3 The Method

4.3.1 The Procedure

Through a specific list, indicating the winners of "Reti 2010", given by Regione Emilia(http://imprese.regione.emilia-romagna.it/Finanziamenti/industria-artigianato-cooperazione-servizi/progetti-per-reti-di-imprese), it was possible to pinpoint 276 nets between companies, and among those to specify 143 nets that, for logistic and economic reasons, were easily reachable by the researcher's group. It has been possible to have a telephone and/or e-mail contact with 98 of these nets and to the representative-coordinator of the net were explained the modality, terms and costs of the participation in the study.

The procedure followed to drive the data was divided in two consecutive phases: in the first one, a semi-structured interview was administer to the representative-coordinator of the companies' network, thanks to which it was possible to gain information about the governance, structural, and organizational characteristics of the net, other than data referring to the composition of the net and of the governing team. The driven information were used to arrange a multiple choice questionnaire which was subsequently administered to the entire governing team of each network. The aim of the questionnaire was that of gaining information and data regarding the characteristics and the

individual perceptions of the entrepreneurs and the managers of the networks of companies; according to their availability, it was possible to administer the survey in two ways: either via e-mail, together with a specific kit for the compiling, or in the presence of a researcher that had administer the survey to the members of the team, at the end of one of their meetings.

With this procedure, 57 interviews, to coordinators and representatives of the net, have been carried out; the interviews identified 53 nets governed with a Shared governance system and therefore they were included in the second phase of the collection of data. Among the 53 companies that were contacted, 35 with the communal the agreement of all the members of the ruling team, gave their consensus to proceed with the second phase of the study.

A total number of 143 questionnaires have been administered, and of those, 104 (for 30 governing team) have been correctly filled in and sent back with a returning ratio of 72,72%. The average returning ratio of each team was 83,08%; however 2 groups and their related surveys, have been excluded due to the low ratio of answers that would not permit a suitable representation and reliability of the index at team level.

4.3.2 The Sample

The participants of the study were 101 workers (81 entrepreneurs, 17 managers and 3 professionals) divided in 28 companies' nets with legal and operative branch in Emilia-Romagna (north east of Italy). These companies have participated in a public regional announcement called "Reti 2010", which was directed to financially support the creation of a companies' network aiming to realize innovative products and services.

Participants were 79,2% males and 20,8% females, with an average age of 46,89 (SD=9,746).For what concerns the education, the highest scholar degree was for 48,4% of the participants a high school degree, for the 46,6% a college degree, a master or PhD and for the remaining 5% of the participants it was a middle school degree or a certificate of attendance to professional courses. The 28 teams were formed by an average of 5,30 members (SD = 2,23: Min.= 3; Max.= 9) and lasted for an average of 26,81 months (SD= 19,521).

4.3.4 Measures

In order to develop and rearrange the survey's scales for the Italian contest, all the items of the questionnaire have been translated and retro-translated by two English mother-tongue translators. For every scale, 4 independent judges have analyzed the validity of the content of each item, while

the feedbacks of an experimental group of 10 businessmen were employed to validate and to improve the efficacy of the items of the survey before it was administered.

Individual Level's measures

Control Variables

In order to test the model, it was considered as a control variable the role held by each member of the ION's governing team, in his own organization. This information was driven from the interview made to the representative-coordinator of the company's network, to whom was asked, with a specific question, to identify, for each member of the network, the role held, within the hierarchical-functional structure, in his/her organization. The roles have subsequently been categorized and chosen on a nominal scale divided in 3 self-excluding values: *1: entrepreneurs*; 2: *middle manager*; 3: *professional or operational role*.

Individual Innovative Behaviors

The measure of innovative behaviors was based on Holman et al. scale (2005, translated and validated in Italian by Massei & Zappalà (2009). It is composed by 12 items divided in 4 minor scales, one for each phase of the innovative process:

> Idea Generation, made up by 3 items (α =.92) (for example: "*Have you found new ways of doing things?*")
>
> Suggestion Making , made up by 3 items (α=.95) (for example: "*Has he given suggestion or new ideas to the others?*")
>
> Idea Promotion, composed by 3 items (α=.92) (for example: "*Have you look for the other's support to promote your ideas?*")
>
> Idea Implementation, composed by 3 items (α=.96) (for example: "*The suggestions you made of doing things in a different way, have been adopted?*").

Every participant will have to express his evaluation for each item on a scale from 0 "*never*" to 5 "*always*".

Trust in Team

The Trust in Team was measured with 8 items (α=.92) concerning the perception of trust between team's members driven from the "Trust in Team" scale developed by Costa et al.(2001) and validated by Costa & Anderson (2010). Each participant evaluated the proposed statements on a scale from 1 (*completely disagree*) to 5 (*completely agree*). An example of item is "*When we have*

to make a decision, we assay the opinions of each member of the group", or "*In this team we frankly discuss the problems we are dealing with*".

Shared Leadership

The perception of Shared Leadership within the team, was measured with the survey by Muethel et al.(2009) that is composed by 7 statements (α=.90) to which the participants have answered using a Likert scale of 5 points (from 1 "*completely disagree*" to 5 "*completely agree*").In particular, the questionnaire is composed by 6 items referring to supportive behaviors and mutual adaptation of the members in the group (such as: "*All the members of the team offer advices to the others to improve the team's performances*") and 1 item referred to the perception of realization and management of Shared Leadership, made by the contribution of the members of the team (for example: "*The team counts on his members contribution to coordinate itself and reach his goals*").

Measures at team level

Trust in team

The measure of Trust in team at team level was obtained through the aggregation of the results driven from the answers given to the 8 items of the "Trust in Team" scale developed by Costa et al. (2001) and validated by Costa & Anderson (2010).Each participant evaluated the proposed statements on a scale from 1 (*completely disagree*) to 5 (*completely agree*). Trust in Team was made operational through the aggregation of the marks gained by the team mates using a "*referent-shift consensus*" composition's model (Chan 1998).

Shared Leadership

The construction of Shared Leadership was obtained through the aggregation of the individual marks driven from the Muethel et al. scale (2009). The scale was composed by 7 items on a 5 point Likert scale (from 1 "*completely disagree*" to 5 "*completely agree*"). The Crombach's alpha was .94. The Shared Leadership was made operational through the aggregation of the marks gained by the team-mates using a "*referent-shift consensus*" composition's model (Chan 1998).

Team's communication network density

To measure the communication network, was used an adapted version Cummings and Cross (2003) scale translated and back-translated in Italian, was used to each participant was given a list containing all the team member's names. This list was obtained by a preliminary interview

administered to the legal representative of the companies' network. Each member of the network's government team, indicated how frequently he exchanged different types of communicative interactions with a particular person, on a 5 point scale (0: *never*, 1: *monthly*, 2: *weekly*, 3: *every day*, 4: *more than once a day*). The scale was composed by 4 items, one for each type of communicative interaction (face to face, via e-mails, telephone, and through social media). Following, is proposed an example of item: "How often do you exchange face to face communication with:

1 A. Arora _____

2 J. Cohen _____

3 N. Dewalt _____

4 E. Devereux _____

5 A. Eklund _____

Data for each type of communication observed in each group were entered in the four matrix corresponding to the type of communication elaborated through Netminer 3 software. These four matrix, were merged, through the MERGE function, in the final matrix. The sub-function MAX selected for each cell of the four matrix, the highest communication frequency value and puts it in the final matrix. In this way, it was possible to recreate a directed matrix of adjacency *person*person* (or NxN), in which was indicated highest communication frequency for every couple of team members considering the 4 types of communications (Krackhardt, 1987; Krackhardt & Kilduff, 2002). The matrix referred to the communicative interaction person*person was, then, used to analyze the global structure of the communication network and to acquire, through the software Unicet 6 (Borgatti, Everett & Freeman, 1999) , the density index (Scott, 1997) proper to each team.

4.4 Preliminary Analysis

4.4.1 Descriptive analysis and data aggregation

The descriptive statistics and of distribution of the variables which were the aim of the study, are extensively showed in table 4.1.

Table 4.1: Descriptive Statistics

Dependent Variable_Individual Level

Variable	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Idea_Generation	101	.00	6.00	2.1716	1.47469	.736	.240	-.264	.476
Suggestion_Making	101	.00	6.00	2.2574	1.57472	.883	.240	-.261	.476
Idea_Promotion	101	.00	6.00	1.9868	1.57121	.989	.240	.257	.476
Idea_Implementation	101	.00	6.00	2.0660	1.42128	.904	.240	.350	.476

Independent Variable_Individual Level

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Individual Level									
Trust in Team_Psychological	101	1.25	5.00	3.8465	.74705	-.332	.240	.037	.476
Shared_Leadership__Psychological	101	1.00	5.00	3.1733	.77564	.022	.240	-.041	.476
Team Level									
Trust in Team_Team	28	2.75	4.92	3.8842	.56418	-.247	.441	-.506	.858
Shared_Leadership_Team	28	2.06	4.42	3.1969	.59235	.168	.441	-.327	.858
Communication Network Density_Team	28	.66	4.25	1.7900	1.00479	1.202	.441	.742	.858

Control Variable

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Role inside the own Organization*	101	1	3	1.23	.487	2.076	.240	3.652	.476

*Categorical variables; value: 1 = entrepreneur; 2 = middle manager; 3 = professional or operational role.

Further information regarding the averages and the correlations between variables divided by theoretical sub-model, are displayed in table 4.2 and 4.3. Individual innovative behaviors show comparable averages (even though a little higher), in respect to the ones presented in other studies utilizing the same scale (Holman et al., 2005);in particular is possible to observe how in this study, the standard deviation (SD) of these behaviors is double in respect of that showed by Holman et al. (*ibidem*).

Table 4.2: Model 1's Descriptive Statistics and Correlations

Variable	Mean	s.d.	1	2	3	4	5
Individual-level measures							
1. Idea Generation	2.17	1.47					
2. Suggestion Making	2.26	1.57	.817**				
3. Idea Promotion	1.99	1.57	.701**	.830**			
4. Idea Implementation	2.07	1.42	.706**	.813**	.662**		
5. Firm Role (categorical variable)	-	-	.098	.079	-.027	.156	
6. Trust in Team_Psychological	3.85	.75	.036	-.070	.112	.072	-.099
Team-level measures							
1. Trust in Team_Team	3.88	.56					
2. Communication Network Density	1.80	1.00	.110				
N= 101 (Unaggregate); N = 28 (Aggregate); p < .05; p < .001**.*							

Table 4.3: Model 2's Descriptive Statistics and Correlations

Variable	Mean	s.d.	1	2	3	4	5
Individual-level measures							
1. Idea Generation	2.17	1.47					
2. Suggestion Making	2.26	1.57	.817**				
3. Idea Promotion	1.99	1.57	.701**	.830**			
4. Idea Implementation	2.07	1.42	.706**	.813**	.662**		
5. Firm Role (categorical variable)	-	-	.098	.079	-.027	.156	
6. Shared Leadership_Psychological	3.17	0.78	.291**	.183	.105	.346**	-.083
Team-level measures							
1. Shared Leadership_Team	3.17	0.59					
2. Communication Network Density	1.80	1.00	.285				
N= 101 (Unaggregate); N = 28 (Aggregate); p < .05*; p < .001**.							

