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**Diffusing Innovation: The role of Personal
Relationships in a SMEs' Network**

Federica Ceci, Daniela Iubatti, Alberto Simboli

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*DASTA, Università "G. D'Annunzio"
Via della Pineta, 4
65100 Pescara
Italy
www.unich.it/dasta
email- f.ceci@unich.it*

Abstract

Networks have been hailed as a third organizational forms between of markets and hierarchies. Scholars in the field pointed out one of the main characteristics of networks: the coexistence of personal relations besides of professional ones. such coexistence modifies the development of economic activities; it has been proved that strategic decisions are largely influenced by the presence of trust between network's members. The present paper investigates the role played by personal relationships in enabling the diffusion of innovation within networks: the interaction between personal and professional relations shapes a unique context where the usual dynamics of the diffusion of innovations results changed. We aim to shed further light on the issue, answering the following research questions: (1) How different types of relationship existing in a network of SMEs enable the diffusion and adoption of innovations? (2) Do personal relationships play a central role in supporting innovative activities?

Keywords: diffusion of innovation, network, content analysis.

Federica Ceci is assistant professor in the University G.d'Annunzio and gained a Ph.D. in management engineering at the University of San Marino. She is visiting fellow at London Business School in the department of Operation and Technology Management, London, UK. Her research interests focus on: theory of the firm, analysis of managerial implications of integrated solutions on firm's boundaries and capabilities, management of innovation.

Daniela Iubatti is research assistant of Management of Enterprise in the University G. d'Annunzio and a fellowship for TEKNE project (Toward Evolving Knowledge-base interNetworked Enterprise) in DASTA, University G.d'Annunzio.

Alberto Simboli is assistant professor in Commodity Science and Technology in the University "G. d'Annunzio", Pescara, Italy. His research interests includes operations and supply chain management, DfE (design for environment), reverse logistics, and organizational innovation.

1. Introduction

Theoretical and empirical studies on coordination of economic activities focused on the two polar cases of governance mode, namely vertical integration and market exchanges. Scholars belonging to the research traditions of the resource-based view – also in its latter reincarnation as dynamics capabilities (Teece & Pisano, 1994) – and transaction cost economics analyzed the merits of the two coordination modes (Coase, 1937; Leiblein & Miller, 2003; Poppo & Zenger, 1998; Williamson, 1975; Williamson, 1985). The distinctive advantage of these two coordination modes lies in their inner workings. While markets are variety generators through firms' division of labor, firms are generators of specialized knowledge (Kogut, 2000; Smith, 1965 edition). Markets allow the exploration of distant learning trajectories pursued by independent firms. Firms on the other hand focus on specific learning avenues and acquire specialized knowledge. Firms learning trajectories are limited and limiting in the sense that firms explore in the surroundings of their knowledge bases, however (Nelson & Winter, 1982).

More recently, networks have been hailed as organizational forms between markets and hierarchies that can combine the advantages of both traditional governance mechanisms (Kogut, 2000; Powell, 1990). Scholars largely devoted their attention to understanding the characteristics of this new organizational form, focusing their attention on the factors that enable the creation of networks (Gulati, 1998) their inner characteristics (Granovetter, 1983; Granovetter, 1985; Padgett and Smith-Doerr, 1994; Kogut, 2000) and the distinctive feature that determinate a unique way of knowledge sharing and circulation and, as a consequence, innovation diffusion (Knoke, 1990; Gulati, 1998; Edquist, 2000; Kogut, 2000). More specifically, networks seems able to rapidly evolve and adapt to the changing environments, due to the flexibility given by the small dimensions of organizational units within networks (Dosi, 1988; Cooke, 1998; Cooke and Wills, 2004). Empirical research on networks advanced our understanding of the micro mechanisms of coordination and made clear that firms and market exchanges coevolves to manage changes (Lorenzoni & Lipparini, 1999).

It has been proved that in networks coexist different kinds of relations, personal and professional but also competitive and collaborative. Padgett and Powell (2003) focused their attention on the existence of multidimensional links within networks, such as professional, personal and political ones. Those multidimensional links contribute to the social and economic developments of network differently, as it has been emphasized in their study. So, the dynamics of the economic activities results largely influenced by the multidimensional characteristics of networks. More specifically, in the present study, we want to explore how innovations are diffused within a network. Despite of the large attention devoted to the issue of innovation diffusion, so far, we still know very little how the coexistence of multiple domains influences innovation dynamics. Gaining such understanding will shed further light on the role that personal relations play in economic activities. Research questions that we want to address in the present work are the following: (1) How different types of relationship existing in a network of SMEs enable the diffusion and adoption and innovation? (2) Do personal relationships play a central role in supporting innovative activities?

Answers to the research questions will be provided analysing an empirical context: a consortium of SMEs operating in Abruzzo (Italy). The consortium is composed by 15 SMEs, operating in the automotive industry. The consortium presents a large variety of relationships, horizontal as well as vertical, formal and informal; friendship and business relationship are closely tied together. In such context, the analysis of the role that personal and professional relationships play in enabling the diffusion of innovation, i.e. adoption of new IT technologies, is particularly interesting. Data collected will be analysed following the content analysis method. This method has been adopted because it assure objective, systematic, and quantitative description of the manifest content of communication (Berelson, 1952).

2. Literature review

2.1 Networks and the diffusion of innovation

Networks of firms can be considered as an hybrid pattern to coordinate economic activities, that combines the advantages of both traditional governance mechanisms, ensuring their components to develop as independent elements and as a system (Powell, 1990; Koug, 2000; Giuliani, 2005). In fact, between the two traditional

coordination modes, hierarchal structure and use of markets, empirical evidences showed the existence of a new paradigm, a “third way” that relies on different characteristics than central control and the “stand alone” logic (Grandori, 1997). This third way is represented by the social network that has been defined by Powell and Smith-Doerr (1994) as “set of nodes linked by a set of relations, such as friendship, kinship, political, etc.”. In our specific context, nodes of network are constituted by firms; firms relate to each other through relations of different nature.

Mandersen and Friedkin (1993) argue that networks influence firms’ action. the pattern of relationship between networks’ node and ties among theme shape the behavior of an actor and those of other ones. Moreover, those relationships effect information and scarce resources exchanges between firms (Knoke, 1990).

Networks has been largely analyzed by economic and management literature (Granovetter, 1985; Gulati, 1998; Koug, 2000; Powell and Smith-Doerr, 1994; Padgett and Powell, 2003; Giuliani, 2007). More specifically, closer attention has been devoted to analyze the impact of relations on generating and diffusing innovations inside the network. Firms do not innovate alone; they receive continuous stimuli from the environment, from competitors, institutions, and clients as well as from other network members. More specifically, within networks it is possible to observe a flow of knowledge that facilitate the adoption and diffusion of innovations, increasing the innovativeness of the networks as a whole (Edquist, 2000). In fact, according to the resource based view of the firms, the source of competitive advantage lays on firms resources (Penrose, 1959; Ansoff, 1965; Barney, 1991; Grant, 1999) and differences in resources configuration determine differences in firms’ performance, also from the innovation viewpoint (Gulati, 1998; Ferlie et al., 2005). Not all the organizations are innovative in the same way. Coherently, networks of firms are characterized by a few numbers of innovative firms and by a bigger group that innovate through imitative processes. In leader as well as in follower members, knowledge represents the basis for innovation since the adoption of innovations (whatever type we refer) needs a certain amount of knowledge to be adopted (Cohen and Levinthal, 1990). Firms’ learning processes are facilitated if the firms are exposed to external sources of knowledge and this is what actually happens within networks: knowledge exchange is facilitated (Burt, 1992; Knoke, 1990)

Following Lundvall (1993) and Rosemberg (1982), network's innovative performances are linked to the nature of innovative process that is namely not linear and it grows through continuous interactions between firm and other actors. This mechanism is strictly linked to the concept of diversity, in terms of knowledge diversity of members of a network. The more different knowledge of members, the higher the likelihood to generate and consequently to diffuse innovations among members, remaining a common basic knowledge belonging to all components (Gulati, 1998).

