Chapter 10

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Editor

Evolving Towards the Internetworked Enterprise

Technological and Organizational Perspectives

Foreword by Ronald Maier

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Chapter 10 - Communication flows in an SME network: the C.I.S.I consortium case

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Abstract - Networks have been hailed as a third organizational form, between markets and hierarchies. One of the main characteristics of networks is the coexistence of personal and professional relationships. This coexistence modifies the development of economic activities; strategic decisions are largely influenced by the presence of trust between network members. This chapter investigates the role played by personal relationships in enabling the diffusion of innovation within networks. We address the following research questions: How do the different types of relationships in a network of SMEs enable the diffusion and adoption of innovations? Furthermore, do personal relationships play a central role in supporting innovative activities? Based on interviews with managers of SMEs in a consortium of Italian firms, we conclude that interaction between personal and professional relationships shapes a unique context that alters the usual dynamics of innovation diffusion.

10.1 Introduction

Theoretical and empirical studies on the coordination of economic activities have focused on the two polar extremes of corporate governance, namely vertical integration and market exchanges. More recently, networks have been hailed as a third organizational form, combining the advantages of these traditional governance mechanisms [1, 2]. Scholars have largely devoted their attention to advancing our understanding of the characteristics of this new organizational form. In particular, studying the factors that enable the creation of networks [3], their inner characteristics [4, 5, 6] and the distinctive features that determine the unique ways in which networks share and transfer knowledge and, as a consequence, the diffusion of innovation [7, 3, 8, 1]. More specifically, networks seem to be able to rapidly evolve and adapt to changing environments, due to the flexibility provided by the smaller organizational units within networks [9, 10, 11]. Empirical research on networks has advanced our understanding of micro-level coordination mechan-

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isms and has made clear that firms and market exchanges co-evolve to manage changes [12].

Different kinds of relationships coexist within networks: personal and professional, as well as competitive and collaborative relationships. Padgett and Powell [13] focus their attention on the existence of multidimensional links within networks, particularly professional, personal and political ties. These multidimensional links contribute in different ways to the social and economic development of networks. Padgett and Powell hold that the dynamics of economic activities are largely influenced by the multidimensional characteristics of networks. In the present study, we explore the ways in which innovations are diffused within a network. Despite significant attention devoted thus far to the issue of innovation diffusion, we still know very little about the impact that the coexistence of multiple domains has on dynamics. A greater understanding of this issue will shed further light on the role that personal relationships play in economic activities. The research questions that we address in this work are the following: (1) How do the different types of relationships that exist in an SME network enable the diffusion and adoption of innovation? (2) Do personal relationships play a central role in supporting innovative activities?

Answers to these research questions are provided by means of an empirical analysis of data from a consortium of SMEs operating in Abruzzo, Italy. The consortium, CISI, is made up of 15 SMEs operating in the automotive industry and comprises a large variety of horizontal and vertical, as well as formal and informal, relationships. Within this consortium, friendships and business relationships are closely linked. This context represents a unique setting in which we can analyze the role that personal and professional relationships play in promoting the diffusion of innovations, in this case the adoption of new IT technologies.

The remainder of the chapter is organized as follows. In section 2, we review the most relevant contributions investigating the links between innovation and personal relationships within economic networks. We also develop the analytical model that guides the analysis of the empirical evidence. Section 3 describes the empirical context in which the research is grounded, and the last two sections discuss our results, draw conclusions and describe the implications for practitioners and scholars.

10.2 Literature review and model development

10.2.1 Networks and the diffusion of innovation

Many authors have focused on competitive dynamics in an effort to determine the characteristics of, and rationales behind, collaborations between firms [3, 14, 15]. Interfirm collaborations, which include alliances and joint ventures, vary according to the type of underlying contract and in terms of the nature of the reciprocal connections between partners [3]. Networks can be considered a hybrid pattern of economic activity coordination that combines the advantages of the traditional governance mechanisms of vertical integration and market exchanges. This ensures that the network components can develop both as independent elements and as a system [2, 1, 16]. Networks represent the so-called "third way" between markets and hierarchies. They rely on characteristics other than central control and a "stand alone" logic [17]. This third way has been defined by Powell and Smith-Doerr [6] as "a set of nodes linked by a set of relations, such as friendship, kinship, political, etc." In the context of this chapter, network nodes are constituted by firms that relate to each other through various types of relationships.