This fact leads to the conclusion that, considering a low-medium level of these behaviors, the variability of their frequency within a ION's governing team, is actually more accentuated and influenced by contextual factors. The 4 typology of behaviors are highly correlated to one another (Holman et al., 2005). For what concern the independent variables, the values of the average of trust in team, communication network density and shared leadership, result in line with the previous studies (Costa, 2003; Costa and Anderson, 2011; Zohar and Tenne-Gazit, 2008; Muethl et al, 2009); the values of the standard deviation for the constructions of trust and leadership are about half of the standard deviation showed in the referential studies: probably, this has to be linked to the different number of participants, in terms of people and groups, that in this research was lower . For what concerns the correlations, only the shared leadership at individual level (Table 8.3) shows positive correlations with the behaviors of idea generation (r = .291, p<.001) and idea implementation (r = .346, p<.001).

Prior to the union of the individual marks at team level, it was calculated and verified the "with-in group agreement". The Interrater Agreeement Index (rwg) (James et al., 1993) was calculated on the scores of Trust in Team (rwg = .86, rwg median = .92, rwg range = .56) and of Shared Leadership (rwg = .82, rwg median = .87, rwg range = .68). The majority of the groups have showed, at team level, a high grade of agreement on both measures. The data aggregation, as suggested by several researchers (Janz, Colquitt, & Noe, 1997), was justified by the fact that the median agreement index was higher than the standard margin of .70: the consequents results are thus comparable to those observed in other studies, on teams and work groups which have used the same margin (Naumann and Bennett, 2000; Costa et al., 2001).

In order to estimate the grade of reliability and coherence of the averages obtained through the data aggregation at group level, the index of Interclass Correlation (ICC1 e ICC 2) (James, 1982; James

et al., 1984) were calculated. The results of the ICC1 and ICC2 were calculated on non-aggregated data, with the use of group affiliation as independent variable. The indexes were of 0.29 and 0.62 for the shared leadership scale, and of 0.41 and 0.47 for the trust in team scale. Both the scales showed a significant variance between the groups: for shared leadership, $F_{(27, 73)} = 2.647$, $p = .001$; and for trust in team, $F_{(27, 73)} = 3.772$, $p < .001$. The results revealed adequate measures of intra-group homogeneity and inter-groups variance, which justified the aggregation of the two scales at team level and allowed to proceed with the verification of the cross-level hypotheses.

4.5 Cross-level hypotheses testing

In order to verify the cross-level hypotheses included in both theoretical models, were used 2 different hierarchical linear models, each one composed by 3 different regression equations needed to: 1) estimate the variance proportion of the dependent variable which was common between the groups, and of the dependent variable associated to the single person within his group (Model A); 2) estimate the effects caused by the independent variables, at individual level, on the dependent variable (Model B); 3) estimate the effects caused by the independent variables, at team level, on the dependent variable, after checking the effects of the independent variables at individual level (Model C). Both models were tested on the 4 typologies of Individual Innovative Behaviors for a total number of 8 multilevel models. Through the Mixed Model function of the Spss 19 software was possible to test each linear hierarchic model.

In order to verify the presence of a systematic variance, it was calculated a model without predictive factors (a null model), which using a method similar to that of the one way analysis of variance (ANOVA), allowed to estimate the variance in is components within and between groups. The formula used to calculate such valuation was the same for the 4 typology of Individual Innovative Behaviors.

As example we present the procedure used to calculate the scale for Idea Generation of which results are displayed in table 4.4:

$$[\text{Level-1}] \quad \text{IdeaGeneration}_{ij} = {}_\beta 0j + r_{ij}$$

$$[\text{Level-2}] \quad {}_\beta 0j = \gamma 00 + U_0j$$

where:

${}_\beta 0j$ = average in Idea Generation for group j
$\gamma 00$ = latest average in Idea Generation
Variance (r_{ij}) = variance of Idea Generation within groups
Variance (U_0j) = variance of Idea Generation between groups

Table 8.4: Results of multiple Hierarchical Regression Analysis for Idea Generation as dependent variables and Trust in Team and Communication Network Density as independent variables (Theoretical Model 1)

	Idea Generation		
Predictors	Model A	Model B	Model C
Fixed coefficents	Beta	Beta	Beta
Individual Level			
Intercept	2.14 **	3.39 *	0.627
[Firm_Role=Entrepreneur]		-1.06	-0.925
[Firm_Role=Middle Manager]		-0.72	-0.579
[Firm_Role=Prof./Oper. Role]		0[a]	0[a]
Trust in Team_Psychological		-0.07	-0.374
Team Level			
Trust in Team_Team			0.755
Communication Network Density			0.510*
Random coefficients	A	Δ (A - B)	Δ (B - C)
With-In group variation	1.511	0.014	0.032
Wald Z Residuals	6.049**	5.873**	6.012**
Between group variation	0.707	-0.094	0.294
Wald Z Intercept [subject = Group]	2.176 *	2.160 *	1.990 *
-2 Restricted Log Likelihood	355.549	353.032	344.091
Δ Log-Likelihood (d.f.)		2.518	8.941
		(d.f. = 3)	(d.f. = 2)*

*Notes: N = 101 (Unaggregate). N = 28 (Aggregate). * = p < .05; ** = p < .01.*
[a]This parameter is set to zero because it is redundant.

The values obtained from this first model, were then utilized to calculate the *Intraclass Correlation Coefficent* (ICC) which represents the percentage of the dependent variable that can be considered as deriving from differences between groups, and it can be calculated using the following equation: $ICC = \tau_{00} / \tau_{00} + \sigma^2$ where τ_{00} is the variance between groups and $\sigma2$ is the variance withingroups both considered in the dependent variable. The value of ICCs shows that about the 32% [0.707/(0.707 + 1.511) = 0.707/2.218 = 0.318 * 100 = 31.8%] of variance of the Idea

Generation's behavior, the 30% of that of the Suggestion Making ones, the 30% of the variance of the Idea Promotion's behavior and the 22% of those of Idea Implementation, were identified as variance between groups. Both the intra-groups variance (Residual Parameters), and the intercept of the regression's line of the model realized without predictive factors (Model A), prove to be significant at the Wald test in all the 4 dimensions of Individual Innovative Behaviors.

Has sown on the result's chart xyz, the use of a multilevel model for the testing of the theoretical hypothesis was justified by both the presence of an important quota of variance within groups that had still to be explained (see results of Wald's test Z [Residuals], for Model A), and the fact that the intercept of the regression line varied significantly among the participant's groups (see results of Wald test Z Intercept [subject = Group], for Model A) (Heck et al, 2010). As follows will be described the procedure used to test the hypothesis in both sub-models. Subsequently, will be reported only the results of the analysis and their interpretation as summary. To know the details of the results of each sub-model is possible to refer to the charts in the following paragraphs (Table 4.5 and 4.6).

4.5.1 Procedure used to test the cross-level hypothesis

In order to explain the procedure used to test the cross-level hypothesis will be described the example applied to test the connections between Trust in Team (at individual and team level), the communications network density and the frequency of the Idea Generation's behavior. Such procedure was followed to test both the hypothesis that see the connection of the precedents predictive factors with the others Individual Innovative Behaviors (Suggestion Making, Idea Promotion, Idea Implementation), and for the model that uses Shared Leadership as predictive factors (at individual and team level), of which results will be described in the following paragraph.

After the examination and the evaluation of the variance's components of the dependent variable through the null model (the one without predictive factors), it was pursued a regression analysis in order to appraise the random coefficients and to verify if it were present a significant variance in the values of the intercept at the predictive factor's level at individual level (L1). Specifically, if the perception of trust in team and the role held within one's own group was linked to the frequency of Idea Generation's behavior at the individual level.

The formula used to calculate the regression's random coefficients is the following:

[Level-1] IdeaGeneration$_{ij}$ = $_\beta$0j + $_\beta$1j (Firm Role) ij + $_\beta$2j (Trust in Team_Psychological)ij + rij

[Level-2] $_\beta$0j= Ɣ00 + U0j

          $_\beta$1j= Ɣ10 + U1j

          $_\beta$2j= Ɣ20 + U2j

where:

          Ɣ00 = average of the intercept between groups

          Ɣ10 = average of the slopes between groups (control- Firm Role)

          Ɣ20 = average of the slopes between groups (Hypothesis H1a - Trust in Team Psychological)

          Variance (rij) = σ ^{2} = Level-1 residual variance

          Variance (U0j) = τ $_{00}$ = intercept's variance

          Variance (U1j) = τ 11 = variance in slopes

          Variance (U2j) = τ 22 = variance in slopes

The result of the regression's analysis shows that, in spite of what was expected from hypothesis H1a, the perception of Trust in Team ($_\beta$2j = -.007, p = .751) and the role held within the organization (control variables) are not associated to the frequency of the Idea Generation's behavior.

The reduction of the variance explained in the model results to be very small both between groups and within groups, respectively: 1,4% within groups and -9,4% between groups. The negative result of the R² between groups can be explained by the fact that the null model without predictive factors might have a less accurate value of the variance (Heck et al., 2010). This condition, happens mostly in two circumstances: when an individual variable is sampled through a multilevel sampling process, where the variance between groups is not present at global level; and when we have the same typology of participants within the groups (for instance male and female or businessmen and managers), therefore there can be less variation between groups then it was expected by the use of a random sample, and this also, may cause a negative variance (Hox, 2002).

Because of the complexity related to the acquisition of a perfectly balanced sample in correlation studies and the small dimension of the sample taken in consideration (mainly composed by

managers), it is highly probable and plausible that the negative variation of the R^2 between groups is linked to the second type of circumstances.

The fit of the model at level1 (Model B) in effect, doesn't produce significant alterations regarding the R^2 of the null model (Model A): the difference between the values of 2 Restricted Log Likelihood (Δ Log-Likelihood = 2.518) with 3 degrees of freedom, does not appear to be statistically significant in the χ^2 testing. However, the Wald Z test within groups (Wald Z residual =5.873, p= .000) and between groups (Wald Z Intercept [subject = Group] = 2.160, p = 0.016), reveal the presence of an important variance of the Idea Generation's behaviors that must be explained both within and between groups. This data gives us the authority to introduce additional predictive factors that can explain the residual variation of the intercept's values.