Referring to diversity among members of a network, Ferlie et al. (2005) argued that “strong boundaries between professional groups at the micro level of practice show slow innovation spread”. At macro level we can argue that diversity between members of a network is important but some basic common resources are needed. In fact, it is important that firms can rely on a common basis of knowledge inside the network, when they generate new innovations and they activate the diffusion mechanism (Boshma and Lambooy, 1999). A trap can rise in this case, because heterogeneity among components of a network is important to favor knowledge exchanges between them but it could be a barrier to innovations generating process if members are too different from each other. In particular, in terms of cognitive and social barriers, diversity can cause boundaries enforcements between firms because they can become “less fluid and permeable” from new ideas and flows of knowledge (Ferlie et al., 2005).

Many authors argue that firms in clusters are more innovative than isolated firms (Baptista and Swann, 1998; Baptista, 2000). This is due to the presence of business networks (BNs), that enable the localized learning between firms, such as supplier-client relationship or among competitors (Keeble and Wilkinson, 1999; Giuliani, 2007). BNs are defined as “a set of relationships established by the technical professional, when they interact with each other firms on a wide range of business issues” (Giuliani, 2007; pg. 150), as inputs and services exchanges among members of a consortium. BNs also favor the diffusion of knowledge inside clusters which represent the tools for generating innovations. Consistent with Giuliani (2007), relations between firms that belong to a cluster promote knowledge spillovers, called knowledge networks (KNs), that enhance the likelihood to solve complex joint-problems, consequently generating and diffusing innovations. This mechanism

works under an important conditions; innovations-related knowledge is therefore “the result of purposeful behavior rather than a random leakage of knowledge” (Giuliani, 2007; pg. 144). The diffusion of innovations among firms in a network is the result of the effort of the whole collectivity of them to gain a competitive advantage.

2.2 *Personal relations and networks.*

Relations between nodes can be distinguished between personal and professional. Following Lincoln (1990:281), personal relations produce “relations of trust, obligation, and custom among formally independent firms”, while professional relations are identified in the various connections in which person are brought together making a business. Personal relations rely on informal ties between components (Padgett and Powell, 2003). Personal relations, such as friendship, kinship, political and territorial, enable partners to exchange vital information for the growth of a network because they trust in each other’s behavior (Gulati, 1998); this situation favors knowledge creation processes inside the system. Trust can be considered also in professional sense but we claim that in case of personal relations firms rely on others because they share common values which enhance the willingness to cooperate and transfer information (Padgett and Powell, 2003). Personal relations enable the diffusion of information between members; as a consequence, a learning process occurs among members and new knowledge is created and shared. This facilitates the diffusion of innovations all over the system (Padgett and Powell, 2003).

Within networks, it is possible to observe also the coexistence of formal and informal relations, which plays different roles informing differently innovation dynamics. Formal relations are in accordance with the requirements and conventional way to relate with other actors. Meanwhile, firms relate with each other through informal contacts, based on not conventional way of connection. Usually, the use of informal relations, such as face-to-face contacts, support personal relationships that increase the exchanges of tacit knowledge between firms (Granovetter, 1985). Formal relations support economic exchanges establishing a strong link between innovative activities and trust-based relationships; those types of relations promote perspective cohesion among actors of a network. Vice versa, informal relations sustain common

purposes through information flows; social relations help to decrease uncertainty and promote the creation of trust between components of a network (Gulati, 1995; Burt e Knez, 1995). Belonging to a network influences organizational behavior; in fact, informal relations between members make possible sharing values and firm's culture (Coleman, Katz, Menzel, 1996). Moreover, within network it is possible to observe imitative processes and a flow of information favored by friendly and trust-based relations (Johannisson; 1998; Gulati, 1998; Giuliani, 2007). The latter are fundamental for network creation and growth.

The diffusion of innovations within networks is strongly influenced by the multidimensional perspectives of their members. In fact, relationships between firms can be of different types and, according to their nature, knowledge creation and spread occurs differently. Padgett and Powell (2003) showed the existence of multidimensional links within networks, such as professional, personal and political ones. Those multidimensional links contribute to the social and economic developments of network differently, as it has been emphasized in their study. They argue that social and personal relations increase information flows within networks: when a personal tie exists, actors tend to simplify information flows because of trust between them (Padgett and Powell, 2003). An important contribution in understanding the role of personal relations in economic systems is due to Granovetter (1985). He identifies two different forms of transacting: arm's-length relations (strong ties), referred to business relationship, and embedded relations (weak ties), which are more personal. Embeddedness "refers to that process by which social relations shape economic action in ways that some mainstream economic scheme overlook or mis-specify, when they assume that social ties affect economic behavior only minimally or, in some stringent accounts, reduce the efficiency of the price system" (Granovetter, 1985, Crosby and Stephens, 1987 in Uzzi (1997), pp. 674). According to Powell (1990), networks are characterized by embedded relations because when such ties are present, firms are motivated to pursue long-term goals despite of the possible lacks of immediate economic revenues. Mutual trust constitutes incentive to pursue a long-term collaboration and growth and reinforcement of the networks (Uzzi, 1997; Smitka, 1991). Personal relations, when supported by informal contacts, enhance embeddedness that allows firms to obtain important outcomes, such as information gathering and innovation

sharing. In this case, trust works as a governance mechanism of embedded relationships. According to Uzzi (1997), “embedded relationships have three main components that regulate the behaviors of exchange partners: trust, fine-grained information transfer, and joint problem-solving”(Uzzi, 1997 pp. 42).

Embeddedness plays an important role also in terms of facilitating the development of operative activities. In fact Uzzi (1997) claimed that embedded relations entail problem-solving mechanisms that enable actors to coordinate functions and work out problems “on the fly”. Embeddedness permits firms to develop routines of negotiations and mutual adjustment; firms become flexible, react rapidly to environmental changes and solve problems sharply (Larson, 1992). Activities based on close relationships are facilitated since it has been proven the development of a sort of “business friendship”. Business friendship motivate in exceeding the formal contract in doing business together (Uzzi, 1997). As Helper (1990) showed, when embedded ties exist, firms in a network work together getting direct feedback; this mechanism provide the possibility to solve joint problems and create new combinations to reach their common purposes.

3 The empirical context: CISI consortium

The empirical context that has been selected for this study is a consortium of SMEs operating in Abruzzo (Italy): CISI (Consorzio Italiano Subfornitura Impresa). CISI in composed by 15 SMEs, operating in the automotive industry. CISI Consortium is located in Val di Sangro, an important industrial district specialized in mechanical sector. In this district are present also important multinational companies. In fact, CISI Consortium is composed by subsidiaries of a mayor automotive player: Honda; the Japanese company has a production plant located in Val di Sangro. In the late 70s the management of Honda Italia encouraged the creation of captive suppliers in order to implement “just in time” procedures in a more effective way thought a direct relation with in loco suppliers. Some of these captive suppliers experienced an important growth being first tier suppliers of Honda, achieving critical competencies, technical and well as managerial. Their small size constituted a problem for entering in new markets and increasing their business. For these reasons, 13 of them decided to create a Consortium of SMEs. CISI Consortium was founded in the 1992; in the 2007 CISI consortium is composed by 15 SMEs, with a total of over 800

employees, 100 million of euros of revenues. The aim of the Consortium is to overcome the limitation of the small size of the members, leveraging upon their shared vision of the business (Honda philosophy played a central role in creating shared values). The consortium developed common marketing activities, such as the participation in Expos and specialized events, objectives that could not have been achieved by the single firms operating separately. The consortium manages the 60% of the capabilities required to build a bike: having a unique brand allow them to present their products as a bundle of services to new clients. Of course Honda still plays a central role as systems integrator of these capabilities and as mayor client but CISI is increasing his number of clients including other manufacturers such as BMW, FIAT, Sevel, Rotax, KGM.

We selected CISI as case for this research because the consortium presents a large variety of relationships, horizontal as well as vertical, formal and informal; friendship and business relationship are closely tied together. In such context, the analysis of the role that formal and informal relationships play in enabling the diffusion of innovation, i.e. adoption of new IT technologies, is particularly interesting.