Networks have been primarily analyzed by economic and management literatures [5, 3, 1, 13, 18]. An industrial district is an example of a network of firms that collaborate to produce innovative outputs [19]. The first conceptualization of a district defined a network as a group of small and medium enterprises (SMEs) that are willing to collaborate with each other to achieve a competitive advantage through personal trust and cooperation, characterized by geographic proximity [20]. In certain contexts, industrial districts are promoted by a large firm believing that a potential competitive advantage is to be gained through the creation of a network of small firms (e.g., subcontractors or suppliers) [21, 14]. Firms organized as a district benefit from what Marshall [20] defines "industrial atmosphere", a specialized environment that enables the generation of innovations. Literature focusing on networks has devoted closer attention to the analysis of the impact of relationships on the generation and diffusion of innovations within networks. Many authors argue that firms belonging to networks are more innovative than isolated firms [22, 23]. This is due to the presence of business networks that enable localized learning and knowledge sharing between firms [24, 18]. Business networks are defined as "a set of relationships established by technical professionals, when they interact with each other on a wide range of business issues" [25]. Examples of such business issues are inputs and service exchanges among members of a consortium.

Consistent with Giuliani and Bell [25], we hold that relationships between firms that belong to a cluster promote knowledge spillovers that enhance the like-

lihood of solving complex joint problems and, consequently, the generation and diffusion of innovations [7]. This mechanism works under an important condition, specifically a joint purpose. Innovation-related knowledge is therefore "the result of purposeful behavior rather than a random leakage of knowledge" [25]. The diffusion of innovation among firms in a network is the result of their collective effort to gain a competitive advantage. Hence, firms do not innovate alone: they receive continuous stimuli from the environment and from competitors, institutions and clients, as well as from other members of the network. In particular, within networks a flow of knowledge can be observed that facilitates the adoption and diffusion of innovations, increasing the innovativeness of the network as a whole [8]. In fact, according to the resource-based view of the firm, the source of competitive advantage rests on firm resources [26, 27, 28, 29], and from an innovation perspective, differences in resource configurations also determine differences in performance [3, 30].

Furthermore, geographical proximity plays an essential role in generating and facilitating the diffusion of innovative practices [31, 32, 33, 34, 10]. Proximity fosters knowledge flows between network members, which in turn enhances the likelihood of innovation generation; moreover, it represents a powerful tool through which firms can interrelate [35].

10.2.2 Personal relationships and networks

Marsden and Friedkin [36] argue that social networks influence firm actions: the pattern of relationships between network nodes and ties shapes the behavior of other actors in the network. We distinguish between two types of relationships among actors, namely, personal and professional. Following Lincoln [37], we view personal relationships as producing "relations of trust, obligation, and custom among formally independent firms," while professional relationships are identified in terms of the various connections that bring people together to make a business. Personal relationships, such as friendship, kinship, and political and geographic relationships usually rely on informal ties between components [13]. Personal relationships foster the exchange of information that is vital for the growth of a network since they enable partners to trust each other's behavior [3]. This situation favors knowledge creation processes within the system. Trust is also a factor in professional relationships, as is the firm's reputation in its business activities, but we claim that in case of personal relationships firms rely on other network members because they share common values and this enhances their willingness to cooperate and transfer information [3, 13]. The roles of formal and informal relationships jointly allow developing networks and relationships among members. As Powell and Smith-Doerr [38] point out, networks can be considered as formal exchanges between actors willing to create value, and these formal network relationships can lead to "repeated interactions that reduce the need for for-

mal control." Hence, informal relationships follow from repeated formal relationships and enable firms to obtain high levels of performance and, more importantly, the generation of innovation through increased knowledge flows.

