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DISTRICT LEADERS AS OPEN NETWORKS: EMERGING BUSINESS STRATEGIES IN ITALIAN INDUSTRIAL DISTRICTS

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District leaders as open networks: emerging business strategies in Italian industrial districts

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Abstract

Italian industrial districts are no longer self-contained systems of small firms, where firms' competitiveness is the result of physical proximity and links with global economy are limited to export sales. A new generation of firms is taking the lead, reshaping the form of districts through their innovative strategies focused on R&D, design and ICT. Most of these firms are leaders within their markets and organize their value chains by coupling district knowledge and competencies with opportunities offered by globalization processes. The rise of these open networks contributes to the transformation of industrial districts and the real drivers of the district firm's competitiveness. Based on a survey of 650 Italian SMEs from 41 Italian districts, the paper describes the characteristics of this new firm model, compared to the traditional district one. The paper also discusses implications for districts in terms of innovation dynamics and governance.

Keywords: district firms, open networks, global value chain, innovation, governance

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1. Introduction

For ten years Italian industrial districts have been the policy makers' poster child for local development (Andersson *et al.*, 2004). The district model has been considered the competitive solution to the crisis of large enterprises that characterize the Fordism paradigm (Piore and Sabel, 1982), also enriching the debate on the competitive advantage of nations (and territories) (Porter, 1990, 1998; Pyke and Sengenberger, 1992). Literature on industrial districts has stressed the systemic dynamics of these local agglomerations of firms, by identifying the competitiveness of such form of industrial organization in external economies based on physical proximity (Becattini, 1979, 1991). Scholars described district firms as a specific model of firm, because their strategies and their capacity to compete in the market strongly depend on their local relationships with other local firms (e.g. Dei Ottati, 1994). Small and medium enterprises (SMEs) have been able to exploit flexibility through close manufacturing value chains, while the management of tacit – not codified – knowledge on products, processes and markets accumulated at the local level sustained SMEs' competitive advantage in their industries of specialization worldwide.

However, the rapid transformation of the competitive scenario in terms of new competitors (i.e China), new technologies (i.e. the Web) and new market arenas (global customers, experience economy) leads to new challenges for the district model. The fragmentation of manufacturing processes offers economic advantages based on the global reorganization of value chains (Schmitz, 2004). Intangible elements such as design or brand increase the value of products, by shifting the focus from manufacturing processes to marketing competences (Schmitt and Simonson, 1997). Innovation becomes a real extended and distributed process where users are involved in product development and process enhancement (von Hippel, 2006). Proximity no longer necessarily ensures competitiveness for district firms and local manufacturing systems, while globalization and network technologies transform the access to key competences and skills and increase the effectiveness and efficiency of communication processes (Berger, 2006; Sproull and Kiesler, 1991). Hence, the gap between districts and their competitors (namely large firms) is decreasing, also requiring an evolution in the district model itself (Sabel, 2004; Zeitlin, 2006).

In such a framework, several scholars focused their attention on the firm's contribution to district success to outline potential evolutionary trends based on the district firm's strategies (Varaldo and Ferrucci, 1996). Scholars dismissed the idea of the district as a whole and

highlighted the firm as a unit of analysis, by offering interesting opportunities for further studies on district firm models. Nevertheless, the homogeneity in firms within districts as one of the consequences underlined in this approach can not only be a strict condition, but it can also be misleading for a real comprehension of present and future district dynamics.

Studies on global value chains highlight the opportunities of an international organization of manufacturing processes and market relationship management (Bair and Gereffi, 2001; Humphrey and Schmitz, 2002). Information and communication technologies (ICT) are able to support distributed organizations and connect economic players easily and effectively, going from more structured technology tools (i.e. Enterprise Resource Planning – ERP or groupware) to commodity technologies such as Web or email (Kelly, 1998). Productive and commercial internationalization is characterizing firms within districts also, with alternative impacts on local manufacturing systems, which have not yet been completely explored. The diffusion of ICT within districts over the years shows specific paths of adoption by district SMEs compared to large firms (Chiarvesio, Di Maria, Micelli, 2004). However, in relation to the organizational needs required by recent internationalization dynamics, an analysis of technology use and innovation strategies of district firms is crucial to clarify how district firms are changing in the face of the competitive scenario.

We argue that there is a new model of district firms arising – the open network – with specific characteristics in terms of its approach to internationalization and innovation, distinctive respect to the traditional district firm model. There is an urgent need to understand how districts are changing by facing the new competitive scenario. The focus on this new model of firm can clarify whether – and how – districts SMEs are different from other firms (i.e. multinational companies) competing at an international level. Open networks can also offer updated insights about the components of a renovated competitiveness of local manufacturing systems, where these firms become the active interface between the local environment and the global economy by entering into global value chains.