In the third regression model, the one with the intercept as a result, we have verified if the Idea Generation's behavior were linked to the independent variables at team level (trust in team, aggregated at team level, and density of the team's communications network).

The equation used for the testing of this third model is:

[Livel-1] Idea Generation ij = $_\beta$0j + $_\beta$1j (Firm Role) ij + $_\beta$2j (Trust in Team Psychological)ij + rij

[Level-2] $_\beta$0j= Ɣ00 + Ɣ01 (Trust in Team_Team)j + Ɣ02 (Density)j + U0j

$\quad\quad$ $_\beta$1j= Ɣ10 + U1j

$\quad\quad$ $_\beta$2j= Ɣ20 + U2j

where :

$\quad\quad$ Ɣ00 = intercept at Level-2

$\quad\quad$ Ɣ01 = slopes at Level-2 (Hypothesis H2a - Trust in Team_Team)

$\quad\quad$ Ɣ02 = slopes at Level-2 (Hypotesis H3a - Density)

$\quad\quad$ Ɣ10 = slopes' average (of the group)

$\quad\quad$ Ɣ20 = slopes' average (of the group)

$\quad\quad$ Variance (U0j) = τ_{00} = variance of the intercept

$\quad\quad$ Variance (U1j) = $\tau 11$ = variance in the slopes

$\quad\quad$ Variance (U2j) = $\tau 22$ = variance in the slopes

The introduction of predictive factors at team level has brought a significant improvement to the model's own fit: the difference between the *2 Restricted Log Likelihood* of Model B and that of Model C with 2 degrees of freedom, was *Δ Log-Likelihood* = 8.941, p< .05.

The foreseen cross-level effects are immediately distinguishable from the observation of the relations between the variables: whereas Trust in Team aggregated at group level doesn't seem to have significant effects on the frequency of Idea Generation's behaviors ($\gamma01$ = .755, p = .081) disproving the H2a hypothesis, the density of the communications network has instead a positive effect on the frequency of the above mentioned behaviors ($\gamma02$ = .510, p = .026) has predicted in the hypothesis H3a. In particular, the R² between Model B and Model C indicates that the introductions of the variables at group level, and specifically in the communication network's density, explain about the 29,4% on the intercept variance ($_\beta0j$) between groups and the 3,2% of the variance within groups.This makes us consider that, after having checked the effects of the variables at individual level, the 30% of the differences in the Idea Generation's behavior within the weighted average, can be linked to the group's communications network density. In the end, the results of the Wald test within groups (Wald Z residual = 6.011, p= .000) and between groups (Wald Z Intercept [subject = Group] = 1.991, p = .024) suggest that there is still a significant quota of variance between and within groups that remains unexplained by the predictive factors of the model, which might be taken in consideration in further studies.

4.6 Results

The following results are reported according to the theoretical model to which they belong. For further information regarding the index, the fits and the variation quota (inter and intra groups) explained by the hierarchical linear models previously created, please refer to table 4.5 for the first theoretical model and 4.6 for the second one.

Results of Model 1 - Trust in Team and Intra-Team Communication Density on Individual Innovative Behaviors

The results of the Idea Generation's analysis were considered in the previous paragraph. The Suggestion Making behaviors, contrary to what was expected from the H1b and H2b hypothesis, do not result significantly influenced neither from the Trust in Team perceived at individual level ($_\beta2j$ = -.268, p = .232), nor the Trust in Team aggregated at group level ($\gamma01$ = .458, p = .291).

As previewed from the H3b hypothesis, the communications network density of the team results significantly associated ($\gamma 02$ = .697, p = .003) to the frequency of the Suggestion Making behaviors: in particular the 45,7% of the variance of these behaviors between the groups taken as samples, seems to be explained by the value of the network's density.

The Idea Promotion's behaviors are not influenced by the trust in team perceived at individual level ($_\beta 2j$ = -.425, p = .054) or aggregated at team level ($\gamma 01$ = .559, p = .203): contrary to what was expected, hypothesis H1c and H2c are not confirmed.

In accordance to hypothesis H3c, the communications network density of the team is significantly associated ($\gamma 02$ = .582, p = .013) to the frequency of the Idea Promotion's behaviors.

It is important to notice that in the model at group level, the trust in team at individual level is significantly connected to the behavior of Idea Promotion ($_\beta 2j$ = -.684, p = .011), which is the contrary to what was predicted by the hypothesis H1c. Approximately the 33,7% of the variance of the Idea <promotion's behaviors between groups, is explained by the perception of trust at individual level and density of the communications network at team level.

The frequency of the behaviors connected to Idea Implementation is not influenced by the trust in team perceived at individual level ($_\beta 2j$ = .183, p = .364) or aggregated at team level ($\gamma 01$ =-.166, p = .663): therefore the hypothesis H1d and H2d are not confirmed.

A meaningful result concerns those who held the position of entrepreneur within their own company: such role has a negative influence on the frequency of the Idea Implementation's behaviors ($_\beta 1j$ = -1.864, p = .020). As expected from hypothesis H3d, the communications network density of the team is positively associated ($\gamma 02$ = .575, p= .003) to the frequency of the Idea Implementation's behaviors. In particular, density of the communications network seems to explain the 84,9% of the intercept's variation between groups.

Table 4.5: Results of multiple Hierarchical Regression Analysis for Individual Innovative Behaviours as dependent variables and Trust in Team and Communication Network Density as independent variables (Theoretical Model 1)

	Idea Generation			Suggestion Making			Idea Promotion			Idea Implementation		
Predictors	Model A	Model B	Model C	Model A	Model B	Model C	Model A	Model B	Model C	Model A	Model B	Model C
Fixed coefficents	Beta	Beta/ɣ	Beta/ɣ	Beta	Beta/ɣ	Beta/ɣ	Beta	Beta/ɣ	Beta/ɣ	Beta	Beta/ɣ	Beta/ɣ
Individual Level												
Intercept	2.14 **	3.39 *	0.627	2.18 **	4.04 **	1.978	1.91**	4.040	1.492	2.024 **	3.01 **	2.84*
[Firm_Role=Entrepreneur]		-1.06	-0.925		-0.86	-0.817		-0.862	-0.063		-1.864 *	-1.825*
[Firm_Role=Middle Manager]		-0.72	-0.579		-0.70	-0.695		-0.699	-0.417		-1.592	-1.605
[Firm_Role=Prof./Oper. Role]		0ª	0ª		0ª	0ª		0ª	0ª		0ª	0ª
Trust in Team_Psychological		-0.07	-0.374		-0.27	-0.518		-0.269	-0.684*		0.183	0.148
Team Level												
Trust in Team_Team			0.755			0.458			0.560			-0.166
Communication Network Density			0.510*			0.698**			0.582*			0.575*
Random coefficients	A	Δ (A - B)	Δ (B - C)	A	Δ (A - B)	Δ (B - C)	A	Δ (A - B)	Δ (B - C)	A	Δ (A - B)	Δ (B - C)
With-In group variation	1.511	0.014	0.032	1.737	0.014	0.019	1.676	0.032	0.018	1.574	0.036	-0.014
Wald Z Residuals	6.049**	5.873**	6.012**	6.130**	5.934**	6.034**	6.207**	6.013**	6.086**	6.141**	6.027**	6.070**
Between group variation	0.707	-0.094	0.294	0.738	-0.087	0.457	0.726	-0.077	0.337	0.448	0.012	0.849
Wald Z Intercept [subject = Group]	2.176 *	2.160 *	1.990 *	2.189**	2.140 *	1.661 *	2.314 *	2.264 *	1.942 *	1.817*	1.798*	0.446
-2 Restricted Log Likelihood	355.549	353.032	344.091	367.950	364.860	353.806	364.668	360.039	351.508	352.289	346.248	338.804
Δ Log-Likelihood (d.f.)		2.518	8.941		3.090	11.054		4.629	8.531		6.041	7.444
		(d.f. = 3)	(d.f. = 2)*		(d.f. = 3)	(d.f. = 2)**		(d.f. = 3)	(d.f. = 2)*		(d.f. = 3)	(d.f. = 2)*

*Notes: N = 101 (Unaggregate). N = 28 (Aggregate). * = p < .05; ** = p < .01.*

Model 2 - Shared Leadership and Intra-Team Communication Density on Individual Innovative Behaviors

As expected from hypothesis H4a, shared leadership perceived at individual level, is positively associated ($_\beta 2j$ = .416, p= .028) to the frequency of Idea Generation's behaviors; whereas the hypothesis H5a is not supported, in fact shared leadership aggregated at group level does not influence this type of behaviors ($\gamma 01$ = .747, p = .052). As anticipated from hypothesis H3a, the communications network density result to be positively associated to the frequency of Idea Generation's behaviors ($\gamma 02$ = .508, p = .025). Shared leadership at individual level and the density of the communications network at group level, explain respectively the 29,7% and the 40,1% of the differences in the individual behaviors of Idea Generation between groups. For what it concerns the behaviors related to the dimension Suggestion Making, the hypothesis H4b and H5b are not supported: shared leadership at individual ($_\beta 2j$ = .283, p = .184) and team ($\gamma 01$ = .345, p = .399) level, do not influence the variation frequency of the behavior of Suggestion Making. The communications network density of the team results to be significantly associated to Suggestion Making behaviors ($\gamma 02$ = .732, p = .004): therefore hypothesis H3b is supported. Approximately the 45,9% of the intercept's variability of the Suggestion Making behaviors between groups, is explicable through the density of the communications network of the team. The variation in the frequency of the Idea Promotion's behaviors results connected only to the density of the communications network ($_\beta 2j$ = .066, p = .742), whereas no associations are found with shared leadership at team ($\gamma 01$ = .602, p = .162) and group level ($\gamma 02$ = .530, p = .041). Hypothesis H3c is therefore confirmed; there is no confirmation for the hypothesis H4c and H5c. The communications network density explains the 49% of variations in Idea Promotion's behaviors between groups. In the end, for what it concerns the behaviors related to Idea Implementation, the role held within the organization is negatively associated both to the role of the entrepreneur ($_\beta 1j$ Entrepreneur =-2.084, p = .007) and to that of manager ($_\beta 1j$ Middle manager = -1.886, p = .021). At individual level, the perception of shared leadership is positively associated ($_\beta 2j$ = .619, p = .001) to Idea Implementation's behaviors, as estimated by the hypothesis H4d. Approximately the 45,9% of the variation between groups is explained from the variables at individual level. Test Wald Z of Model B, however, point out that the quota of the variation between groups is not significant: there is not enough variation between the groups to justify the introduction of predictive factors at team level. For further information, we report on chart 8.6 the results of the analysis that was automatically

executed by the software SPSS19,but that will not be taken in consideration in the next phase of results interpretation.