4 Method

In order to achieve the research goals stated in the previous section, we used a qualitative research approach. Case study methodology is appropriate for explorative analysis since it allows to identify and understand different dimensions that characterize a phenomenon (Eisenhardt, 1989; Leonard-Barton, 1992; VanMaanen, 1998; Yin, 2003). Open-ended interviews constituted the principal source of data. This type of interview, also defined exploratory interview, consists in asking questions about a specific topic, including the particular point of view of the interviewee (Oppenheim, 2000). The semi-structured questionnaire used is divided in three parts. The first one asks for a description of the work flow in the firm and for each phase has been asked a description of all the relationships that the firms has with third parties. In particular, special attention has been paid in describing the content, the frequency and the length of formal and informal relationships. The second part of the questionnaire focused on the role of the information technologies in the business. Also in this section, special attention has been paid to investigate the contribution that information technologies have in enabling relationships. The

third part focused on the characteristics of the external environment, in order to capture any special feature or special contingency that make the context where the firms is operating unique or interesting.

The president of CISI, Pietro Rosica, has been contacted first. The researchers illustrated the aim of the research and he showed a great interest in participating. After a first meeting with him, a presentation letter has been forwarded to all the members of the Consortium by the president itself, describing the research and strongly encouraging the participation. The researchers contacted personally all the members and 14 out of 15 agreed to be interviewed. We conducted a total of 25 interviews, 12 with general manager or CEO, 13 with responsible of other functions (sales, purchasing, IT). A detailed description of the interviewees and their role in the company is provided in the appendix A. The length of interviews was between 30 and 75 minutes. Interviews were conducted at the firm site between February and April 2007. All interviews have been digitally recorded and transcribed integrally, in order to not lose any detail of the conversation.

Interviews has been analysed following a content analysis procedure. Content analysis is “research technique for the objective, systematic, and quantitative description of the manifest content of communication” (Berelson, 1952). Following the guidelines provided by Krippendorff (2003), researchers identified the sampling, recording and context units as follows. According to Krippendorff, “sampling units are units that are distinguished for selective inclusions in the analysis” (Krippendorff, 2003: p.98). In our case the sampling units is represented by the firm. “Recording units are distinguished for separate description, transcription recording or coding” (Krippendorff, 2003: p. 99), while “context units are units of textual matter that set limits on the information to be considered in the description of recording units” (Krippendorff, 2003: p.101). In our case, context and recording unites coincide: as context units we selected the sentence; this choice is motivated by an holistic approach to the text that appear to be especially appropriated since language used for interviews was Italian. Italian language is rich of synonyms and many words have ambiguous meanings that cannot be understood without considering the whole sentence. The meaning of the word typically depends on its syntactical role within a sentence.

Two researchers have developed the list of nodes. Each researcher elaborates its own list, working independently, on the basis of the literature on the topics (activities and relations-add ref.). Once the two lists have been elaborated, thoughts and ideas have been discussed and they, working jointly, elaborated a unique list that represented the basis for the text coding. In order to improve objectivity, the researchers elaborated a set of rules that minimized the possibility that findings reflected the analysts subjective predispositions rather than the content of the documents under analysis (Kassarjian, 1977). These rules are represented by dictionaries, constructed as follows: we extracted with the software Nvivo7 a list of the words present more than 10 times in the text. The list was composed by 776; after eliminating articles, auxiliaries and prepositions, joining singular and plurals we had a list of 141 (appendix B). Researchers selected the words relevant for the nodes identified and using a dictionary of synonyms and anonyms (Gabrielli, 2000) researchers created a dictionary for every concept in the node tree (appendix C). Researchers then proceeded to coding the relevant sentences using the text search function and they manually checked every portions of the text in order to avoid errors in coding, due to the multiple possible meanings that can be attributed to the words. Researchers worked independent of one another. Appendix D reports the list of nodes with number of sources and references coded for each node. The detailed description of the dictionary creation and coding procedure has been offered in order to enhance objectivity and reliability of the study (Holsti, 1968; Kassarjian, 1977; Kolbe & Burnett, 1991).

5 Discussion of Results

In the present section, we will discuss the results of the content analysis. We adopted a descriptive approach that is more adequate to the type of research method adopted (ref). In fig 2 is reported a word count matrix that show the overlapping between the relations and the activities. The matrix represents the number of words in sentences that link activities in the columns with relations in the rows. This matrix represents the starting point for the analysis. On the basis of these results, we constructed some graphs to better represents the result arising from the data and we also performed non-parametric test in order to test to be able to test

hypothesis and to explore further the topic object of the study, as it will be explained in the remaining of the section.

In figures 3 and 4 are reported two histograms that represent the role of each type of relation in enabling the different activities. In fig 3 the bars are positioned in decreasing order according to the value (in %) of the innovative activities enabled by the different relations and in fig 3 according to the strategic activities enabled. Fig. 5 summarize the percentage reported in fig 3 and 4, adding data about operative activities.