The paper describes the rise of this new district firm model, discussing its characteristics and impacts on the evolution of districts. The first section focuses on a brief theoretical introduction to the new competitive scenario, the impact on districts and the role of firms within districts. In the second section, the new district firm model is discussed based on a survey of 650 Italian SMEs from 41 Italian districts. In the final section, the paper discusses the implications for districts in terms of innovation dynamics and governance issues.

2. Beyond districts: firms, innovation and internationalization

Industrial districts have received great attention from scholars and policy makers in the last years. By considering Italy as an extraordinary example of a country where the sustainable local development and the economic growth are based on such forms of productive organization, researchers have highlighted the opportunities to sustain the rise of manufacturing systems even in depressed areas or new developing countries (Andersson *et al.*, 2004). Mainly specialized in light products and low-tech industries, the promotion of the district model in those contexts is perceived as relatively cheap (low investments). However, in order to produce positive results of economic growth, analysts and practitioners should recreate the systemic dimension of the district as well as the synergies between the social and economic networks of players, within a framework of cooperation among SMEs (e.g. Visser, 1999).

When analyzing the history of district development or, broadly speaking, the district life cycle, the focus is generally holistic (e.g. Morosini, 2004). Marshall in his pioneering studies on industrial districts stressed the same economic results that an aggregation of many specialized small firms with high degree of division of labor and spatial proximity can achieve compared to large companies (1920). Consistently with this viewpoint, the district has been described as a closed system, open only at the two sides of the local supply chain. SMEs benefit from the local circuit of knowledge management, where the specialized and often unique knowledge about processes, materials and products (learning-by-doing) is important to guarantee SMEs' competitive advantage on the international markets. The mix of competition and cooperation among firms, coherent with the lack of a "master mind" or large players, is a crucial mechanism of governance at the local level. Proximity and transparency increase mutual trust or control within relational-based value chains (Becattini, 1991; Dei Ottati, 1994).

Slightly contrary to this approach, with particular emphasis during the 1990s, several studies on districts started to switch the focus of analysis to firms within districts (e.g. Varaldo and Ferrucci, 1996). The strategies of district firms may be different, where specifically few firms can become leaders of their local supply chains, also overcoming the traditional district boundaries. In order to understand this transformation, it is important to consider three key elements that contribute to change the district competitive scenario, with remarkable impacts on the district and firm's evolutionary trends: internationalization, innovation and network technologies. Even if they are strongly interrelated, each of these

factors has influenced districts and opened new opportunities for firms, with alternative consequences for district governance.

2.1 Internationalization processes and leading firms

The focus on the firm as a fundamental part of the local manufacturing system is related to the changes occurring within industrial districts starting from the 1990s. Single firms rose as leading players able to lead local transformation on the basis of a new approach to innovation and supply chain organization. As opposed to the traditional firm model described in the literature on districts, these firms outline their strategies by balancing the advantages provided by the localization within districts with opportunities offered by globalization (Grandinetti and Rullani, 1994; Becattini and Rullani, 1996). More specifically, in the new global scenario – i.e. the enlargement of the European Union – the district is not the only (or main) source of manufacturing competencies: the firm may find more competitive suppliers abroad, in addition or in substitution to local ones (Crouch *et al.*, 2001). From a productive perspective, the process of internationalization means to reorganize the local supply chain by comparing district and foreign suppliers, as well as to consider the advantages of re-localization of internal activities abroad through foreign direct investments (FDI). At the same time, internationalization is also synonymous with market enlargement, where the firm invests in order to create its own commercial network or control international sales forces.

As we describe more broadly below, these strategies are oriented to exploit the skills and the market inputs that lie outside the district borders. The well-established set of business relationships developed at the local level is not taken for granted; rather, these ties are important whenever they are able to support the firm's competitive advantage, with evident implications for inefficient or unsuitable local suppliers (Corò and Grandinetti, 1999). This is proof of the leading capacity of few district firms in structuring their value chains dynamically and independently from the general district tradition of doing business (Varaldo and Ferrucci, 1996). Hence, the transformation of the local systems effects the entrepreneurial behavior of innovative firms, which explore market and technology opportunities at the local and global levels. Through their strategies, the internal coherence of the district may waver, as the local territory is put in contact with external economic dynamics and technological trajectories (Belussi *et al.*, 2003).

Two relevant elements of these strategies refer, first, to the projection of the district value chain outside the local context and, second, to a more sophisticated supply chain

management. Moreover, leading firms' interests in controlling the market at the local, national and international levels highlights the relevance of acquiring new knowledge of customers or reinforcing relationships with clients, as well as of obtaining more effective marketing strategies in relation to communication aims and offering presentation. Contrary to the majority of district firms, leading firms are able to invest consistently toward the global dimension, by forcing the discontinuity with the evolutionary trends of the district.