Table 4.6: Results of multiple Hierarchical Regression Analysis for Individual Innovative Behaviors as dependent variables and Shared Leadership and Communication Network Density as independent variables (Theoretical Model 2)

	Idea Generation			Suggestion Making			Idea Promotion			Idea Implementation		
Predictors	Model A	Model B	Model C	Model A	Model B	Model C	Model A	Model B	Model C	Model A	Model B	Model C[v]
Fixed coefficents	Beta	Beta/Ɣ	Beta/Ɣ	Beta	Beta/Ɣ	Beta/Ɣ	Beta	Beta/Ɣ	Beta/Ɣ	Beta	Beta/Ɣ	Beta/Ɣ
Individual Level												
Intercept	2.14 **	2.01*	-0.404	2.18 **	2.353*	0.606	1.91	2.081*	-0.016	2.024 **	2.062	0.846
[Firm_Role=Entrepreneur]		-1.261	-1.124		-1.116	-1.061		-0.337	-0.270		-2.085	-1.978*
[Firm_Role=Middle Manager]		-0.973	-0.763		-0.972	-0.899		-0.666	-0.538		-1.887	-1.747*
[Firm_Role=Prof./Oper. Role]		0ᵃ	0ᵃ		0ᵃ	0ᵃ		0ᵃ	0ᵃ		0ᵃ	0ᵃ
Shared Leadership_Psychological		0.416*	0.108		0.283	0.079		0.066	-0.184		0.619**	0.434*
Team Level												
Shared Leadership_Team			0.747			0.346			0.602			0.258
Communication Network Density			0.508*			0.732**			0.530*			0.514**
Random coefficients	A	Δ (A - B)	Δ (B - C)	A	Δ (A - B)	Δ (B - C)	A	Δ (A - B)	Δ (B - C)	A	Δ (A - B)	Δ (B - C)
With-In group variation	1.511	-0.017	0.036	1.737	-0.029	0.021	1.676	-0.045	0.000	1.574	0.079	0.012
Wald Z Residuals	6.049**	5.858**	6.036**	6.130**	5.975**	6.093**	6.207**	6.052**	6.127**	6.141**	6.044**	6.125**
Between group variation	0.707	0.297	0.401	0.738	0.165	0.459	0.726	0.099	0.490	0.448	0.459	0.550
Wald Z Intercept [subject = Group]	2.176 *	1.728 *	1.438	2.189**	1.906 *	1.447	2.314 *	2.077 *	1.872 *	1.817*	1.303	0.752
-2 Restricted Log Likelihood	355.549	349.034	339.112	367.950	364.575	354.378	364.668	363.684	356.638	352.289	335.687	328.544
Δ Log-Likelihood (d.f.)		6.515	9.922		3.375	10.197		0.984	7.046		16.602	7.143
		(d.f. = 3)	(d.f. = 2)*		(d.f. = 3)	(d.f. = 2)**		(d.f. = 3)	(d.f. = 2)*		(d.f. = 3)**	(d.f. = 2)*

Notes: N = 101 (Unaggregate). N = 28 A(ggregate). * = *p* < .05; ** = *p* < .01.

4.6 Discussion

The test of the two theoretical models confirmed the importance of the communications network density of the team as a factor which is able to give a positive influence to the 4 typologies of Individual Innovative Behaviors here considered.

In particular, frequent communications seem to offer to the team's members the possibility to exchange information, knowledge and ideas which are necessary to activate and incite the innovative process within the team, the communication's density also represents a measure of the inter-subjective process that permit group to create, negotiate and integrate the common definition of the task and the individual contributions that each member can bring to the team.

Such contributions can be found at different levels of the innovative process, not only through the addition of original ideas for the achievement of the goals, but also in terms of support, research of consensus and the implementation of the innovative ideas produced by the team's members.

The result achieved by the present study, seem to partially disprove the results of previous studies (Kratzer et al., 2004) that highlighted how the frequency of the communications between the members of the team, had a negative influence on the performance and creative results of the team itself.

Trust in team, contrary to what was expected, doesn't seem to play an important role on Individual Innovative Behaviors, both when it is considered as a individual perception of the reliability and cooperativeness of the other members of the group, and when it is considered as a quality perceived and shared at team level.

However, it is interesting to notice that only for the Idea Promotion's behaviors, trust in team perceived at individual level, has a negative influence on aforesaid behaviors: the more the members of the team are able to trust their team-mates, the less they will put search in the others consensus or support for their own ideas or propositions.

Shared Leadership is associated to innovative behaviors only at individual level: specifically, the perception of one's own group as governed by proactive contributions engaged by the entire team seems to favor the frequency of the innovative behaviors related to the dimension of Idea Generation.

These results seem to confirm what was proposed by West and Hirst (2003) and Kivimaki et al., (2000), that is, the possibility to have frequent interactions with the other members of the team in order to exchange information and resources, and the perception that the shared management of the communications between the team-mates enhances the probability that the people in the group will be stimulated both intellectually and motivationally, to produce and propose innovative ideas.

Despite the fact that the magnitude of the effects it is in line with what was expected by the research hypothesis (see Table 4.5 and Table 4.6), neither the trust in team nor the shared leadership considered at group level, were significant if associated to innovative behaviors. This conclusion may disprove the results driven by West and Anderson (1996), Anderson and West (1998) and also by Gilson and Shalley (2004); that is, a group characterized by support and participation favors innovation at team level.

An explication of such results might be linked to the small number of teams and participants that took part in the research, a number which as surely diminished the variance of the construction of trust in team and shared leadership at group level, and that as consequently influenced the multilevel statistic tests, which were based on the de-composition and analysis of the inter and intra team components of the aforesaid variance.

Furthermore, the variety and complexity of the tasks given to each team, and also the different stage of development and realization of the mentioned task that was reached by each group, might have influenced the testing of the research's hypothesis.

One of the most important limit of this study is found in the insufficient number of participants both in terms of teams and entrepreneurs or managers that have taken part in the research: the economic crisis that since long time, has been afflicting the small and medium sized Italian companies, is one of the principle causes that surely have had a negative influence on the participation ratio in the research.

However is desirable that future researches to focalize their attention only on specific theoretical construction so as to simplify the phases related to the questionnaire's submission and the collection of data in order to ease the collaboration of managers and entrepreneurs.

From the methodological point of view, another limit is surely linked to the use of self-report measures of the constructions aim of the study: objective measures of the frequency of the innovative behaviors obtained through observation, of the innovation produced by the team or of the interaction of the communication happened between each couple of members, may give indications that are surely more precise and less influenced by subjective factors of distortion such as social desirability, individual motivation and the participant's capacity of attention.

The correlation cross-section drawing adopted in this study, allows to have a first and important map of the group process and of the relations between variables within the ION' governing teams. However it is necessary to verify such relations also trough longitudinal drawings that are able to test the causal relations and the evolution of change/stability process and patterns between variables, trough times (Roe et al., 2012).

Merit of this study is that of having utilized a multilevel approach, which, explains the variability of the individual innovative behaviors, considering both individual (i.e., trust in team perceived at individual level) and group factors (i.e., trust in team shared at team level), and the aspects linked to the communicative interactions between members of the same team, measured and calculate according to the most recent methodology proposed by the SNA.

In this study it is shown and partially confirmed, even on IONs government teams, the importance that the social and group dimension plays on individual innovative behaviors.

In the study of innovation within inter-organizational network it is important to try to consider, other than the well known macro-organizational aspects (for instance the structure of the inter-organizational collaboration's network), the micro-organizational and the team ones.

In particular, it becomes important to understand how the group's processes within the ION governing teams can influence, during time, both, the ION's governance process, and therefore the expected results, and the innovations process that directly concern the entrepreneurs and the company involved in the net: the possibility to work together with other companies and to get in touch with other entrepreneurs and managers may represent an important social context in which the entrepreneur themselves can learn new techniques, procedures and ways of seeing and understanding the "business doing"; a way to innovate and improve one's organizational reality through collaboration held beyond his own companies limits.

Chapter 6 - Conclusions

6.1. Theoretical models and empirical results: a summary

The main aim of this dissertation was to verify some important assumptions on the functioning of the interorganizational teams, specifically in the ION's government teams, and possibly extend then to work group functioning. The assumptions are related to the idea that team functioning and processes (Interorganizational Trust, Trust in Team, Shared Leadership and Communication Network Density) affect the quality and quantity of team outputs (Team performance, Work Group Satisfaction, ION affective Commitment and Individual Innovative Behaviors), both are affected by the quantity and quality of team inputs (Work Group Diversity and Friendship Network Density). In all the three studies been made in order to test these team's assumptions, the communication network among team's members was considered a central factors in the ION's government team functioning. In particular, the role played by the network density measured through the SNA was tested in each theoretical model through two different methods: path analysis in the first and in the second studies and linear hierarchical model in the third model.

In the first study, we took into account the role of two different kind of trust, ones refers to the expectations and perceptions of trust toward the interorganizational relationships with the other ION's enterprises, the second refers to the expectations and perceptions of trust towards the interpersonal relationships with the other team members; both the two kinds of trust were measured and assessed by the entrepreneurs and managers who composed the ION at the team level. As expected the two trust's forms are positively related among them and they effect positively the level of work group satisfaction: while the trust in team affect directly this team output, the interorganizational trust affect the work group satisfaction through the mediation of the trust in team. Differently from the expectations, these two kinds of trust don't affects neither the other team outputs (Team Performance and ION Affective Commitment) neither the communication network density. This study keep showed another interesting results, the friendship network density among the team's members has got positive effects on the trust in team and on the communication network density; in particular through this last one variable, the friendship network density improve the level of the teammates affective commitment regarding the ION. In addition, that the friendship network density has relevant impact on Team Performance, which could be considered in future studies.

The second study keeps in evidence how the shared leadership in the ION's government team is a team process able to improve both the team ION governance capacity and the satisfaction, been felt by teammates, related to the work group activities. This influence is fostered when the teammates show a strong identification with the team: the team identification is positively related to the shared leadership and through this it can foster the team performance and the work group satisfaction. Is important to note, that the different effects played from the work group diversity on the team identification and on the shared leadership: while the age diversity affects positively the team shared leadership and through this the team performance, the gender diversity affects negatively the team identification and it attenuates the positive effect that identification plays on the shared guidance of the team.