Fig. 1 : Analytical Model

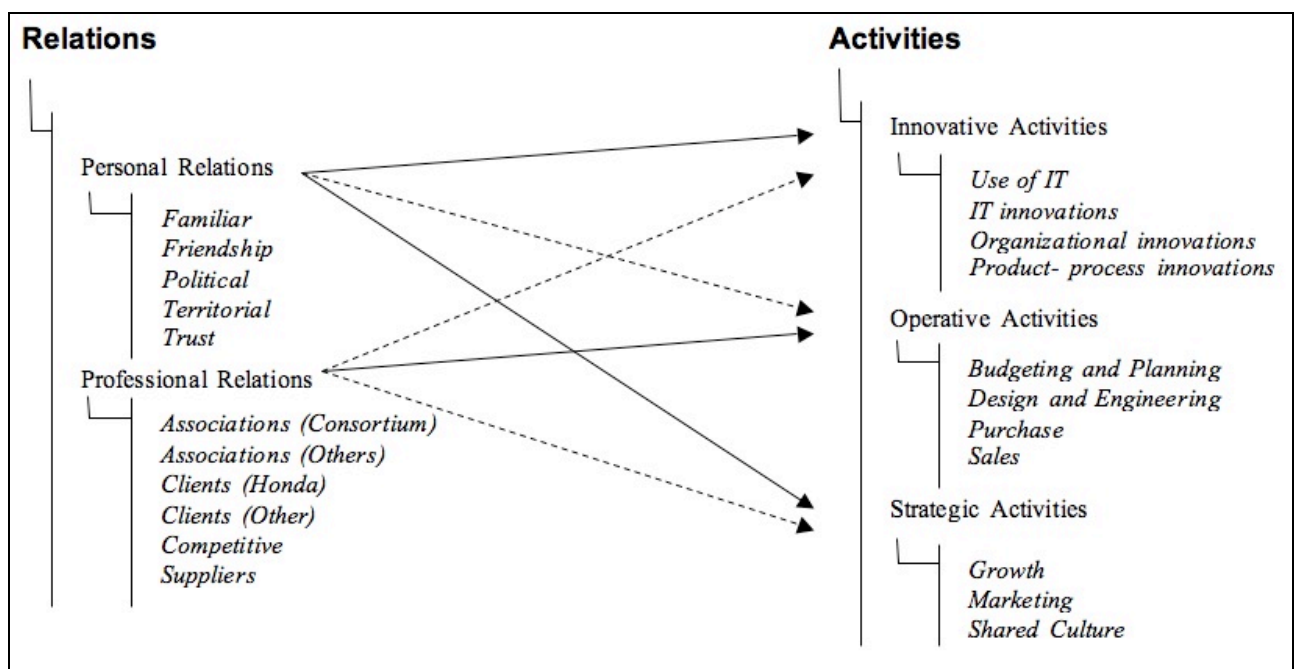


Fig. 2: Word Count Matrix: Activities * Relations

	Strategic Activities				Innovative activities				Operative activities				
	Shared Culture	Growth	Marketing	tot	Organizational innovation	Product-Process Innovation	IT Innovation	tot	Sales	Purchase	Budgeting-Programming	Design-Engineering	tot
Personal Relations	166	70	-	236	121	182	79	343	374	218	-	140	600
Familiar	-	-	-	-	-	-	-	-	62	-	-	-	62
Friendship	-	-	-	-	-	182	-	182	80	-	-	140	220
Territorial	-	70	-	70	39	-	79	79	171	132	-	-	171
Trust	166	-	-	166	82	-	-	82	61	86	-	-	147
Personal * Clients	166	70	-	236	82	182	40	304	299	174	-	140	481
Personal * Competitive	-	-	-	-	-	-	-	-	-	-	-	140	140
Personal * Consortium	166	-	-	166	-	-	-	-	-	-	-	48	48
Personal * Honda	166	70	-	236	82	-	40	122	166	79	-	140	306
Personal * Other Ass.	-	-	-	-	-	-	-	-	-	-	-	-	-
Personal * Other Clients	-	70	-	70	-	182	-	182	133	95	-	-	175
Personal * Professional	166	70	-	236	82	182	40	304	299	174	-	140	481
Professional Relations	1.366	742	920	2.953	1.247	1.078	3.660	5.919	8.088	5.555	1.998	1.982	15.282
Associations	753	151	668	1.497	-	143	295	438	828	537	15	48	1.368
Conzorzio	753	151	668	1.497	-	143	295	438	828	537	15	48	1.368
Other	-	-	157	157	-	-	-	-	-	-	-	-	-
Clients	1.107	666	468	2.166	922	1.046	2.757	4.659	7.413	2.213	1.612	1.846	11.248
Honda	1.107	547	363	1.942	822	429	1.407	2.692	5.362	1.188	761	971	7.455
Others Clients	178	591	120	889	255	683	1.745	2.583	3.502	1.107	851	894	5.263
Competitive	-	-	18	18	114	-	129	243	451	586	-	312	1.263
Suppliers	256	121	190	567	304	32	653	1.023	687	4.252	706	181	4.893

Fig. 3: Activities * Relations histogram, ordered by innovative activities

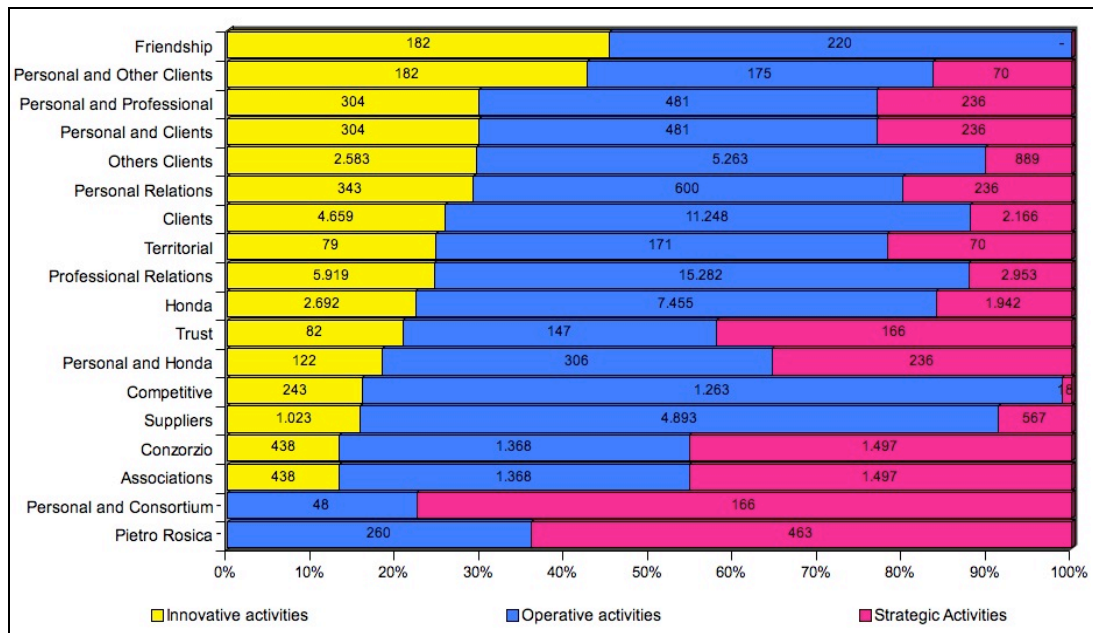


Fig. 4: Activities * Relations histogram, ordered by strategic activities

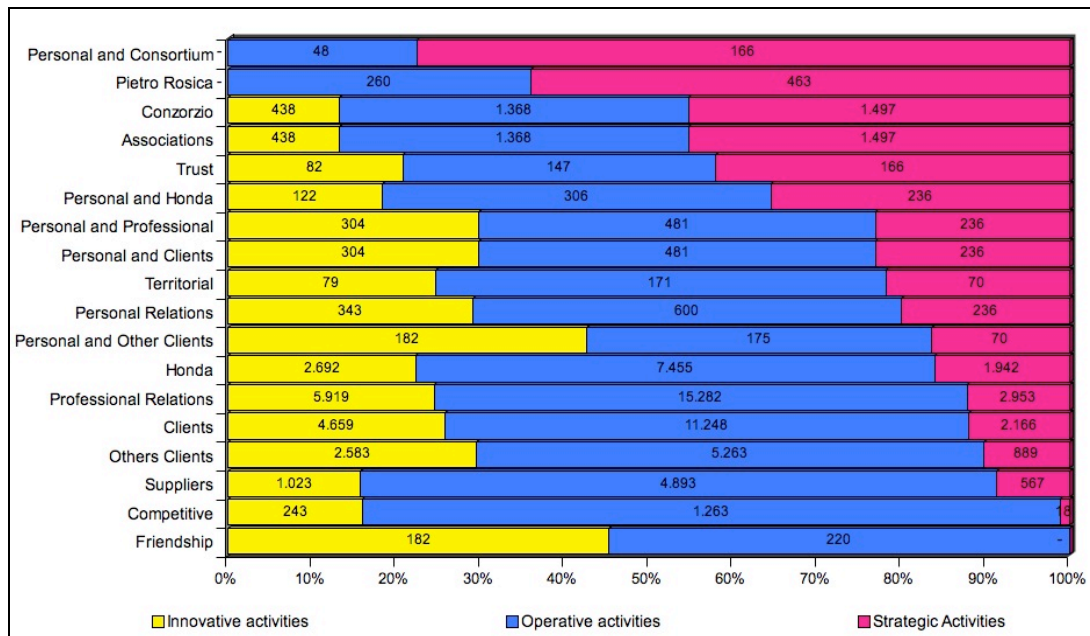


Fig. 5: Word frequency percentages

<i>Innovative activities</i>		<i>Operative activities</i>		<i>Strategic Activities</i>	
Friendship	45%	Competitive	83%	Personal * Consortium	78%
Personal * Other Clients	43%	Suppliers	75%	Pietro Rosica	64%
Personal * Clients	30%	Professional Relations	63%	Associations	45%
Personal * Professional	30%	Clients	62%	Consortium	45%
Others Clients	30%	Honda	62%	Trust	42%
Personal Relations	29%	Others Clients	60%	Personal * Honda	36%
Clients	26%	Friendship	55%	Personal * Clients	23%
Territorial	25%	Territorial	53%	Personal * Professional	23%
Professional Relations	25%	Personal Relations	51%	Territorial	22%
Honda	22%	Personal * Clients	47%	Personal Relations	20%
Trust	21%	Personal * Professional	47%	Personal * Other Clients	16%
Personal * Honda	18%	Personal * Honda	46%	Honda	16%
Competitive	16%	Associations	41%	Professional Relations	12%
Suppliers	16%	Consortium	41%	Clients	12%
Associations	13%	Personal * Other Clients	41%	Others Clients	10%
Consortium	13%	Trust	37%	Suppliers	9%
Personal * Consortium	0%	Pietro Rosica	36%	Competitive	1%
Pietro Rosica	0%	Personal and Consortium	22%	Friendship	0%

In the remaining of the section, we will discuss the more important results that arise from the analysis of the data, integrating the evidences from the word count matrix with quotations from the text of the interview. Results arising from the analysis of the data will be divided in descriptive and in original contributions. Descriptive results are the results that we have found and that are coherent with established bodies of literature. We report these results here in order to describe the case study object of the analysis and to prove the appropriateness of the methodology chosen in capturing distinctive feature of the analysed context. The original contributions are the empirical evidences that help us in answering to the research questions that has been stated in the introduction.