We define these new firms as open networks[1], that is to say district firms with a strong presence on international markets through commercial outlets (firms' direct investments on sales networks) as well as an international supply chain. From our perspective, the open networks are a new generation of firms compared to traditional district ones, in terms of their approach to globalization both for manufacturing organization and market management. In general, this position on the global competitive scenario is built autonomously from institutional projects or formalized support of local authorities.

Based on their leading position, the firms' strategies affect the established mechanisms of governance at the district level. In particular, leading firms demand more qualified services than those usually provided by the district system (i.e. quality certification, technology transfer, training, communication, etc.). In order to face the lack of offer by the district of such advanced services, leading firms promote specific organizational structures to support their strategies, also resorting to international sourcing.

Leading firms are not necessarily large, as the key element is the strategic dynamic and their ability to carry out innovative strategies (Varaldo and Ferrucci, 1996; Lazerson and Lorenzoni, 1999). The empirical analyses, however, show the tendency of those firms to link the district turnover on two main processes: on the one hand they show a higher rate of growth compared to other district firms and, on the other hand, they increase their turnovers by creating groups of firms (each of them specialized in one product/market).

The development of groups of firms is an interesting process that can be observed in the Italian districts in recent times, specifically in a few areas such as the furniture district of Livenza and Quartier del Piave (North East area of Italy), where half of the firms belong to groups (Chiarvesio and Guerra, 2002). They are generally the result of firm acquisition, with alternative group configuration: a) well structured and formalized multinational groups, with small district firms entering into them; b) small groups of firms, where the leading firm

[1] Chiarvesio M., Di Maria E., Micelli S. (2006), "Global value chains and open networks: the case of Italian industrial districts", paper presented to the 18th Annual SASE Conference *Constituting Globalisation: Actors, Arenas and Outcomes*, Trier, June 30 – July 2. An updated version of the paper has been submitted to Regional Studies.

defines the strategies for all the others; c) informal groups, where entrepreneurs hold many companies through personal investments (family groups) (Brioschi and Cainelli, 2001).

Groups can be considered as growth strategies which district firms follow in order to avoid increasing in size internally, but maintaining a direct control over the business strategies and procedures through ownership (Lazerson and Lorenzoni, 1999). Benefits are related to the maintenance of small size flexibility as well as reducing its negative effects (low market power, reduces economies of scales in technology and management, product differentiation, etc.). Through groups, firms can reduce district competition, increase international market presence and rationalize the value chain, also developing service structures for the group. Moreover, it opens interesting opportunities to enter into the global networks, i.e. through FDI. In short, the development of groups characterizes the evolution of the districts, with a higher degree of formalization and hierarchization in business-to-business relationships than the traditional organization of local systems of SMEs.

2.2. Innovation and district firms

On the one hand, recent studies on innovation describe a paradigm of open and distributed innovation (von Hippel, 2006; Chesbrough, 2003), where the role of users is specifically important for product development and knowledge creation. In such contribution, social dynamics are relevant for knowledge sharing (Brown and Duguid, 1991), consistently with the characteristics of the dynamics of the district model (focus on skills and competencies related to the manufacturing domain). However, in particular for firms specializing in consumer goods, this approach means developing strong customer intimacy through innovative channels (i.e. the web), the promotion of experience and interactive communication, usually not built in the traditional business model of district firms. According to this approach, competitive advantage is based on value-proposition linked with intangible assets (i.e. brand value, aesthetics), where communication and distribution are key components of the leader's marketing strategy (Barney, 1991; Schmitt and Simonson, 1997; Silverstein and Fiske, 2003). On the other hand, science-based (codified) knowledge is also becoming more and more important for firms specializing in the so-called low-tech industries as those of districts. Through an upgrading of firms' products and processes based on R&D outputs as well as on new competencies (i.e. design), local firms specializing in the Made in Italy sectors may renovate their competitiveness, also facing international competitors (Gereffi *et al.*, 2005; Bettiol and Micelli, 2005; Corbellini and Saviolo, 2004)).

According to the literature, the main leading firms' strategies carried out within industrial districts also consider the introduction of complex innovation as an important element of a firm's distinctiveness (Belussi *et al.*, 2003). Such innovations deeply transform the firm's business idea and its organization. Examples are the implementation of the total quality system, the re-engineering of manufacturing processes (lean organization, just-in-time) as well as product innovation related to R&D inputs and technology-driven innovation. The rise of dominant strategic actors characterizes the recent district changes: by also exploiting their global connections, these firms are able to give rise or implement breakthrough innovation. Many district firms have demonstrated strong capabilities in obtaining and improving external knowledge from research centers or competitors and turning it into competitive advantage (Zucchella, 2006).