The third study, showed on one hand, the cross-level effect of the communication network density on all the four kinds of individual innovative behaviors, on the other hand, the positive effects that the perception of the shared leadership at the individual level plays on the frequency of the idea generation behaviors and on the frequency of the idea implementation behaviors at the individual level.

6.2 Theoretical and Practical Implications

These three studies show that in the ION government team the higher presence of friendship ties among teammates can have many positive effects: it improves the density of the communications among entrepreneurs and through this improve their commitment to the ION and develop the frequency of the innovation related behaviors in the teammates; it improves the trust among team's members and through this it improves their satisfaction for the working in group. But, unexpectedly, closed to this positive findings we discovered that the friendship network density could have a negative effect on the team performance perceived by the members of the group. This result is not coherent disagree with the general thinking and with some of the main empirical results regarding the belief that social capital (in terms of interpersonal relationships among the members of a team) foster the performance of the team (McAllister, 1995; Kramer, 1999; Costa, Bijlsma-Frankema & de Jong, 2009). In this case friendship could bring to a negative results of working in team that we have justified as a possible effect of a sort of social loafing process that: on one hand could decreases the team's members attentions and efforts to the team's managerial and organizational goals and consequently decreases the team performance level. A positive effect on the other hand, through the higher presence of socially relationships among entrepreneurs and managers, improves the satisfaction for the activities and relationships developed inside the work

group and the commitment to the ION. This apparent paradox could be explained because the highest friendship network density could improves the pleasure and satisfaction that entrepreneurs and managers feel in the working together with friends, but at the same time working with friends could developed in the team members a working style more relaxed and less oriented to ION governance goals.

The demographic diversity has different effect on the ION government team processes; while the age diversity helps the entrepreneurs in order to develop a shared way of managing and direct the team and the ION government, the gender diversity seems to weak the level of the team's members identification in the team and to block the positive effects that the team identification has got on the shared leadership. Probably these results could be explained through the different effects that the gender and the age could have on the categorization psychological process of the team members: while higher diversity in the gender category could bring to perceptually salient differentiation among people, the higher diversity in a continuous variables like the teammates' age could bring to the contrary effect and make less probable the creation of perceptually salient differentiation among people inside the team.

Finally the perception of a shared managing of the team activities at the team's members level and the density of the communication among teammates have got two different effects on the innovation process inside the team: the individual perception that the team work is managed in a shared way by all the team members foster the frequency of the idea generation and idea implementation behaviors at the individual level. The effect shows that also a more frequent and dense exchange of information and meanings among teammates improves the frequency of all the four kinds of individual innovative behaviors.

From the organizational science point of view, the SPG is a very complex and interesting way to govern the ION. The empirical results confirm some of the previous organizational theory on ION Governance (Soda, 1998; Provan and Kenis, 2008), in particular findings show that the entrepreneurs' psychosocial and team's processes affect (both in a positive both in a negative way) the effectiveness of the ION's SPG.

A better understanding of these team processes and of their effects on the governance of the ION can helps entrepreneurs, managers and counselors:

1) to design and to realize effective SPG teams;

2) to understand if some specific events or factors, inside or outside ION's borders, can have blocked the developing of the team shared leadership or of the trust in team;

3) to understand if the SPG could be a useful and fruitful way to manage the interorganizational collaborations where they are involved in, or if they have to use, with or without the SPG, other forms of Network Governance (i.e., an external ION manager or a single firm-partner ION governance) in order to facilitate the Interorganizational collaboration process.

6.3 Methodological Implications

From the research method and design point of view, the use of different kinds of team outputs helped to show the different effects of the team processes we took into account. This theoretical model's arrangement choice helped to catch and understand part of the complexity of the IONs government team. The using of SNA has been very useful in order to evaluate the communication interactions among teammates (thus fundamental for the innovation and for the commitment to the ION) and also to assess the density of friendships relationships inside the team, a variable able to affect negatively the governance of the ION through a shared and collective way.

Another interesting results regards the use of shared group property's constructs (Kozlowski et al., 2000) (i.e., the team identification, shared leadership or team trust), assessed through a consensus or agreement based approaches on the with-in group variance, together with configural group property's constructs (Kozlowski et al., 2000) (i.e., the work group diversity, network and communication network density), obtained through the assessment of the distribution or pattern configuration of the team's members characteristics or relationships. The contemporary use of these two kinds of constructs allows us to catch the emerging of different kinds of unit properties from the individual to the group level (i.e. the evaluation of the team identification or the work group diversity), and in a second stage, it permits us to verify the relationships among these different team's constructs through the path analysis techniques; thanks to this method we verified the negative effect of the gender diversity (configural unit property) on team identification (shared unit property) or the positive effect of age diversity (configural unit property) on the team shared leadership identification (shared unit property). In this discussion we have seen how the dispersion of individual characteristics could affect negatively or positively the level of shared unit properties. In future studies could be interesting to see if configural unit properties, like friendship or communicational network density, affect not the level of shared unit property, like shared leadership, but also the dispersion of the team's member score and consequently the strength of this

shared characteristics (Zhoar and Tenne-Gazit, 2008; Gonzalez-Romà & Guamero, 2012). For instance, could a dense friendship or communication team's network foster or weaker the agreement of team's member evaluation about their team identification or about their perception of the team leadership? And, could the strength of the shared leadership, influence the effects that it has on team outputs (i.e., team performance or work group satisfaction)?

6.4 Limitations and Future Directions

Some implications about the research's results are related to the specific economic and social crisis that have characterized the last 5 years. The difficulties that the financial and credit crisis have brought to all the Italian economic system and enterprises, probably have many implication on the quality and quantity of the discussion's results. First of all, many entrepreneurs have decided to not participate or to quit the collaboration to this research; the main reasons was the fact that ION's enterprises prefer to use their few resources (time and attention, primarily) to face the strong competitiveness of their product or service's markets. Second, the turbulence, dynamism and uncertaintly of the present economic situation affected the "governability" of the interorganizational collaborations and consequently the effectiveness of the ION's SPG. Third, as Rousseau et al. (1998) have suggested, the trust is a psychosocial factor that in general is influenced by the institutional and social risk perceived from the people in a specific socio-cultural environment: in other words, the unpredictability and uncertainty of this economic situation could have affected the general level and/or specific types of trust (i.e., trust in team or interorganizational trust) developed inside the SPG teams. Longitudinal research and/or cross-national compared studies could give interesting information, respectively: about how the evolution and developing of trust inside the ION government teams could be affected by the evolution of the socio-economic situation; about how different kind of economic and social environment could affect differently the levels or the typologies of trust among ION team's members. Another interesting development of this research regarding the relationship among the different forms of trust (trust in team and interorganizational trust) and the shared leadership inside the ION management team that in this discussion are considered as parallel team's processes. In this way, it could be possible to answer to some interesting questions as: an higher interorganizational trust or trust in team facilitate a shared governance of the network or the shared management of the ION governance facilitate the developing of an higher level of trust among entrepreneurs or among enterprises.

To improve the validity and the reliability of the research's measures, future studies might to include objective indicators of the team effectiveness, of the team processes and of the ION

governability; for example it might possible to asses through observational studies with check-list how the entrepreneurs and managers inside the team interacts among them in order: to take ION related decisions, to understand how they composed and built the decision making process, to verify what kinds of decision they have taken. Also through a second data and archivial data, it could be possible to collect enterprises and markets data in order to know if the diversity of the ION's firms characteristics (i.e., size, age, market experiences, etc.) affects the effectiveness of the ION government team or if the ION's organizational environment characteristics (i.e., turbulence, unpredictability and dynamism) foster or weaker the functioning of the ION government teams. Actually, we have already collected this kind of data, but we have not again used due the small number of IONs included in the actual sample.

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Appendix 1 – The grid interview for ION Coordinator or President

INTERVISTA

Questa intervista, è uno degli strumenti utilizzati per la ricerca **"Caratteristiche del Gruppo Dirigente e Governance Efficace delle Reti tra Organizzazioni"** progetto promosso e totalmente finanziato dall'Università di Bologna.

Reti, collaborazione e gruppi tra imprese, come A.T.I., Consorzi e Contratti di Rete, rappresentano strategie per affrontare la competizione su mercati nazionali ed internazionali.

Lo scopo del progetto è quello di capire in che misura le caratteristiche del gruppo di governo della rete e degli imprenditori che lo costituiscono influenzano il funzionamento e le prestazioni dello stesso gruppo di comando.

Nell'intervista non vi sono risposte giuste o sbagliate. Le chiediamo, perciò, di rispondere in modo spontaneo e rapido alle domande che seguono poiché ci interessa conoscere le sue opinioni rispetto alla sua esperienza lavorativa ed umana all'interno del gruppo dirigente della rete.

La ringraziamo fin da ora per la Sua gentile collaborazione.

1. DATI SOCIO-ANAGRAFICI – Presidente/Direttore

| M | F | Sesso: Età: _____ ;

Da quanto tempo è membro/a del gruppo dirigente della rete:_____

Lei da quanto tempo presiede/dirige la rete d'imprese di cui è membro? _____

Ha svolto in precedenza altri ruoli per questa rete? [ ] SI [ ] NO

Quanto tempo dedica alla gestione del gruppo/network settimanalmente o mensilmente?

_____

Quanto ritiene impegnativo il suo ruolo di dirigere/coordinatore della rete?

- o **1 = Per niente impegnativo**
- o 2 = Poco impegnativo
- o **3 = Abbastanza impegnativo**
- o 4 = Molto impegnativo
- o **5 = Estremamente impegnativo**

Fa parte o ha mai fatto parte di altre reti o collaborazioni tra imprese? [ ] SI [ ] NO

2. Rete e sue caratteristiche

Parliamo in generale della rete di cui è membro:

Quando è stata fondata la vostra rete?_____

Qual è il suo stato giuridico? _____

Quali sono i suoi principali obiettivi?

_____

_____

_____

Principalmente a quali clienti ed esigenze vi riferite?

_____

_____

A che livello

☐ Internazionale,
☐ Nazionale o
☐ Locale

Quali servizi o prodotti offre la vostra rete?

_____

_____

_____

_____

Parliamo di come si realizza uno dei vostri servizi o prodotti. Rispetto al chi fa che cosa, in che modo è organizzato il gruppo/network nel suo funzionamento ordinario?

_____

_____

_____

_____

Avete un azionariato? [ ] SI [ ] NO

In caso sia presente, come è suddiviso l'azionariato?

_____

_____

_____

_____

Gli attuali membri sono gli stessi della fondazione o ci sono stati avvicendamenti? [ ] SI [ ] NO

Se sì quali?