Descriptive results

- Strategic activities are enabled mostly by associations - consortium

In fig. 5 the relations analyzed are reported in increasing order accordingly to their attitude to enable different activities. The first four places for the strategic activities are occupied by relation related to associations relation, in particular, relations with the CISI consortium

(Pietro Rosica is the president of the consortium). This is coherent with the scope of the associations and of the consortium. Especially the latest, CISI consortium, was born with the aim of supporting the growth of the SMEs that were part of it and its activities are mainly focused on activities, such as marketing, that could not have been carried out by the SMEs themselves. Their small size do not allow the participation to big events or the development of a proper marketing strategy while when they are working together, they achieve a bigger dimension that increase their contractual power and allow them to exploit economies of scale. As one interviewee has pointed it out: "if we want to go and participate in an exposition, we have to invest 30.000 euros. None of us has such power. of investing such money without being sure in the effective returns. If we are 10, we spend 3.000 euros each and we can participate. And this is a incredible opportunity to meet new potential clients. Creating this association also increased their power in the local economic system; one interviewee pointed out: "now we are the third organization in Val di Sangro. We are a consortium with 1100 employees and revenues for 130 million euros. After Sevel and Honda, there are not other organizations as big as us. We, as company, we born in a church and now, with the consortium, we can discuss with multinationals and we have in important role in the economic system of the region".

- Strong link among territorial relations and innovative activities

The relevance of territorial relations in enabling innovative activities appears very strong. In fact, as it is possible to see in fig. 3, territorial relations are is the more important component of the personal relations in enabling innovative activities. This is coherent with literature about industrial districts and regional systems of innovation that attribute an important role to geographical proximity in diffusing innovation and facilitating the adoption of innovative practices (Becattini, 1992; Becattini, 1986; Breschi & Malerba, 1997; Cantwell & Iammarino, 1998; Cooke, 1996). This has been stated also by an interviewer that pointed out: "(...) in our area many multinational companies are located: Honda,

Sevel, Pilkinton that produce car glass, Honeywell that produce turbo-compressors. For this reason there are a lot of activities going on linked with the world of automotive and motorbikes”.

- Role of key individuals in strategic activities.

Relations developed inside the Consortium, as it has been already pointed out, enable strategic activities. Another important aspect that arose from the analysis of the data is the central role played by one key individual that is acting as catalyst of activities, especially the strategic ones. In the list of word more frequently repeated, reported in the appendix B, the words “Pietro” and “Rosica” are present 16 and 13 times and he is the person that has been nominated most during the interviews. In fig. 4, it emerges that the relations where Pietro Rosica is involved, enable the development of strategic activities; more specifically, the majority of the activities connected with this relation are strategic (260 words for operational activities against 463 words for strategic). This has been explained in the following way by an interviewee: “(...) then arrived the new president, Pietro Rosica. He’s giving new life to the Consortium. The number of companies in the Consortium increased, we begun to think about starting a service company, about organizing new marketing activities (...) He’s like a volcano, he is full of ideas; every now and then he has new ideas, the collaboration with the University, the Foundation, we have new initiatives that cover 360°(...)”

- Role of clients in diffusing innovation

Coherently with what has been affirmed by Pavitt in his seminal paper (Pavitt, 1984), the automotive sector, where the firms analysed operate, is part of the category of specialized suppliers. As it is possible to see in figure 3, among the 7 relations that enable the diffusion of innovation, clients are present in 5 of them. This results, however, is not surprising since it is coherent with has been stated in the literature. We found this result important since it helps to describe the phenomenon analyzed.

- Role of key clients in diffusing organizational innovation

From the list of nodes reported in appendix D it is possible to see that there one client, Honda, which has a central role in professional activities. The same evidence can be noticed analysing the list of the most frequent words in the interview text (appendix B): the word “Honda” is present for 273 times (2nd in the rank). We further explored the role of this key client as enabler of activities and we noticed that, despite of the large number of operational activities carried out during the relationship with Honda -due to its role as main client for all the firms analysed- this clients played also a central role in diffusing organizational innovation (fig. 2). In fact, the matrix reports 992 words for the organisational innovation and clients relations and 822 words for organizational innovation and Honda relations. In particular, we refer to the practice of the “just in time”, adopted by Honda and diffused among all its contractors; all the SMEs interviewed have implemented this innovation and the central role played by Honda it is specified in many interviews: “we follow a just in time approach and the client (Honda) decides its production needs (...) we have to follow our customer requirements, this is the game” or “ we do not have warehouse anymore: we ship to Honda up to 3 times per days; this is what Honda requires to lower cost and we have to follow”

- Operative activities are enabled by professional relations
(competitive, suppliers)

This result is not surprising but it is consistent with what has been already discussed. As it is possible to see in fig. 5, the relations that mostly enable operational activities are professionals. The data inserted in the table are percentage so the high values reported are due to their small roles in enabling the other two types of activities. Moreover, the small role of suppliers in enabling innovative and strategic activities it is also due to specific characteristics of the context analysed. As it has been already discussed, the sector investigated is “specialized suppliers” (Pavitt, 1984) and external suppliers have a marginal role in enabling innovative activities.

Original contributions

- Personal relations mediate (+) the role of professional relations in enabling the diffusion and adoption of innovation

In fig. 5 the relations analyzed are reported in increasing order accordingly to their attitude to enable different activities. Mainly the relations with clients enable innovative activities but the personal aspect of this relationship increase the innovative potential of the relations. In fact, the relation with “other clients” (not Honda), with “clients” and with “professionals” are in the 5th, 7th and 9th place whereas the same relation mediated by personal component are in the 2nd, in the 3rd and in the 4th place. We found this result interesting and we further explored it performing a non-parametric test, the Wilcoxon Signed Ranks Test. In fig. 5 the distribution of the percentage of the activities enabled by the different relations are reported jointly with the same percentage of the activities enabled by the activities with a personal component. The “innovative*personal” distribution has been created counting the number of words spend to describe professional relations as well as personal relations (sentences coded as professional relations as well as personal relations). Ranks for the Wilcoxon Signed Ranks Test are reported in fig. 6 and the statistics of the test in fig. 8. Surprisingly we found that the test is significant only for the operative and strategic activities and not for the innovative activities. In fact, we can affirm that personal relations plays a central role in enabling strategic activities (pValue = 0,05) and, on the other way round, that operative activities are not enabled by personal relations (pValue = 0,05). Nothing can be affirmed for the role of personal relationship in enabling innovative activities, since the pValue of the test do not allow us to confirm our hypothesis. We think that this is mainly due to the strong influence of the association-related activities that influence the results of the test.

- Negative correlation between strategic activities and operative - innovative activities.

Another interesting result is showed in fig. 9. In the table are reported the results of the correlation among the relation that enable the 3 activities. Results are significant in describing a negative correlation between operative and strategic activities and innovative and strategic activities. Our interpretation of these results is that the typology of relations required for innovative-operative activities differs from the ones require for the strategic activities. Operative and innovative activities are not correlated but it looks like that the strategic activities use different types of relations from the other activities. This is due to a strongest conceptual link among innovative and operational practices (add ref) while strategic activities uses other channel to be developed. Strategic activities take place in context that differs from the other two activities.