10.3 The empirical context: CISI consortium

The empirical context of this study is CISI (Consorzio Italiano Subfornitura Impresa), a consortium of SMEs operating in Abruzzo, Italy. CISI is composed of a number of SMEs operating in the automotive industry. The CISI consortium is located in Val di Sangro, an important industrial district specializing in the mechanical sector, and comprises subsidiaries of Honda Italia, a major automotive player with a production plant located in Val di Sangro. In the late 1970s, Honda Italia's management encouraged the creation of captive suppliers to implement just-in-time procedures with local suppliers. Some of these captive suppliers experienced significant growth, but their relatively small size nevertheless constituted a problem in terms of entering new markets. For these reasons, 13 of these suppliers decided to band together to create a consortium of SMEs, and in 1992, the CISI consortium was founded. In 2007, CISI was composed of 15 SMEs, with over 800 employees and 100 million Euros in annual revenue. The aim of the consortium is to overcome the limitations of the small size of individual members and to leverage their shared vision of the business. (Not surprisingly, Honda's philosophy played a central role in the creation of shared values among consortium members.) The consortium developed common marketing activities, such as participation in expos and specialized events—activities that could not have been undertaken by the firms individually. Honda still plays a central role as the system integrator of these capabilities and as a major client, but CISI continues to increase its client base, which now includes other manufacturers such as BMW, FIAT, Sevel, Rotax, and KGM.

We selected CISI for our case study since the consortium comprises a large variety of relationships, both horizontal and vertical, and formal as well as informal. Moreover, friendship and business relationships are closely linked within CISI. In this context, the analysis of the role that personal and professional relationships play in enabling the diffusion of innovation, for example, in the adoption of new IT technologies, is particularly interesting.

10.4 Method

In this study, we employed a qualitative research approach. Case study methodology is appropriate for explorative analysis because it allows identifying and understanding the different dimensions that characterize a phenomenon [39, 40,

41, 42]. Open-ended interviews constitute our principal source of data. In this type of interview, also called an exploratory interview, researchers ask questions about a specific topic, including the interviewee's particular point of view [43]. The interviews in this study used a semi-structured questionnaire divided into two parts. The first section asked for a description of the workflow in the firm and, for each phase, a description of all the firm's relationships with third parties. Special attention was paid to the description of the content and frequency of formal and informal relationships. The second part of the questionnaire focused on the role of information technologies (ITs) in business activities.

The president of the CISI Consortium was first to be contacted and after hearing about the aim of this research showed great interest in participating. After our initial meeting, he forwarded a letter of introduction to all the members of the consortium describing the research project and strongly encouraging their participation. We then personally contacted all the consortium members and 14 out of 15 agreed to be interviewed. We conducted a total of 25 interviews, 12 with general managers or CEOs and 13 with those responsible for other functions (e.g., sales, purchasing and IT). Interviews of between 30 and 75 minutes each were conducted onsite between February and April 2007. All interviews were digitally recorded and transcribed in their entirety to retain all the details of the conversation.

10.5 Discussion of Results

10.5.1 Strategic activities are mostly enabled by consortium-related associations

This finding is consistent with the nature of associations in general and with the CISI consortium in particular. CISI was born with the aim of supporting the growth of its members. Its activities focus on actions that cannot be carried out by SMEs in isolation, for example, broad-scale marketing efforts. The small size of individual consortium members does not allow them to participate in big events, but by working together, they can increase their contractual power and exploit economies of scale. As one interviewee pointed out: "If we want to go and participate in an exposition, we have to invest 30,000 Euros. None of us has the power to invest that much money without being sure of the effective returns. If there are ten of us, we spend 3,000 Euros each and we can participate. And this is an incredible opportunity to meet new potential clients." The creation of the consortium also increased the SMEs' power in the local economic system. Another interviewee noted: "Now we are the third [largest] organization in Val di Sangro. We are a

consortium with 1,100 employees and revenues of 130 million Euros. After Sevel and Honda, there are no other organizations as large as we are. We, as a company, were born in a church, and now, with the consortium, we can have discussions with multinationals, and we have an important role in the regional economic system."

10.5.2 Strong link between geographic relationships and innovative activities

The relevance of geographic relationships in fostering innovative activities appears to be very strong. This is consistent with the results of prior literature on industrial districts and regional systems of innovation that attribute a fundamental role to geographic proximity in the diffusion of innovation and the facilitation of the adoption of innovative practices [31, 32, 33, 34, 10]. This was also noted by an interviewer, who pointed out, "Many multinational companies are located in our area: Honda, Sevel, Pilkinton (which produce automotive glazing), [and] Honeywell (which produce turbo-compressors). For this reason, there are many successful activities linked with the automotive and motorbike world."