In our approach, globalization can be perceived as an extraordinary opportunity for (global) knowledge exploration as well as (local) knowledge exploitation. Innovation and globalization are two sides of the same coin. While the "canonic" district model stresses the local cognitive division of labor as the most important one for innovation, many studies put the emphasis on the learning opportunities for firms entering into global value chains (Arora, Gambardella and Rullani, 1997; Schmitz and Knorringa, 2000; Malmberg and Maskell, 2006). By considering the industrial districts as knowledge systems, we can identify a few distinctions from the mainstream approach of the district model. Specifically, the importance of knowledge creation at the local level as a source of innovation emphasizes the role of labor forces as well as single firms as important players, which could also be interested in reorganizing their innovation cycles on a broad scale. Much of the studies on industrial districts link the competitive force of such a form of local manufacturing organization to its internal cohesion, by considering districts as integrated systems where each element (the firm) is less important than the whole system (the district) (Molina-Morales, Martínez-Fernández, 2003). The focus on manufacturing activities stresses the relevance of production processes and related skills and competencies rooted in the local context as the drivers for the competitiveness of the district firms.

However, from a unique organization model, Italian industrial districts are evolving and differentiating, according to their internal capacity to face the present dynamic economic scenario. In some cases, such as in the furniture districts of North-East Italy, coordination and the relevant knowledge-sharing process are achieved through firms' coalitions, which become part of industrial groups (Chiarvesio and Guerra, 2002). These groups are often simply informal aggregations of firms, linked together through personal equity investments or owned

by different members of the same family. Even if a high degree of independence among firms still persists within the districts, some firms (or groups) have assumed the role of leaders, stimulating the innovation process with their suppliers especially in terms of quality improvement. Other districts, such as the Montebelluna sport-system, are characterized by the presence of bigger companies in some cases associated with well-known brand (i.e. Invicta, Rossignol Lange, Diadora, Lotto). Investments of leading international companies such as Adidas or Nike in the district show the competitive potentiality embedded in the local manufacturing context of Montebelluna, capable of developing different evolution paths even if based on the common matrix of ties. The recent heavy economic crisis in many Italian districts has stimulated an internal reorganization through merges and acquisitions, especially oriented to leverage high quality internal competencies in order to exploit international opportunities.

At the district level, leading firms are the players that are able to understand the discontinuity with the economic and technological scenario in which districts developed. These firms exploit new drivers of competitiveness not necessarily linked with the local system and, hence, they may increase the gap with the other district SMEs.

2.3 Firms, local networks and network technologies

The evolution of information and communication technologies contributes to the debate about the transformation of industrial districts (Kumar *et al.*, 1998; Bramanti and Ordanini, 2004). Many studies have described either the negative or positive impacts of the implementation of ICT on business-to-business relationships and on district systems. On the one hand, the focus was on the efficiency in information management provided by ICT that reduces the importance of physical proximity and, hence, one of the main sources of district competitiveness (Bakos, 1998). On the other hand, studies mainly related to e-commerce stress the power of the Web in connecting small firms with the international market, by overcoming the limits of small size (Hagel and Singer, 1999).

It is not our aim to enter into such a debate in detail. The analyses we carried out during the last years on the impact of ICT on industrial districts demonstrate that district firms have a specific path of adoption of technological solutions (Chiarvesio, Di Maria, Micelli, 2004). District SMEs prefer to invest and use commodity technologies, that are easy-to-use and cheap, suitable with a firm's manufacturing processes and organization. Most important, district firms generally do not develop e-commerce initiatives, as firms view those technology

solutions as being unable to fit with their – interactive and/or informal – process of customer management (make-to-order manufacturing organization). Moreover, projects aiming at creating "virtual districts", that is to promote a complete digitalization of all the internal business relationships as well as the presence of the whole district systems on the web, have almost all failed (Ordanini, Di Maria, and Micelli, 2004).

The recent internationalization processes open new issues about the relevance of ICT for district firms. Global supply chains and international commercial outlets require organizational controls, where network technologies can increase information sharing, process transparency and distance interaction (also with final customers). Large multinational companies were able to fill the gap with flexible SMEs in the 1990s through the leverage of network technologies. These tools supported distance cooperative work, also increasing process monitoring, knowledge management and communication strategies, within a renovated firm model (Scott Morton, 1991; Kogut and Zander, 1993; Gulati and Kletter, 2005).