Fig. 6: Professional and Professional*Personal distributions

	Innovative activities	Innovative* Personal		Strategic Activities	Strategic* Personal		Operative activities	Operative* Personal	
Professional Relations	25%	30%	+	12%	23%	+	63%	47%	-
Associations	13%	0%	-	45%	78%	+	41%	22%	-
- Conzorzio	13%	0%	-	45%	78%	+	41%	22%	-
- Other Ass. *	0%	0%	=	100%	0%	-	0%	0%	=
Clients	26%	30%	+	12%	23%	+	62%	47%	-
- Honda	22%	18%	-	16%	36%	+	62%	46%	-
- Others Cl.	30%	43%	+	10%	16%	+	60%	41%	-
Suppliers	16%	0%	-	9%	0%	-	75%	0%	-
Competitive	16%	0%	-	1%	0%	-	83%	100%	+
*outlier									

Fig. 7: Ranks

	Innovative activities	Innovative* Personal		Strategic Activities	Strategic* Personal		Operative activities	Operative* Personal	
Professional Relations	25%	30%	+	12%	23%	+	63%	47%	-
Associations	13%	0%	-	45%	78%	+	41%	22%	-
- Conorzio	13%	0%	-	45%	78%	+	41%	22%	-
- Other Ass. *	0%	0%	=	100%	0%	-	0%	0%	=
Clients	26%	30%	+	12%	23%	+	62%	47%	-
- Honda	22%	18%	-	16%	36%	+	62%	46%	-
- Others Cl.	30%	43%	+	10%	16%	+	60%	41%	-
Suppliers	16%	0%	-	9%	0%	-	75%	0%	-
Competitive	16%	0%	-	1%	0%	-	83%	100%	+
*outlier									

Fig. 8: Test Statistics for the Wilcoxon Signed Ranks Test

	Innovative activities	Innovative* Personal		Strategic Activities	Strategic* Personal		Operative activities	Operative* Personal	
Professional Relations	25%	30%	+	12%	23%	+	63%	47%	-
Associations	13%	0%	-	45%	78%	+	41%	22%	-
- Conorzio	13%	0%	-	45%	78%	+	41%	22%	-
- Other Ass. *	0%	0%	=	100%	0%	-	0%	0%	=
Clients	26%	30%	+	12%	23%	+	62%	47%	-
- Honda	22%	18%	-	16%	36%	+	62%	46%	-
- Others Cl.	30%	43%	+	10%	16%	+	60%	41%	-
Suppliers	16%	0%	-	9%	0%	-	75%	0%	-
Competitive	16%	0%	-	1%	0%	-	83%	100%	+
*outlier									

Fig. 9: Correlation Table

		Operative Activities	Strategic Activities	Innovative Activities
Operative Activities	Pearson Correlation	1	-0,855 **	0,007
	N	22	22	22
Strategic Activities	Pearson Correlation	-0,855 **	1	-0,525 *
	N	22	22	22
Innovative Activities	Pearson Correlation	0,007	-0,525 *	1
	N	22	22	22
** Correlation is significant at the 0.01 level (2-tailed).				
* Correlation is significant at the 0.05 level (2-tailed).				

6 Conclusion

Innovation is diffused and adapted within network following paths that are still partially unknown. This topic appear particularly relevant if we analyse the large amount of scientific contributions that devoted their attention in deepen the understanding of network dynamics and innovation diffusion (Powell, 1990; Cooke, 1996; Uzzi, 1997; Gulati, 1998; Koug, 2000; Ferlie, 2005) . In the present work we aim to contribute to this stream of research analysing, the role played by personal relations in enabling the diffusion of innovation. The results, discussed in the previous section, are summarised in the analytical model, reported in fig. 9. The model reports the two typologies of relations analysed (personal and professional) and the three typologies of activities (innovative, operative and strategic). The arrows indicate which relation enables which activity, as emerged from the analysis of the empirical evidences.

This work presents important implications for scholar: it enlarges the existing knowledge on innovation diffusion and adoption and on the important role played by personal relationships and trust within economic context. The main contributions of the paper are twofold: (i) personal relations mediate positively the role of professional relations in enabling the diffusion and adoption of innovation; (ii) a negative correlation exists between strategic activities and operative - innovative activities. Consistent with what has been stated by Granovetter (1985) and Powell (1990), the first finding, contributes to the research stream claiming at the importance of personal relationship in economic context. In fact, the presence of trust, shared values and mutual objectives facilitate the commencement of a difficult and risky path, such as the one that characterise the adoption of innovation. In fact, is the existence of personal relation beside of the professional one, the likelihood that this relation has to enable an innovative activity is augmented. The uncertainty that characterised the innovation process is limited by the possibility to trust the counterpart; this limits the risk of opportunistic behaviours that may endanger the success of the business. This finding has important implications for managers and policy makers. In fact,

some organisations may be interested in pushing their clients or suppliers in adapting new technologies or new productive process. In such case, the existence of a personal based relation will facilitate the success of such initiative and the diffusion of innovative practice. This, of course, will increase the competitiveness also of the proponent organisation.

The second finding states the existence of a negative correlation between strategic activities and operative - innovative activities. This means that such activities occurs in different settings. The situations, both formal and informal, where strategies are discussed and executed and different form the situations where operative and innovative activities take places: channel of communication, places, social environments are different. Innovative activities are likely to take place in the same context where operative activities are performed. This has important implications for practitioners and policy makers. To increase the adoption of an innovative practice, information about the new practice have to be offered also in those settings where operative activities are performed. Although innovative activities are an important strategic content, the effective adoption of diffusion is mainly due to the operators that will use the innovation (we refer to process and product innovation indifferently). An effective communication and diffusion should take into account also the role of people that perform operational activities, since our findings demonstrate that operational and innovative activities are likely to occur in the same working context.

Moreover, the present work analyse the data using an innovative research approach: the content analysis. The content analysis is “research technique for the objective, systematic, and quantitative description of the manifest content of communication” (Berelson, 1952). It has been largely used for the analysis of speech and interviews in sociology and psychology but limited applications are found in the managerial literature (quote). The use of this technique allows overcoming some of the limitations of the case study methodology: in a

content analysis researchers have to follow strict guidelines to limit the personal judgement and personal decisions taken by researchers while analysing the data. Still, the study presents some limitations, due to the case study methodology followed. The study is based on a single case study and this limit the possibility to generalize findings. In order to enhance the generalizability of results, a replication of the case study with the use of the same methodology is suggested. Such replication will allow to control if the results aroused in the present work are due to specific contingencies of the context where firms are operating or if generalizable to different context. To augment the generalizability of the results, it is possible also the structuring of quantitative data collection, such a survey, that can capture the characteristics of the phenomenon on a larger basis, in different sectors and geographical context. Those are the avenues for future research indicated by the present work.

References

- Baptista, R. 2000. Do Innovations diffuse faster within geographical clusters? *International Journal of Industrial Organization*; 18: 515-535.
- Baptista, R. and Swann, P. 1998. Do Firms in Clusters Innovate More? *Research Policy*. 27: 525-540.
- Bazerman, M. H. (1986); Judgement in Managerial Decision Making, New York: Wiley.
- Becattini, G. 1992. The marshallian industrial district as socio-economic notion. In F. Pyke & G. Becattini & W. Sengenberger (Eds.), Industrial district and inter-firm cooperation in Italy. Geneva: International Institute for Labour Studies.
- Becattini, G. 1986. Small firms and industrial districts: The experience of Italy. *Economia internazionale*, 39(2-3-4): 98 - 103.
- Boschma, R. A. and Lambooy, J. G. (1999); Evolutionary economics and economic geography. *Journal Of Evolutionary Economics*, 9, 411-429.
- Berelson, B. 1952. Content analysis in communication research. Glencoe, Ill: Free Press.
- Boschma, R. A. (2004); Competitiveness of Regions from an Evolutionary Perspective. *Regional Studies*, 38, 1001-1014.
- Breschi, S. & Malerba, F. 1997. Sectoral innovation systems. In C. Edquist (Ed.), Systems of innovation: Technologies, institutions and organizations. London: Pinter.
- Burt, R. S. (1992); Structural Holes: the Social Structure of Competition. Harvard University Press Cambridge.
- Burt, R.; Knez, M. and Powell W. W. (1997); Trust and third party ties.
- Cantwell, J. & Iammarino, S. 1998. Mncs, technological innovation and regional systems in the eu: Some evidence in the italian case. *International Journal of the Economics of Business*, 5(3): 383 - 408.
- Coase. 1937. The nature of the firm. *Economica*, 4(16): 386 - 405.
- Cohen, W. M. and Levinthal D. A. (1989); Innovation and Learning: The Two Faces of R&D. *The Economic Journal*, Vol. 99, No. 397, pp. 569-596.