10.5.3 Role of key individuals in strategic activities

As mentioned above, relationships developed within the consortium foster strategic activities. Another important insight arising from the data analysis is the central role that can be played by one key individual who acts as a catalyst for activities. The president of the Consortium is the person who was mentioned most frequently during the interviews. Relationships involving the President of the Consortium appear to encourage the development of strategic activities. Furthermore, the majority of activities connected with these relationships are strategic rather than operational. This was explained in the following way by an interviewee: "...[T]he new president...[is] giving new life to the consortium. The number of companies in the consortium increased, [and] we began 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 [such as] the collaboration with the university, the foundation; we have new all-round initiatives."

10.5.4 Role of key clients in the diffusion of organizational innovations

Consistent with Pavitt's taxonomy in his seminal paper [44], the automotive sector, in which the firms we analyzed operate, falls within the specialized supplier category. Moreover, we explored Honda's role as an enabler of economic activities and found that in addition to the large number of operational activities carried out in its relationships with CISI - as the key client of all the firms analyzed - it also played a central role in the diffusion of organizational innovations. In particular, we refer to the just-in-time practices adopted by Honda and diffused among all its contractors. All the SMEs we interviewed implemented this innovation, and Honda's central role is mentioned in many interviews. According to one interviewee, "We follow a just-in-time approach, and the client [Honda] decides the production needs... We have to follow our customer's requirements; this is the game." Another notes, "We do not have warehouses anymore: we ship to Honda up to 3 times per day. This is what Honda requires to lower [their] cost, and we have to follow."

10.5.5 Personal relationships enable the diffusion and adoption of innovation

Relationships with clients are the main enablers of innovative activities; however, the personal aspect of those relationships increases their innovative potential. Relationships with other clients (i.e., not Honda) and with professionals have a stronger impact on facilitating the adoption of innovations. In fact, the presence of trust, shared values and mutual objectives facilitates the start of a difficult and risky path, such as that characterizing the adoption of innovation. Our empirical evidence supports this: if personal relationships exist alongside professional relationships, the likelihood that these relationships enable innovative activities increases. The uncertainty that characterizes the innovation process is decreased by a firm's increased trust in its partners; increased trust reflects a lower risk of opportunistic behaviors that could endanger the success of the business.

10.6 Conclusion

Innovations are diffused and adapted within networks following partially unknown paths. This topic appears to be particularly relevant judging from the large number of scientific studies devoted to deepening our understanding of network dynamics and innovation diffusion [2, 10, 45, 3, 1, 30]. In this present work, our

aim has been to contribute to this research stream by analyzing the role played by personal relationships in enabling the diffusion of innovations.

Our work has important implications for scholars. It enlarges existing knowledge on innovation diffusion and adoption and on the significant role played by personal relationships and trust within economic contexts. In fact, we find that personal relationships positively mediate the role of professional relationships in enabling the diffusion and adoption of innovation. Consistent with Granovetter's [5] and Powell's [2] conclusions, our findings contribute to the research stream, documenting the importance of personal relationships in economic contexts. The presence of trust, shared values and mutual objectives facilitates the start of a difficult and risky path, such as that characterizing the adoption of innovation. Our empirical evidence supports this: if personal relationships exist alongside professional relationships, the likelihood that these relationships enable innovative activities increases. The uncertainty that characterizes the innovation process is decreased by a firm's increased trust in its partners; increased trust reflects a lower risk of opportunistic behaviors that could endanger the success of the business. This finding has important implications for managers and policy makers. Organizations may sometimes want to push their clients or suppliers to adopt new technologies or new productive processes, and in these cases, the existence of personal relationships between partners will facilitate the success of the initiative and the diffusion of innovative practices, which in turn will increase the organizations' competitiveness.

However, this study has certain limitations arising from the case study methodology pursued. The research involves a single case study, which limits our ability to generalize our findings. To enhance the generalizability of results, a replication of the case study using the same methodology is suggested. This replication would allow researchers to determine whether the results of our study are due to the specific contingencies of operating contexts or whether they are generalizable in different contexts. To increase the generalizability of the results, it may also be possible to structure the quantitative data collection (e.g., by means of a survey) in such as way as to capture the characteristics of the phenomenon on a larger basis, in different sectors and geographical contexts.

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