_____

_____

_____

_____

3. Struttura e caratteristiche del sistema di Governo e Coordinamento

Per avere il quadro completo della rete e per preparare il questionario che successivamente somministrerò agli imprenditori della rete, mi può dire quante sono le aziende che compongono la rete?_____

C'è un gruppo di coordinamento o un team d'imprenditori che dirige il network? [ ] SI [ ] NO

Può elencarmi i nomi delle aziende che partecipano alla rete e per ciascuna di esse il nome dell'imprenditore che la dirige ed eventualmente il ruolo che ricopre nel gruppo dirigente della rete?

	Azienda	Nome e Cognome	Ruolo Azienda	Ruolo Gruppo Dirigente
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

Ci sono riunioni periodiche del gruppo dirigente/di coordinamento?   [ ] SI [ ] NO

Se sì, con che frequenza vi incontrate?

- □ 1: mai
- □ *2: annualmente*
- □ 3: *mensilmente*
- □ 4: *settimanalmente*
- □ 5: *tutti i giorni*

Come sono nominati o eletti i componenti?

_____

_____

_____

Percepisce differenze nella partecipazione dei partner della rete? [ ] SI [ ] NO

Se si, quali ritiene siano le ragioni/cause di questo diverso modo di agire?

_____

_____

_____

In qualità di rete d'imprese, avete probabilmente relazioni o rapporti con istituzioni ed organizzazioni del territorio? *Per ciascuna tipologia di organizzazione che le menzionerò dovrà indicare quanto spesso la sua rete ha avuto contatti nell'ultimo anno solare su una scala a 5 punti*:

1: mai   2: annualmente   3: mensilmente   4: settimanalmente   5: tutti i giorni

	ENTE	A quali si sta riferendo?	1	2	3	4	5
1.	Comune		①	②	③	④	⑤
2.	Provincia		①	②	③	④	⑤
3.	Regione		①	②	③	④	⑤
4.	Università e centri di ricerca		①	②	③	④	⑤
5.	Associazione di Categoria		①	②	③	④	⑤
6.	Istituti di Credito		①	②	③	④	⑤
7.	Enti ed associazioni non profit del territorio		①	②	③	④	⑤
8.	Altro…		①	②	③	④	⑤

Con quali altri enti o istituzioni avete contatti e con quale frequenza?

_____

_____

_____

4. Meccanismi di Governance

Mi può descrivere quali modalità e strumenti il vostro gruppo dirigente ha implementato per migliorare il coordinamento, la gestione, il controllo e l'integrazione delle attività delle diverse aziende che fanno parte della rete?

_____

_____

_____

_____

_____

_____

_____

_____

Le presentiamo ora un elenco delle principali pratiche di network management che la letteratura in ambito organizzativo definisce "efficaci". Per ciascuna delle voci dell'elenco dovrà dirmi se la rete d'imprese di cui fa parte ha implementato o sta implementando questa particolare pratica di gestione del network.

Dimensione	Domanda	Commenti	
partner selection	Avete sviluppato procedimenti e/o regolamenti per stabilire come e chi può entrare a far parte della rete?		[ ] SI [ ] NO
sviluppo e manutenzione fiducia fra partner analisi dei rischi/ benefici stesura contratto di collaborazione	Avete creato modalità di valutazione (ad. esempio, Analisi S.W.O.T., etc.) dei rischi ed opportunità legate alla creazione della rete, all'ingresso di nuovi partner o alla creazione di collaborazioni specifiche tra alcuni dei membri della rete?		[ ] SI [ ] NO
	Avete sviluppato uno statuto, regolamenti interni o accordi tra le aziende consorziate/associate?		[ ] SI [ ] NO

	Avete partecipato a riunioni, formazione, team building, consulenza utile a sviluppare e mantenere la fiducia tra membri della rete?		[ ] SI [ ] NO
	Avete creato accordi per proteggere il know-how o brevetti dei diversi membri della rete?		[ ] SI [ ] NO
progettazione unità di rete **sviluppo routine interorganizzative** **sistemi informativi interaziendali** **leadership nella rete**	Avete creato uffici, gruppi o team dedicati ad attività o funzioni della rete d'imprese? (Ad esempio, ufficio acquisti comune, team ricerca e sviluppo, manager di rete, etc.)		[ ] SI [ ] NO
	Avete sviluppato meccanismi di coordinamento tra imprese in grado di migliorare l'efficienza e l'integrazione delle attività tra imprese della rete?		[ ] SI [ ] NO
	Regolamento per la gestione delle commesse o degli ordinativi?		[ ] SI [ ] NO
	Accordi di ripartizione degli utili tra partner o accordi di uso dell'innovazioni prodotte?		[ ] SI [ ] NO
	Avete incontri collettivi tra tutte le aziende della rete per programmare, riorganizzare o reintegrare le attività delle diverse imprese della rete?		[ ] SI [ ] NO
	Avete un logo di rete?		[ ] SI [ ] NO
	Avete creato sistemi informatici per la condivisione di informazioni e/o conoscenze (Sito internet, Intranet, newsletter, etc.)?		[ ] SI [ ] NO
	Avete dato vita a regolamenti utili a stabilire e migliorare la guida della rete d'imprese?		[ ] SI [ ] NO
monitoraggio e analisi della performance	Avete dato vita a meccanismi di valutazione della performance della rete d'imprese (ad esempio, procedure valutazione della soddisfazione dei clienti, schede tecniche per valutare l'affidabilità dei vostri prodotti nel tempo, etc.)		[ ] SI [ ] NO

Dopo aver esaminato alcune delle attività utili per la gestione interna del network, adesso esploreremo quali attività il vostro gruppo d'imprenditori mette in atto rispetto all'ambiente organizzativo "esterno" alla vostra rete.

Dimensione	Domanda	Commenti	
Extrateam links	Siete entrati in contatto con esperti o enti esterni per avere consulenze riguardo alla gestione della vostra rete? Per ottenere formazione e guida?		[ ] SI [ ] NO
	Siete entrati in contatto con enti esterni per ottenere finanziamenti o contributi?		[ ] SI [ ] NO
	Scambiate o avete scambiato con altre organizzazioni materiali, attrezzature o equipaggiamenti??		[ ] SI [ ] NO
Scouting	Avete cercato d'identificare i bisogni e aspettative specifici/specifiche della comunità e/o Territorio e/o clienti? Attraverso interviste/questionari o consultazioni?		[ ] SI [ ] NO
	Vi siete confrontati con altre imprese che operano nello stesso settore o che lavorano per gli stessi clienti/fornitori o collaborano con le stesse istituzioni/organizzazioni?		[ ] SI [ ] NO
Ambassadorial	Avete coinvolto nelle vostre decisioni Istituzioni o rappresentanti della comunità o del territorio ?		[ ] SI [ ] NO
	Avete utilizzato tv o giornali o social media per fa conoscere al pubblico la vostra realtà e contributo?		[ ] SI [ ] NO
	Avete intrapreso delle azioni di lobbing o concertazione con enti ed istituzioni del territorio per migliorare la vostra azione e/o risultati?		[ ] SI [ ] NO
Coordination	Avete coordinato e negoziato la vostra azione con quella di altre organizzazioni, enti o istituzioni che operano sul territorio o rispetto ai		[ ] SI [ ] NO

	vostri clienti/fornitori per risolvere problemi in modo congiunto?		
Empowering	Avete creato meccanismi di coinvolgimento dei vostri fornitori o clienti o altri portatori d'interesse nella co-costruzione dei vostri prodotti e/o servizi? Ad esempio, rappresentanti dei clienti, comitati, gruppi o forum di discussione, etc.?		[ ] SI [ ] NO

In conclusione della nostra intervista, come valuta l'andamento della rete di cui è membro?

_____

_____

_____

Nel prossimo futuro, come evolverà questa rete?

_____

_____

_____

Bene, sig/sig.ra…...l'intervista è finita.

Una volta concluso il progetto, se lo desidera, le sarà inviata una copia dei risultati della ricerca e un sintetico report dei dati relativi alla Sua rete d'imprese che se vorrà potrà divulgare presso gli altri membri del gruppo dirigente.

Se è interessato, può darmi un indirizzo al quale far riferimento per l'invio del materiale spedizione?_____

La ringrazio per la sua disponibilità e collaborazione

Appendix 2 – The questionnaire for ION government team members

QUESTIONARIO

Il presente questionario, è uno degli strumenti utilizzati per la ricerca **"Caratteristiche del Gruppo Dirigente e Governance Efficace delle Reti tra Organizzazioni"** progetto promosso e totalmente finanziato dall'Università di Bologna.

Reti, collaborazione e gruppi tra imprese, come A.T.I., Consorzi e Contratti di Rete, rappresentano strategie per affrontare la competizione su mercati nazionali ed internazionali. Lei appartiene a uno di queste gruppi pertanto siamo interessati a conoscere la sua opinione su questo tema e la invitiamo a partecipare al presente questionario.

Lo scopo del progetto è quello di capire in che misura le caratteristiche del gruppo di governo della rete e degli imprenditori che lo costituiscono influenzano il funzionamento e le prestazioni dello stesso gruppo di comando.

Nel questionario non vi sono risposte giuste o sbagliate. Le chiediamo, perciò, di rispondere in modo spontaneo e rapido alle domande che seguono poiché ci interessa conoscere le sue opinioni rispetto alla sua esperienza lavorativa e personale all'interno del gruppo dirigente della rete.

I dati da Lei forniti in questo questionario saranno elaborati staticamente in forma aggregata con quelli forniti dagli altri membri del suo gruppo: in nessun modo le informazioni da lei fornite saranno divulgate in forma singola o riconducibile al suo autore.

La ringraziamo fin da ora per la Sua gentile collaborazione.

Di seguito le presentiamo l'elenco dei componenti del gruppo dirigente della rete di cui è membro.

Le chiediamo d'indicarci **quanto spesso comunica con ciascun nominativo dell'elenco** (ad esclusione del suo) **con diversi mezzi** su una scala a 5 punti:

0: mai   1: mensilmente   2: settimanalmente   3: tutti i giorni   4: più volte al giorno

Per ciascun membro del gruppo annerisca il pallino corrispondente alla sua risposta in corrispondenza di ciascuna delle 4 modalità di comunicazione presentate.

Membri del gruppo	Quanto spesso comunica con																			
	faccia a faccia					via e-mail					telefonicamente					attraverso social media (Chatt; Forum; Twitter; Facebook; etc.)				
	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
9.	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④
10	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④
11	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④
12	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④
13	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④	⓪	①	②	③	④

Di seguito le presentiamo l'elenco dei componenti del gruppo dirigente della rete di cui è membro.

Per ogni nominativo (ad esclusione del suo) Le chiediamo di indicare **quale tipologia di relazione interpersonale la lega agli altri colleghi del suo gruppo**.