- Coleman, J., Katz, E. and Menzel, H. (1996). Medical innovations: A diffusion study. New York: Bobbs Merrill.
- Cooke, P. 1996. Regional innovations systems: An evolutionary approach. In H. Baraczyk & P. Cooke & R. Heidenrieck (Eds.), Regional innovation systems. London: London University Press.
- Cooke, P. and K. Morgan, 1998. The Associational Economy: Firms, Regions and Innovation, Oxford: Oxford University Press.
- Crosby, L. A. and Stephens N. (1987); Effects of Relationship Marketing on Satisfaction, Retention, and Prices in the Life Insurance Industry. Journal of Marketing Research, Vol. 24, No. 4 (Nov., 1987), pp. 404-411
- Dosi, G. 1988. Sources, Procedures and Microeconomic Effects of Innovation, Journal of Economic Literature 36, 1126-1171.
- Eisenhardt, K. 1989. Building theories from case study research. Academy of Management Review, 14(4): 532 - 550.
- Edquist, C. (2000); The Systems of Innovation Approach and Innovation Policy: An account of the state of the art. DRUID Conference, 2001.
- Ferlie, E., Fitzgerald, L., Wood, M., & Hawkins, C. 2005. The nonspread of innovations: The mediating role of professionals. Academy of Management Journal, 48(1): 117 - 134.
- Gabrielli, A. 2000. Dizionario dei sinonimi e contrari: Loescher Editore.
- Giuliani, E. 2005. The micro-determinants of meso-level learning and innovation: evidence from a Chilean wine cluster . Joint with M.Bell, Research Policy, 34(1), 47-68
- Grandori, A. (1996); Market, Hierarchy and Agency. In M. Warner (ed.), International Encyclopedia of Business and management. London: Routledge.
- Grandori, A. (1997); Governance Structure, Coordination Mechanism and Cognitive Models. The Journal of Management and Governance, 1: 29-47.
- Grandori, A. and G. Soda (1995); Inter-Firm Networks: Antecedents, Mechanisms and Forms. Organization Studies; 16(2): 183-214.

- Granovetter, M. S. 1983; The Strength of Weak Ties: A Network Theory Revisited. Sociological Theory, Vol. 1, 1983, pp. 201-233.
- Granovetter, M. S. (1985); Economic Action and Social Structure: the Problem of Embeddedness. American journal of Sociology, 91: 481-510.
- Grant, R.M. (1999); The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. Knowledge and strategy.
- Gulati, R. (1995); Social Structure and Alliance Formation Patterns: A Longitudinal Analysis. Administrative Science Quarterly, Vol. 40.
- Gulati, R. (1998); Alliances and networks. Strategic Management Journal, Vol. 19, 4: 293 – 317.
- Helper, S. (1990); Comparative supplire relations in the U.S. and Japanise auto industries: An exit voice approach. Business Economic History, 19: 153-162.
- Hirschman, A. Q. (1970); Exit, Voice and Loyalty: Resposes of decline in Firms, Organizations and States. Cambridge, MA: Harvard University press.
- Holsti, O. 1968. Content analysis. In G. Lindzey & E. Aronson (Eds.), The handbook of social psychology. Reading MA: Addison-Wesley.
- Johannisson, B. 1998. Personal Networks in emerging Knowledge-based Firms: spatial and functional patterns. Entrepreneurship & Regional Development; 10, 297-312.
- Kassarjian, H. 1977. Content analysis in consumer research. Journal of Consumer Research, 4(June): 8 - 18.
- Keeble, D. and Wilkinson, F. 1999. Collective Learning and Knowledge Development in the Evolution of Regional Clusters of High Technology SMEs in Europe. Regional Studies, Vol. 33, 4: 295 - 303
- Knoke, D. (1990); Political Networks: The Structural Perspective. Cambridge University Press.
- Kogut, B. 2000. The networks as knowledge: Generative rules and the emergence of structure. Strategic Management Journal, 21(3): 405-425.
- Kolbe, R. & Burnett, M. 1991. Content-analysis research: An examination of applications with directives for improving research

reliability and objectivity. The Journal of Consumer Research, 18(2): 243 - 250.

Krippendorff, K. 2003. Content analysis: An introduction to its methodology: Sage Publications.

Larson, A. (1992); Network dyads in entrepreneurial settings: A study of the governance of exchange processes. Administrative Science Quarterly, 37: 76-104.

Laumann, E. O., Galaskiewez, J. and Marsden P. V., (1978) Community Structure as Interorganizational Linkages. Annual Review of Sociology Vol. 4: 455-484.

Leiblein, M. & Miller, D. 2003. An empirical examination of transaction- and firm-level influences on the vertical boundaries of the firm. Strategic Management Journal, 24(9): 839 - 859.

Leonard-Barton, D. 1992. Core capabilities and core rigidities: A paradox in managing new product development. Strategic Management Journal, 13: 111 - 125.

Lincoln, J. R. 1990. Japanese Organizations and Organizations Theory. In L. L. Cummings and B. Staw (eds.). Research in Organizational Behavior, 12: 255-294.

Lorenzoni, G. & Lipparini, A. 1999. The leverage of interfirm relationships as a distinct organizational capability. Strategic Management Journal, 20(4): 317 - 338.

Lundvall, B. A. (1993); Explaining interfirm cooperation and innovation. The Embedded Firm: On the Socioeconomics of Industrial Networks.

Machlup, F. (1978); Ideal Types, Reality and Construction. In F. Machlup Methodology of Economics and Other Social Science. New York: Academy Press.

Marsden, P. and Friedkin, N. (1993); Network Studies of Social Influence. Sociological Methods & Research, Vol. 22, No. 1, 127-151.

Messik, D. (1993); Equality as a decision heuristic. In B. A. Mellers and J. Baron (eds.). Psychological Perspectives on justice: Theory and Applications: 11-31. New York: Cambridge University Press.

Nelson, R. & Winter, S. 1982. An evolutionary theory of economic change: Belknap Harvard.

- Oppenheim, A. V. 2000. Questionnaire design, interviewing and attitude measurement. London: Pinter.
- Ouchi, W. G. (1980); Markets, Bureaucracies and Clans. Administrative Science Quarterly; 25: 129-141.
- Padgett, J. and Powell, W. (2003); Market Emergence.
- Pavitt, K. 1984. Sectoral patterns of technical change: Towards a taxonomy and a theory. Research Policy, 13: 343 - 373.
- Poppo, L. & Zenger, T. 1998. Testing alternative theories of the firm: Transaction cost, knowledge-based, and measurement explanations for make-or-buy decisions in information services. Strategic Management Journal, 19(9): 853 - 877.
- Portes, A. and Sensenbrenner, J. (1993); Embeddedness and immigration: Notes on the social determinants of economic action. American Journal of Sociology, 98: 1320-1350.
- Powell, W. 1990. Neither market nor hierarchy: Network forms of organization. Research in organizational behaviour, 12: 295 - 336.
- Rallet, A. and Torre, A. (1999); Is geographical proximity necessary in the innovation networks in the era of global economy? GeoJournal, 49: 373-380.
- Rosenberg, N. (1982); Inside the Black Box: Technology and Economics. Cambridge University Press.
- Simon, M. (1991); Organizations and markets. Journal of Economic Perspectives, 5: 24-44.
- Smith-Doerr, L. and W. W. Powell (2003); Networks and Economic Life. The handbook of Economic Sociology.
- Smith-Ring, P. and A. H. Van De Ven (1992); Structuring Cooperative relationships Between Organizations. Strategic management Journal, Vol. 13, 7: 483-498).
- Smith, A. 1965 edition. The wealth of the nation. New York: Modern Library.
- Smitka, M. (1991); Competitive ties: Subcontracting in the Japanese Automotive industry. New York: Columbia University press.
- Teece, D. & Pisano, G. 1994. The dynamic capabilities of firms: An introduction. Industrial and Corporate Change, 3: 537 - 556.

Uzzi, B. (1996); The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: the Network Effect.

American Sociology Review, Vol.61, No. 4, 674-698.

Uzzi, B. (1997); Social Structure and Competition in Interfirm Networks: the Paradox of Embeddedness. Administrative Science Quarterly, 42: 35-67.

VanMaanen, J. 1998. Qualitative studies of organizations: Sage.

Williamson, O. E. 1975. Markets and hierarchies: Analysis and antitrust implications. New York: Free Press.

Williamson, O. E. 1985. The economic institutions of capitalism: Free Press.

Williamson, O. E. (1994); Transaction cost economics and organization theory. In Neil J. Smelser and Richard Swedberg (eds.). the handbook of Economic Sociology: 77-107. Princeton, NJ: Princeton University Press

Yin, R. K. 2003. Case study research: Design and methods. London - New Delhi: SAGE Publications.