Unlike the systematic approach concerning ICT within districts, leading firms are demonstrating to be aware of ICT potentialities, and they are investing on more advanced applications – such as ERP – to sustain their business. From this viewpoint, these firms seem to follow the same technological strategies of (large, multinational) non-district firms, by creating a gap with traditional district players. Few firms – and not the generic district system as a whole, or district local institutions – become the actors that may push technological innovation at the local level, together with a global reorganization of their value chains.

3. Leading firms and open networks in Italian districts

3.1 The TeDIS survey methodology

Our research on the evolution of the industrial district firm model is based on the TeDIS center[2] annual survey focused on Italian districts. From 1999, on of the core TeDIS research areas is the study of industrial districts and SMEs embedded in local manufacturing contexts and their evolution process in relation to network technologies. The objective of the research is to analyze the level of convergence between the district economic model of development and ICT opportunities. The annual TeDIS survey is a research program that analyses the

[2] TeDIS is the Center for Studies on Technologies in Distributed Intelligence Systems of the Venice International University. For more information please visit the website: http://www2.univiu.org/research/tedis/.

diffusion of network technologies and the most challenging evolutionary trends within the Italian industrial districts. Since 2003, the survey has been focusing on internationalization processes of Italian district SMEs and local manufacturing systems within the scenario of global economy. In addition to ICT, another key area of TeDIS investigation considers innovation processes of district SMEs on a broad perspective that is the role of R&D, design and creativity in the evolution of the district model.

The survey methodology is based on quantitative research supported by qualitative in-depth analysis. More specifically, the survey is carried out through phone interviews with supply managers, ICT managers and innovation managers of district SMEs. The results discussed in this paper refer to the survey carried out during 2004, focussing on 45 relevant industrial districts in Italy, out of 199 districts (for about 224,000 firms and 2,170,000 employees, altogether) identified by ISTAT (the Italian National Institute of Statistics). The survey addressed the four main macro-industries of the Italian economy, considered in terms of their contribution to Italian exports: a) home furnishings (furniture, glass, ceramics); b) engineering; c) fashion (textiles, eyewear, shoes, and sportswear); d) food.

Consistently with our research aim, we decided to analyze only bigger firms within districts, with a more structured organization (limited companies) and a potential higher capacity to face innovation dynamics and afford internationalization processes. The selection of the sample considers only firms with a turnover higher than 2.5 millions Euros[3]. The total number of firms interviewed was 764 companies out of 1760 (a response rate of 43.4%) (Chiarvesio, Di Maria, Micelli, 2005). To test our research hypotheses and to obtain a more reliable interpretation of the data collected through the survey, we promoted a qualitative analysis based on face-to-face interviews with supply managers, IT managers and entrepreneurs from district firms aimed at understanding the dynamics and reasons of internationalization as well as the innovation strategies implemented by the firms.

During 2005, in cooperation with the Research Center of Banca Intesa, we carried out an in-depth analysis aiming at evaluating the economic and financial performances of district firms, - based on the certified balance sheets – according to the innovative strategies of district firms identified through the survey. The analysis refers to the same TeDIS panel described above, by excluding firms specializing in the food sector and selecting only firms with balance sheet records available for the period 2000-2003. We selected 648 firms, with a statistical distribution quite similar to the 764 of the initial panel.

[3] The 2002 balance sheet was the last one available.

Empirical evidence discussed below refers to 648 firms from 41 districts as described below.

Table 1 – The TeDIS panel: distribution of clusters and firms

Industrial districts	a.v.	%	Firms	a.v.	%
North East	17	41.5	North East	280	43.2
North West	9	22.0	North West	178	27.5
Center	6	14.6	Center	150	23.1
South	9	22.0	South	40	6.2
Total	*41*	*100.0*	*Total*	*648*	*100.0*
Home-furnishing	11	26.8	Home-furnishing	166	25.6
Engineering	9	22.0	Engineering	185	28.5
Fashion	21	51.2	Fashion	297	45.8
Total	*41*	*100.0*	*Total*	*648*	*100.0*

Source: TeDIS, 2004

3.2 Open networks and traditional district firms

According to the survey, internationalization processes of Italian industrial districts are well developed, both in terms of manufacturing processes and commercial relationships with foreign market. Nearly one-third (30.7%) of the companies interviewed produce their output through an international value chain. Through FDI (38.2%) and foreign supply chains (63.3% of the firms interviewed has international strategic suppliers), district firms are reorganizing their productive processes beyond the district's local territory. At the same time, the average export rate of 45.1% of the firm's turnover shows a consolidated district tradition of commercial activities with international clients. However, the control on foreign markets is becoming more formalized in terms of organizational procedures. Nearly 40% of the companies have sales infrastructures and/or partnerships in the shape of commercial partnerships, franchising networks, or direct points of sales abroad.