Per rispondere alle seguenti domande annerisca il pallino corrispondente alla sua risposta.

	familiare o parente	amico	conoscente	non conosco questa persona	preferisco evitare questa persona
1.	○	○	○	○	○
2.	○	○	○	○	○
3.	○	○	○	○	○
4.	○	○	○	○	○
5.	○	○	○	○	○

Rispetto alle imprese che fanno parte della sua rete può indicarci se e con quali di esse la sua impresa ha già collaborato anche in passato (cioè prima e al di fuori della collaborazione prevista da questa rete)?

Barri la casella corrispondente alla sua risposta.

	La mia azienda ha già collaborato con		
1.	sì	no	non lo so
2.	sì	no	non lo so
3.	sì	no	non lo so
4.	sì	no	non lo so
5.	sì	no	non lo so

DATI SOCIO-ANAGRAFICI

Sesso: [ ] M [ ] F   Età: _____

Livello di studio conseguito:

❑ Scuola Media Inferiore   ❑ Diploma Universitario

❑ Scuola Media Superiore   ❑ Laurea

❑ Master I° Livello   ❑ Dottorato di Ricerca/ Scuola di Specializzazione

❑ Master II° Livello   ❑ Altro specificare_____

Indichi quale titolo di studi ha conseguito (ad esempio: maturità scientifica; perito tecnico industriale; Laurea in Ingegneria Edile; etc.):_____

Nome dell'azienda di cui è titolare/in cui lavora:_____

Da quanti anni fa parte con la sua azienda di questa rete tra imprese?_____

Da quanti anni è membro del gruppo dirigente della rete?_____

In una settimana, quanto tempo dedica mediamente alle attività legate al gruppo dirigente della rete:

◻ meno di un'ora
◻ da 1 a 3 ore
◻ da 4 a 8 ore
◻ più di 8 ore

Con la sua impresa partecipa ad altre reti d'impresa o collaborazioni stabili con altre organizzazioni (A.T.I., Consorzi e Contratti di Rete)?   [ ] SI [ ] NO

Negli ultimi 5 anni, ha partecipato con la sua impresa ad altre reti o collaborazioni stabili tra imprese (A.T.I., Consorzi e Contratti di Rete)?   [ ] SI [ ] NO

Se sì, può indicarmi quante?_____

Quali sono le motivazioni che hanno spinto la sua impresa ad entrare a far parte di questa rete tra imprese?

(barri una o più caselle corrispondenti alla sua risposta)

□ migliorare la capacità produttiva;

□ dividere tra partner della rete i rispettivi costi fissi

□ creare unità produttive di grandi dimensioni;

□ migliorare l'utilizzo degli impianti e/o delle persone a nostra disposizione;

□ diminuzione e condivisione dei rischi di ricerca e sviluppo;

□ completare o scambiare prodotti o linee di prodotto;

□ sperimentare nuove idee e creare innovazione;

□ comprare macchinari o servizi in comune;

□ differenziarci e focalizzarci sulle nostre competenze chiave cercando di ottenere beneficio dalla collaborazione;

□ condivisione e sviluppo delle competenze tecnologico-produttive;

□ condividere e scambiare conoscenze, cultura ed esperienze con gli altri partner della rete;

□ migliorare la diffusione e distribuzione dei nostri prodotti/servizi;

□ migliorare l'accesso al mercato dei prodotti e servizi delle altre imprese della rete;

□ attuare strategie difensive o offensive verso i Concorrenti;

□ altro (specificare)_____

_____

Una persona, per essere innovativa, deve mettere in atto diversi comportamenti.

Con riferimento al gruppo dirigente della rete di cui è membro, Le chiediamo ora di valutare con quale frequenza, **negli ultimi 3 mesi, Lei ha messo in atto i seguenti comportamenti**.

Per rispondere alle seguenti domande annerisca il pallino corrispondente alla sua risposta.

		Mai	Qualche volta nei tre mesi	Una volta al mese o meno	Qualche volta al mese	Una volta alla settimana	Qualche volta alla settimana	Ogni giorno
		0	**1**	**2**	**3**	**4**	**5**	**6**
1.	Ha generato idee originali	⓪	①	②	③	④	⑤	⑥
2.	Ha avuto idee su come migliorare le cose	⓪	①	②	③	④	⑤	⑥
3.	Ha trovato nuovi modi di fare le cose	⓪	①	②	③	④	⑤	⑥
4.	Ha proposto nuove idee agli altri membri del gruppo	⓪	①	②	③	④	⑤	⑥
5.	Ha suggerito come migliorare le cose	⓪	①	②	③	④	⑤	⑥
6.	Ha proposto di fare le cose in modo diverso	⓪	①	②	③	④	⑤	⑥
7.	Ha cercato di ottenere il supporto di altri alle proprie idee	⓪	①	②	③	④	⑤	⑥
8.	Ha tentato di ricevere l'approvazione per i miglioramenti da Lei suggeriti	⓪	①	②	③	④	⑤	⑥
9.	Ha cercato di persuadere gli altri affinché adottassero le Sue proposte di fare le cose in modo differente	⓪	①	②	③	④	⑤	⑥
10.	Ha visto le Sue idee adottate dall'azienda	⓪	①	②	③	④	⑤	⑥
11.	Ha visto applicare i suggerimenti ideati per migliorare le cose	⓪	①	②	③	④	⑤	⑥
12.	Ha visto realizzare le Sue proposte per fare le cose in modo diverso	⓪	①	②	③	④	⑤	⑥

SEZIONE 1

Le presentiamo ora alcune frasi riguardanti la Rete d'Imprese di cui è membro.

Le chiediamo di esprimere il suo grado di accordo o disaccordo con queste affermazioni utilizzando la scala che trova di seguito:

1 = Per niente d'accordo   2 = Poco d'accordo   3 = Sufficientemente d'accordo

4 = Molto d'accordo   5 = Del tutto d'accordo

	In generale, penso che la rete d'imprese di cui faccio parte…	1	2	3	4	5
1.	…goda di una buona reputazione nel settore industriale a cui fa riferimento.	①	②	③	④	⑤
2.	… sia nota come un buon posto in cui collaborare e lavorare.	①	②	③	④	⑤
3.	…goda di una buona reputazione fra i suoi clienti.	①	②	③	④	⑤
4.	…goda di una buona reputazione fra i suoi fornitori.	①	②	③	④	⑤
5.	… abbia una buona reputazione nella società e sul territorio (locale, nazionale e/o internazionale) in cui opera.	①	②	③	④	⑤
6.	… sia attivamente coinvolta nel produrre valore e benessere per la comunità in cui essa opera e lavora.	①	②	③	④	⑤

Le proponiamo alcune opinioni sulla **similarità o diversità delle caratteristiche dei membri di un team dirigente**. Rispetto alla sua personale opinione ed esperienza, Le chiediamo di esprimere quanto è d'accordo con le seguenti affermazioni usando la scala:

1 = Per niente d'accordo   2 = Poco d'accordo   3 = Sufficientemente d'accordo

4 = Molto d'accordo   5 = Del tutto d'accordo

		1	2	3	4	5
1.	Un gruppo dirigente, come quello di cui faccio parte, sviluppa migliori prestazioni se è costituito da persone di diversa età.	①	②	③	④	⑤
2.	Penso che i gruppi di comando delle reti d'impresa ottengano beneficio dal coinvolgimento di persone con diverse professionalità ed esperienze lavorative.	①	②	③	④	⑤
3.	Creare un gruppo dirigente che contiene persone con diverse professionalità ed esperienze lavorative può essere una ricetta che porta guai.	①	②	③	④	⑤
4.	Penso che i gruppi di governo delle reti d'imprese dovrebbero contenere persone con background professionali e lavorativi simili.	①	②	③	④	⑤
5.	Un buon mix di professionalità ed esperienze lavorative aiuta i membri del gruppo dirigente della rete a fare bene il loro compito.	①	②	③	④	⑤

Le presentiamo ora alcune affermazioni che riguardano il gruppo dirigente di cui Lei è membro. Le chiediamo di indicare **quanto, secondo la sua impressione personale, il gruppo dirigente di cui è membro sia tendenzialmente composto da persone simili o diverse tra loro** rispetto alle seguenti caratteristich**e**. Per esprimere la Sua valutazione usi la seguente scala:

1 = Molto simili   **2 = Poco simili**   **3 = Né simili, né diversi**

4 = Poco diversi   **5 = Molto diversi**

	"Quanto sono simili o diversi i membri del gruppo dirigente di cui è membro rispetto a…"	1	2	3	4	5
1.	Età	①	②	③	④	⑤
2.	Genere	①	②	③	④	⑤
3.	Carriera scolastica	①	②	③	④	⑤
4.	Atteggiamenti nei confronti del lavoro (ad esempio, precisione e puntualità, cordialità e disponibilità, etc.)	①	②	③	④	⑤
5.	Atteggiamento nei confronti del lavorare in team	①	②	③	④	⑤
6.	Atteggiamenti nei confronti della collaborazione tra imprese	①	②	③	④	⑤
7.	Obiettivi di apprendimento e sviluppo della propria impresa	①	②	③	④	⑤
8.	Complessivamente, quanto pensa siano simili o diversi i membri del Suo gruppo tra loro?	①	②	③	④	⑤

SEZIONE 2

Immagini che in ogni riga i cerchi alla sua sinistra rappresentino Sé stesso/stessa, mentre i cerchi alla sua destra rappresentino il gruppo dirigente di cui fai parte. Per favore, indichi quale caso (A, B, C, D, E, F, G o H) meglio descrive il livello di vicinanza fra Lei e il gruppo dirigente.

Indichi nello spazio seguente la lettera (A, B, C, D, E, F, G o H) corrispondente alla Sua risposta: _____.