Appendix A: list of interviews;

Data collected by Federica Ceci, Daniela Iubatti and Alberto Simboli

	Name of the interviewee	Role	Company	Location	Interviewer
1	Pietro Rosica	General Manager	Cometa	Atessa	AS - FC
2	Gabriele Scalzi	MKT & Sales Manager	Cometa	Atessa	AS - FC
3	Mario Di Cintio	Sales and Planning	Cometa	Atessa	AS - FC
4	Palmerio	Purchase	Cometa	Atessa	AS - FC
5	Mario Lorenzi	General manager	Taumat	Atessa	AS - DI
6	Maurizio Sciocchetti	Sales manager	Me.ga.	Arielli	AS - DI
7	Vito Pocetti	General Manager	Igea	Lanciano	FC – DI
8	Giuseppe Giancristofaro	Quality Manager	Igea	Lanciano	FC - DI
9	Ettore Liberatoscioli	CEO	La Tecc.	Fara F. P.	FC – DI
10	Donato Di Nardo	Sales Manager	Comest	Filetto	FC – DI
11	Gabriele Tumini	General manager	TMC	Vasto	AS - DI
12	Sergio Di Campi	Purchase	TMC	Vasto	AS – DI
13	Luciano Tilli	Sales and Planning	TMC	Vasto	AS – DI
14	Lucio Palena	General manager	Palena	Atessa	AS – DI
15	Annamaria Palena	Administration	Palena	Atessa	AS – DI
16	Andrea Casalanguida	General Manager	Ca stampi	Rocca s.g.	AS
17	Flordeo Panaccio	General Manager	Cams	Fara F.P.	AS – FC
18	Maurizio Cocco	General Manager	TA	Casoli	FC – DI
19	Barbara Madonna	Amministrazione	TA	Casoli	FC – DI
20	Fabio Di Tommaso	Purchase	TA	Casoli	FC – DI
21	Alfonso Trozzi	CEO	Fisem	Atessa	AS – DI
22	Rosanna di Nuzio	Sales	Fisem	Atessa	AS – DI
23	Antonello Di Tonno	General Manager	Galvanica	Spoltore	AS – FC
24	Michele Romagnoli	General Manager	Europainting	Atessa	AS - FC
25	Francesco Raho	Production Manager	Europainting	Atessa	AS - FC

Appendix B: list of the words present more then 10 times in the text .

Word	Count	Word	Count	Word	Count
client*	385	sviluppo	32	concorrenza	15
honda	273	insieme	32	torino	14
aziend*	243	cart*	32	taglio	14
fornitor*	232	modell*	30	software	14
prodott*	188	computer	30	sito	14
consorzio	186	attrezzature	29	serigrafia	14
tecnologi*	144	rete	28	filosofia	14
produzione	137	cams	28	domanda	14
relazion*	136	gestire	27	server	13
problem*	129	commerciale	27	cina	13
pezz*	120	sevel	26	bologna	13
ordin*	116	ditt*	26	territorio	12
mail	110	comunicazion*	26	stampaggio	12
stamp*	105	telefono	25	rosica	12
cisi	98	fiat	25	milano	12
material*	88	verniciatura	24	mega	12
informatic*	87	trattament*	24	fiducia	12
qualità	75	cablaggio	24	consegne	12
settore	72	società	23	connettori	12
cometa	67	servizio	23	competizione	12
moto*	65	membri	23	tecniche	11
progett*	62	fornitura	23	taumat	11
acquist*	61	tmc	22	riunioni	11
processo	60	just in time	22	quantità	11
mercato	54	internet	22	partiti	11
bene	54	ricerca	21	offerte	11
impres*	49	gestionale	21	manutenzione	11
fax	48	impianti	20	lotto	11
lavorazion*	46	fattori	20	guardiagrele	11
disegn*	46	vendita	19	fiera	11
portal*	45	occasional	19	ferro	11
macchin*	45	interfaccia	19	fatture	11
fatturato	45	dipendenti	19	database	11
nuovo	43	controllo	19	contatto	11
dati	42	verlicchi	18	competitivo	11
cost*	41	programmi	18	scioli	10
giappon*	40	presidente	18	sap	10
concorrenti	40	bolla	18	pc	10
italia	39	programmazione	17	palena	10
commess*	38	incontri	17	padre	10
soci*	37	comest	17	mentalità	10
magazzino	36	trasporto	16	marplastica	10
sistemi	35	pietro	16	manodopera	10
prezz*	35	documenti	16	gruppo	10
tecnomeccanica	34	zincatura	15	fabbisogno	10
materie	34	tecnici	15	certificazione	10
informazioni	34	plastica	15	capannone	10

Appendix C: dictionaries

Innovative activities	
<u>Use of IT</u>	<i>programmi, software, server, database, sap, computer, internet, pc, gestionale, interfaccia, mail, posta elettronica, informatic*, dati, sit*, cad</i>
<u>IT innovation</u>	<i>software, server, database, sap, portal*, computer, gestionale, interfaccia, informatic*, dati, sit*, cad</i>
<u>Organizational innovation</u>	<i>jit, just, time, certificazione, iso, vision</i>
<u>Product-process innovation</u>	<i>brevett*, innovazion*, sviluppo, ricerca, nuovo</i>
Operative activities	
<u>Budgeting-Planning</u>	<i>controllo, programm*, programmazion*, pianificazion*, pian*</i>
<u>Design-Engineering</u>	<i>disegn*, progett*, progettazion*, design, cad, cam</i>
<u>Purchase</u>	<i>ordin*, commission*, ordinativ*, acquist*, prezz*, fornitur*, boll*, ordin*, fattur*, logistica, ingresso, sollecit*, accettazione</i>
<u>Sales</u>	<i>offert*, ordin*, commission*, consegn*, ordinativ*, ordin*, commercial*, commess*, prezz*, fornitur*, vendit*, boll*, fattur*</i>
Strategic Activities	
<u>Growth</u>	<i>crescita, sviluppo, aumento, incremento</i>
<u>Marketing</u>	<i>marketing, fier*, sit*</i>
<u>Shared Culture</u>	<i>cultura, filosofia, mentalità, modo di pensare, punto di vista</i>
Personal Relations	
<u>Familiar</u>	<i>parent*, suocer*, nipot*, zi*, padre, madre, figli*, moglie, marito, cognat*, famili*</i>
<u>Friendship</u>	<i>amicizia, amic*, cen*</i>
<u>Political</u>	<i>politic*, partit*</i>
<u>Territorial</u>	<i>territori*, Sangro, Atessa, Abruzzo, Guardiagrele</i>
<u>Trust</u>	<i>fiduci*</i>
Professional Relations	
<u>Associations (Consortium)</u>	<i>cisi, consorzio, associazione, assemble*, soci*, consorziat*, presidente, menr*, incontr*, riunion*, assemble*</i>
<u>Associations (Others)</u>	<i>associazion*, assemble*, riunion*</i>
<u>Clients (Honda)</u>	<i>Honda, Di Lorenzo</i>
<u>Clients (Others)</u>	<i>client*, acquirent*, comprator*, Sevel, Fiat, Bmw, Rotax, Iguzzini, Ducati, Toyota, Faaq, Pilkinton</i>
<u>Competitive</u>	<i>concorrent*, competitor*, competitiv*, concorrenz*, competizion*</i>
<u>Suppliers</u>	<i>fornitor*</i>

Appendix D: Sources and References Coded

Name	Sources	References
Innovative activities	14	192
Use of IT	14	151
IT Innovation	10	41
Organizational Innovation	12	22
Product-Process Innovation	11	24
Operative activities	14	237
Budgeting-Programmation	9	37
Design-Engineering	12	58
Purchase	13	95
Sales	14	101
Personal Relations	13	54
Familiar	7	12
Friendship	8	15
Political	2	3
Territorial	10	14
Trust	8	13
Professional Relations	14	314
Associations	14	85
Conzorzio	14	80
Other	4	8
Clients	14	192
Honda	14	123
Other Clients	14	100
Competitive	14	37
Suppliers	14	81
Strategic Activities	12	45
Growth	6	11
Marketing	9	21
Shared Culture	8	15