Based on internationalization processes carried out by the SMEs we interviewed, we were able to identify four alternative models of district firms, outlined according to a cluster analysis focused on two sets of variables: 1) the degree of a firm's control over foreign markets in terms of commercial power; 2) the geography of sourcing, that is the relevance of sourcing and/or the presence of FDI outside the district[4]. Four main models of firms emerged

[4] For a more complete description of the research methodology and of internationalization processes of district firms, see Chiarvesio M., Di Maria E., Micelli S. (2006), "Global value chains and open networks: the case of Italian industrial districts", paper presented to the 18th Annual SASE Conference *Constituting Globalisation:*

from the analysis: (1) traditional local firms (48.4%); (2) traditional local firms with commercial outlets abroad (11.3%); (3) firms with upstream suppliers (11.3%); (4) open networks (12.4%).

Our results confirm the variety of firms existing within industrial districts, also driven by internationalization opportunities. The model of open network represents the most complete model of internationalization, as it is able to integrate a strong and direct control on final markets worldwide with a remarkable international extension of the supply chain and manufacturing activities. They are leading firms that have been able to extend their value chain beyond the district borders and manage global networks in a completely different way with respect to the traditional model of industrial district firm, organized mainly on a local base.

Table 2 – Main characteristics of open networks

Main activity	*Open network*	*Average*
Finished products for final market	55.0%	49.5%
Finished products for other companies	38.8%	33.3%
Parts and components and other manufacturing activities	11.3%	17.2%
Average turnover 2003 (in ml euro)	39,7	16,5
Median turnover 2003 (in ml euro)	16.9	9.0
Average employees 2003	139.1	73.1
Median employees 2003	70.5	46.0
Average export (on turnover)	54.6%	45.1%
Member of group	57.5%	36,9%

Source: TeDIS, 2004

As table 2 shows, open networks are specialized in consumer goods, with a relatively higher size in terms of turnover and employees. It is important to consider the role of groups in the firm's value chain management. While on average our results confirm the relevance of business proprietary relationships to overcome the limits of a firm's size, open networks highlight their capacity to build and lead networks, by exploiting nodes' competencies. Based on our survey, 54.8% of the open networks own groups, unlike the 40% of the firms on the average sample of firms belonging to groups.

Most of the open networks we identified are located in the Northern part of Italy, in particular in the North East regions (46.3%, Table 3). A possible explanation is that this area

Actors, Arenas and Outcomes, Trier, June 30 – July 2. An updated version of the paper has been submitted to World development

– the "Third Italy" – was among the first regions where the districts grew, and that also suffered from the competition of Eastern countries the most. Moreover, the fashion system is the domain where many open networks develop (47.5%). Such results can refer to the need to gain efficiency in order to face the price competition of low-cost countries as well as to increase the firm's direct control over the markets worldwide.

Table 3 – Localization and specialization of open networks

	a.v.	%
North East	37	46.3
North West	20	25.0
Center	18	22.5
South	5	6.3
Total	*80*	*100.0*
Home-furnishing	16	20.0
Engineering	26	32.5
Fashion	38	47.5
Total	*80*	*100,0*

Source: TeDIS, 2004

As shown in table 4, if we consider the industry specialization and the distribution of the four models of district firms, other interesting elements arise. Open networks are more present in the mechanics and engineering industry than the home and furnishing industry, while the traditional firms are important for the fashion industry. Firms in those districts are characterized by more extended supply networks at the global level – also based on group strategies – as well as by the need for more stable control over the (business-to-business) market.

The fashion sector was among the first ones involved in internationalization processes, specifically through the relocation of manufacturing processes in low-cost countries (14.2% of firms open upstream). However, there is still a core of firms that exploit productive competencies and skills at the local level. This could be explained positively by giving value to local excellence (as in the case of Biella), or negatively in cases where local companies are facing difficulties from the new competition in a global scenario (as in the case of Prato where, on the contrary, Chinese firms are located and work within the historical district boundaries).

Instead, in the home and furnishing industry, commercial networks have a strategic importance due to the role of (proprietary) sales channels in sustaining brand (and design) strategy and increasing the knowledge acquisition based on customer interaction. On the

contrary, because of the quality control requirements and the logistics inefficiency related to extended supply chains, those firms are less oriented to internationalizing their supply side.