Le presentiamo ora alcune affermazioni che riguardano il suo **rapporto con il Gruppo di Governo della Rete di cui è membro**. Le chiediamo di esprimere il suo grado di accordo o disaccordo seguendo la scala:

1 = Per niente d'accordo   2 = Poco d'accordo   3 = Sufficientemente d'accordo

4 = Molto d'accordo   5 = Del tutto d'accordo

		1	2	3	4	5
1.	Quando qualcuno critica la rete d'imprese di cui sono membro, percepisco questa critica come un insulto personale.	①	②	③	④	⑤
2.	Sono interessato/a a ciò che gli altri pensano della rete d'imprese di cui sono membro/a.	①	②	③	④	⑤
3.	Quando parlo di questa rete d'imprese, solitamente utilizzo il termine "NOI" piuttosto che "LORO".	①	②	③	④	⑤
4.	Il successo della mia rete d'imprese è anche il mio successo.	①	②	③	④	⑤
5.	Quando qualcuno fa un complimento alla mia rete d'imprese, lo percepisco come un complimento personale.	①	②	③	④	⑤
6.	Se con un evento mediatico qualcuno criticasse la rete d'imprese di cui sono membro/a, mi sentirei imbarazzato/a.	①	②	③	④	⑤

Per ogni affermazione riguardante la **valutazione della performance del gruppo dirigente** di cui è membro, indichi il suo grado di accordo o disaccordo usando la seguente scala:

1 = Per niente d'accordo   2 = Poco d'accordo   3 = Sufficientemente d'accordo

4 = Molto d'accordo   5 = Del tutto d'accordo

		1	2	3	4	5
1.	Analizzando i risultati fino ad ora raggiunti, questo gruppo dirigente può essere considerato un successo.	①	②	③	④	⑤
2.	Tutte le richieste dei clienti sono state fino ad ora soddisfatte.	①	②	③	④	⑤
3.	Dal punto di vista aziendale, tutti gli obiettivi che il gruppo dirigente si era dato sono stati raggiunti.	①	②	③	④	⑤
4.	La performance del nostro gruppo ha accresciuto la nostra immagine nei confronti dei clienti.	①	②	③	④	⑤
5.	I risultati ottenuti fino ad ora dal gruppo sono di alta qualità.	①	②	③	④	⑤
6.	I clienti sono rimasti soddisfatti dalla qualità dei risultati.	①	②	③	④	⑤
7.	Il nostro gruppo dirigente è rimasto soddisfatto dai risultati raggiunti.	①	②	③	④	⑤
8.	Il nostro gruppo dirigente realizza le sue attività nei tempi programmati.	①	②	③	④	⑤
9.	Il nostro gruppo dirigente realizza le sue attività rispettando il budget previsto.	①	②	③	④	⑤

Le presentiamo alcune affermazioni che riguardano **"il come" i membri di un gruppo dirigente gestiscono e coordinano tra loro i reciproci sforzi**. Rispetto alla sua esperienza nel gruppo dirigente della rete, valuti il suo grado di accordo o disaccordo con ciascuna affermazione usando la seguente scala:

1 = Per niente d'accordo   **2 = Poco d'accordo**   **3 = Sufficientemente d'accordo**

4 = Molto d'accordo   **5 = Del tutto d'accordo**

		1	2	3	4	5
1.	Tutti i membri del gruppo dirigente s'impegnano in comportamenti di guida del gruppo.	①	②	③	④	⑤
2.	Tutti i membri del gruppo offrono suggerimenti agli altri membri del gruppo per migliorare la prestazione del team.	①	②	③	④	⑤
3.	Tutti i membri del gruppo vanno incontro ai bisogni degli altri membri affinché quest'ultimi possano agire nel migliore dei modi.	①	②	③	④	⑤
4.	Ogni membro del gruppo dirigente agisce tempestivamente affinché lo stesso gruppo si adatti ad influenze esterne.	①	②	③	④	⑤
5.	Tutti i membri del gruppo anticipano le necessità operative del gruppo nel suo complesso.	①	②	③	④	⑤
6.	Tutti i membri del gruppo avviano azioni che vanno oltre a quanto richiesto dagli obiettivi di lavoro al fine di favorire una migliore prestazione dello stesso gruppo.	①	②	③	④	⑤
7.	Il gruppo fa affidamento su tutti i suoi membri per potersi guidare.	①	②	③	④	⑤

Le chiediamo ora di fare riferimento alla sua **esperienza come membro del team dirigente della rete** e alle persone con cui lavora abitualmente in questo gruppo. Indichi quanto Lei è in accordo o disaccordo con le prossime affermazioni.

Per esprimere il suo giudizio usi la seguente scala:

1 = Per niente d'accordo   **2 = Poco d'accordo**   **3 = Sufficientemente d'accordo**

4 = Molto d'accordo   **5 = Del tutto d'accordo**

		1	2	3	4	5
1.	La maggior parte delle persone di questo gruppo non esita ad aiutare una persona in difficoltà.	①	②	③	④	⑤
2.	In questo gruppo la maggior parte delle persone dice chiaramente quello che pensa o crede giusto.	①	②	③	④	⑤
3.	In questo gruppo la maggior parte delle persone rimane ferma sulle proprie convinzioni.	①	②	③	④	⑤
4.	La tipica persona di questo gruppo è sinceramente interessata ai problemi degli altri.	①	②	③	④	⑤
5.	La maggior parte delle persone di questo gruppo agirà da "Buon samaritano" se verrà data loro l'opportunità.	①	②	③	④	⑤
6.	Le persone di questo gruppo generalmente dicono la verità, anche quando sanno che sarebbe meglio mentire.	①	②	③	④	⑤
7.	In questo gruppo le persone possono contare l'una sull'altra.	①	②	③	④	⑤
8.	I componenti del nostro gruppo hanno piena fiducia nelle abilità di eseguire il compito di ciascun altro membro del gruppo.	①	②	③	④	⑤
9.	In questo gruppo le persone mantengono la parola data.	①	②	③	④	⑤
10.	In questo gruppo alcune persone hanno fini nascosti	①	②	③	④	⑤
11.	Alcune persone in questo gruppo spesso cercano di svincolarsi da precedenti impegni presi.	①	②	③	④	⑤
12.	In questo gruppo le persone cercano di curare gli interessi l'una dell'altra in maniera onesta.	①	②	③	④	⑤
13.	In questo gruppo lavoriamo in un clima di cooperazione.	①	②	③	④	⑤
14.	In questo gruppo discutiamo e affrontiamo le questioni ed i problemi in modo aperto.	①	②	③	④	⑤
15.	Quando nel gruppo si deve prendere una decisione, consideriamo le opinioni di ciascun membro del gruppo.	①	②	③	④	⑤
16.	Alcune persone in questo gruppo trattengono informazioni importanti e non dicono tutto quello che sanno.	①	②	③	④	⑤
17.	La maggioranza delle persone del gruppo sono aperte a suggerimenti e all'aiuto degli altri membri.	①	②	③	④	⑤
18.	In questo gruppo le persone tengono d'occhio cosa fanno gli altri membri del gruppo.	①	②	③	④	⑤
19.	In questo gruppo le persone controllano se le altre mantengono le promesse fatte.	①	②	③	④	⑤
20.	In questo gruppo la maggioranza delle persone tende a sorvegliare il lavoro degli altri.	①	②	③	④	⑤

Le presentiamo ora alcune affermazioni riguardanti **la fiducia che imprenditori d'imprese in rete possono avere nei confronti delle altre imprese che compongono la rete**. Le chiediamo di esprimere, rispetto alla sua esperienza personale, il suo grado di accordo o disaccordo con ciascuna delle affermazioni seguenti usando la scala seguente:

1 = Per niente d'accordo   2 = Poco d'accordo   3 = Sufficientemente d'accordo

4 = Molto d'accordo   5 = Del tutto d'accordo

		1	2	3	4	5
1.	Ci fidiamo che le organizzazioni che compongono la rete rispettino gli accordi presi	①	②	③	④	⑤
2.	C'è un alto livello di fiducia nella relazione lavorativa con le altre organizzazioni che compongono la rete	①	②	③	④	⑤
3.	Confidiamo che le decisioni delle altre organizzazioni della rete siano di beneficio per la rete nel suo complesso	①	②	③	④	⑤
4.	Confidiamo che le decisioni delle altre organizzazioni della rete porteranno beneficio anche alla nostra impresa	①	②	③	④	⑤

Le presentiamo ora alcune affermazioni riguardanti **la soddisfazione nel lavorare in team**. Rispetto alla sua esperienza come membro del team dirigente della rete, le chiediamo di esprimere il suo grado di accordo o disaccordo con le seguenti affermazioni usando la scala sottostante:

1 = Per niente d'accordo   2 = Poco d'accordo   3 = Sufficientemente d'accordo

4 = Molto d'accordo   5 = Del tutto d'accordo

		1	2	3	4	5
1.	Alcuni aspetti delle nostre relazioni lavorative potrebbero essere migliori.	①	②	③	④	⑤
2.	Nel complesso, noi siamo tutti abbastanza soddisfatti delle nostre relazioni lavorative.	①	②	③	④	⑤
3.	Sono contento della mia relazione lavorativa con gli altri membri del gruppo dirigente.	①	②	③	④	⑤
4.	Rispetto alle altre relazioni lavorative che ho avuto in passato o di cui ho sentito parlare, quelle che ho con i membri di questo gruppo sono abbastanza buone.	①	②	③	④	⑤
5.	Sono contento del contributo offerto dagli altri membri del gruppo per identificare e sviluppare comuni opportunità di business.	①	②	③	④	⑤
6.	Penso che agli altri membri del gruppo piaccia lavorare con me.	①	②	③	④	⑤

Di seguito sono presentate affermazioni riguardanti il **rapporto tra Lei ed il gruppo dirigente** della rete di cui è membro. Per ogni frase indichi quanto si sente d'accordo rispetto alla sua esperienza personale usando la seguente scala:

1 = Per niente d'accordo   **2 = Poco d'accordo**   **3 = Sufficientemente d'accordo**

4 = Molto d'accordo   **5 = Del tutto d'accordo**

		1	2	3	4	5
1.	Mi dispiacerebbe se dovessi lasciare il gruppo dirigente di questa rete d'imprese per un altro	①	②	③	④	⑤
2.	Una delle poche conseguenze serie nel lasciare questo gruppo dirigente sarebbe la scarsità di alternative disponibili sul mercato	①	②	③	④	⑤
3.	Penso di avere davvero poche alternative per considerare di lasciare questa rete d'imprese	①	②	③	④	⑤
4.	Mi impegno più di quanto ci si aspetti per contribuire al successo di questa rete d'imprese	①	②	③	④	⑤
5.	Non mi sento emotivamente legato a questa rete d'imprese	①	②	③	④	⑤
6.	La rete d'imprese al quale partecipo con la mia organizzazione ha un grande significato personale per me	①	②	③	④	⑤
7.	Penso sia giusto e doveroso rimanere fedeli alla propria rete d'imprese per rispettare l'impegno preso con essa	①	②	③	④	⑤
8.	Mi sento partecipe dei problemi della rete d'imprese nella quale collaboro	①	②	③	④	⑤

IL QUESTIONARIO E' FINITO.

La ringrazio per la sua disponibilità e collaborazione.

Se lo desidera, Le righe seguenti sono a Sua disposizione per indicare segnalazioni, considerazioni o commenti rispetto al questionario e alla ricerca al quale ha partecipato.

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