Table 4 – Industry specialization and district firm models

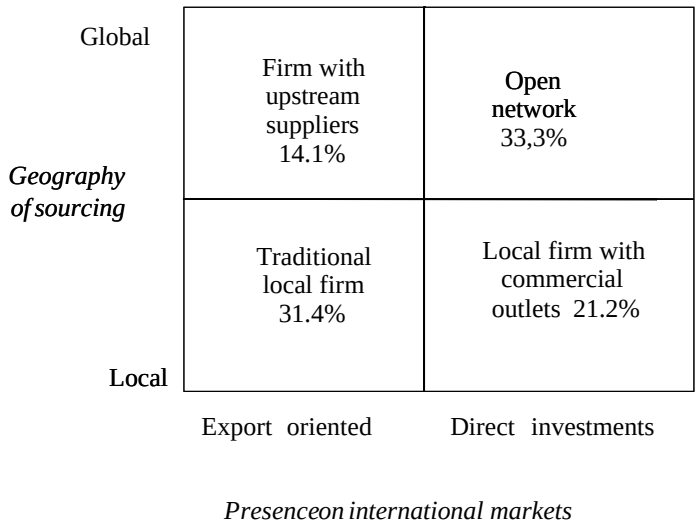
	Mechanics	*Fashion*	*Home-furnishing*	*Average*
Traditional	42.4%	52.2%	48.2%	48.4%
Commercial	32.6%	20.7%	35.5%	27.9%
Upstream	10.9%	14.2%	6.6%	11.3%
Open network	14.1%	12.9%	9.6%	12.4%

Chi-square= 19.7; sig. (2-sided) 0.003

Source: TeDIS, 2004

Unlike the small number of open networks within industrial districts, their contribution to the district turnover is considerable. Figure 1 shows that open networks weigh nearly one third of the total districts' turnover. This result is calculated as the sum of the turnovers of the firms interviewed, according to their internationalization model. Even though this is a rough and underestimated measure of the district turnover, as it is based only on our sample, it allows us nevertheless to have a first insight of the nature and role of open networks within the Italian district scenario.

Figure 1 - Open networks and their contributions to district turnover



The following table 5 stresses the perception of open networks as leading firms compared to traditional local firms. In a scenario characterized by markets becoming larger and global, even district firms operating in niches have to update their strategy and innovate to face competition and win the market dynamics. Those results also show that traditional firms are not able to clearly evaluate their competitive position, compared to other firm models more open to the global scenario and competitiveness (also with a larger size and better structured organization, as discussed later).

Table 5 – Firm model and competitive position

	Traditional	Commercial	Upstream	Open network	*Average*
Leadership	20.8%	19.6%	32.9%	32.9%	23.5%
Relevant position	46.5%	59.8%	48.0%	51.9%	50.8%
Marginal role	18.3%	11.7%	13.7%	8.9%	14.7%
no info available	14.4%	8.9%	5.5%	6.3%	11.0%

Chi-square= 25.3; sig. (2-sided) 0.003

Source: TeDIS, 2004

Comparing traditional local firms and open networks on their autonomy from the market[5], the former are characterized by bigger customers on average (based on customer's dimension on firm's turnover), while the latter appear to be less dependant from their customers (Table 6). This evidence is important for a firm's strategy development, where open networks may define and promote strategies, e.g. in the ICT investments, without depending on the customer's inputs.

Table 6 – Firm model and market/customer characteristics

Dimension of 1st customer compared to the firm	Open Network	*Average*	Traditional firm
Much smaller (less than 1/5)	7.7%	3.4%	2.5%
Smaller	20.5%	18.6%	17.1%
Same size	15.4%	11.0%	11.1%
Larger	28.2%	34.2%	36.2%
Much larger (more than 5 times)	28.2%	32.8%	33.2%

Percentage calculated on valid answers.

Source: TeDIS, 2005

[5] This analysis is based on the TeDIS survey carried out in 2005. See § 4 for methodological details.

3.3. District firms, innovation and ICT

In general, as shown in table 7, open networks appear to be more open to innovation if compared to traditional firms. Our results do not deny that district firms are innovative players generally. However, data from our survey highlight how open networks develop strategies focused on the key drivers of competitiveness in the present scenario. When considering a broad definition of innovation, there is a higher number of firms within the open network model that invest in R&D, but also in marketing based on brand strategy and design.

Table 7 – Innovation strategies in open networks and traditional district firms

	Open Network	Average sample	Traditional firm
Firms with investments in proprietary brands	55.7%	42.5%	37.0%
Firms with investments in product innovation	83.8%	75.5%	65.7%
Firms with resources dedicated to design	51.3%	37.4%	30.4%
Firms with resources dedicated to R&D	82.5%	57.2%	46.8%
Firms with patents	45.0%	29.7%	19.9%

Source: TeDIS, 2004

In order to maintain competitive advantages in the Made in Italy products – e.g. fashion industry – open networks develop new strategies focussing on intangible assets (brand, aesthetics). Unlike the historical economic success of district SMEs based on their manufacturing capacity and product quality, in the present competitive scenario it is important to offer new value to customers built upon social dynamics (consumption as identity, shared value) and customer experience. According to this perspective, leading firms understood the need to renovate their offering and manage it through a new communication approach and the control over commercial networks.

A successful example is the case of Calzedonia – among their brands Calzedonia and Intimissimi – with more than 400 Million Euros in 2004. Founded in 1986 near Verona (close to the hosiery district of Castel Goffredo), Calzedonia developed a new way of selling hosiery

and beachwear for women, men and children through a sales franchising network with the firm's trademarks. Other positive examples of open networks with revolutionary approaches in product development and management compared to district systems are Alessi (home metal product district, Cusio, Lumbardy) and Alpinestars (sport system district of Montebelluna, Veneto). Alessi exports in over 60 countries and count over 5,000 points of sale, while it owns 14 Alessi stores located in the most strategic areas in the world and 175 shop in shop. Recognized worldwide as an innovative firm in the design of household products, Alessi promoted collaboration with Italian and international designers to reinvent home products through creativity and aesthetic features, by making them part of the customer's style in home interior design. Through the exploitation of its valuable brand, Alessi is now diversifying its production in related products such as bathroom products and kitchens.

Alpinestars is a leading company specializing in products for bikers and drivers – among its testimonials Nicky Hyden and Alonso – sport wearing, and accessories. Innovation in Alpinestars is perceived as a dynamic and interactive process, where the firm's managers and teams listen to their customers to identify new market needs. More important, the source of innovation is mainly outside the Montebelluna district, as it is based in the areas where the customers are located – i.e. in California. The firm is able to interact with lead users and translate their inputs into product frameworks and manufacturing processes on a reiterative way.

An interesting example concerning R&D and patent management in the same district is Geox, a leading shoemaker firm localized in the Montebelluna sport-system district (near Treviso, Veneto Region, Italy). Its founder Mario Moretti Polegato reinvented the traditional product – the sport shoes – by mixing an innovative US patent with local manufacturing competencies to create a rubber shoe that lets the foot breathe. Founded in the 1990s, the firm had a 32% growth, and its turnover in 2004 was of 340.1 million Euros with an export share of 45%. All the manufacturing activities are now carried out internationally, while the district firm focuses on research, logistics, distribution and communication. Recently, Geox became quoted on the Italian stock exchange.

As the Geox case highlights, the innovation capacity of open networks is also perceived when considering the partners with whom innovation and knowledge exchange is developed. As table 8 shows, open networks confirm the process of "absorptive capacity" described by Cohen and Levinthal (1990). Open networks are much more able to involve and refer to both local and international knowledge centers to acquire and share knowledge than local traditional firms. Local service centers have been the traditional local infrastructures aiming at

sustaining district innovation. Their offering was tailored on the needs of local companies and based on the district specialization. Those data stress the higher capacity of open networks to demand services locally and, at the same time, to identify and select specialized research centers and universities globally.

Table 8 – Managing innovation networks between local and global

	Open network	Traditional	*Average*
Italian universities	31.3%	12.2%	17.6%
Italian research centers	18.8%	10.3%	12.2%
Local service centers	20.0%	15.7%	17.0%
Science parks	10.0%	1.9%	4.2%
Foreign universities	8.8%	1.9%	4.2%
Foreign research centers	6.3%	2.6%	3.2%

Source: TeDIS, 2004

These results confirm our approach to open networks as interface from local to global – and vice versa – of innovation processes and network development, with alternative impacts on the district dynamics in terms of qualified demand of services and the role of local institutions in sustaining a firm's innovation strategy effectively.

The openness toward innovation of these firms is also confirmed by ICT diffusion within districts. Table 9 shows that, unlike traditional district firms, open networks invest in commodity technologies, but also in more sophisticated applications and technology tools.

Table 9 – District firms' ICT adoption

	Open Network	Average sample	Traditional firm
E-mail	100.0%	99.4%	98.7%
Web site	93.8%	88.0%	82.1%
ERP	51.3%	36.4%	27.9%
Groupware	33.8%	19.8%	14.7%
EDI	21.3%	11.4%	6.7%
E-commerce	11.3%	7.7%	6.7%
Intranet	72.5%	56.5%	48.4%
Extranet dedicated to suppliers	27.5%	15.9%	10.9%
Extranet dedicated to clients/commercial network	23.8%	13.0%	9.3%
Broadband	81.3%	66.7%	60.3%
Corporate banking	80.0%	75.3%	71.2%
Mobile communication (RAM)	82.5%	78.7%	76.0%
Videoconferencing	30.0%	11.9%	7.4%
Datawarehouse-business intelligence	31.3%	13.7%	5.8%

Supply Chain Management	16.3%	7.1%	4.2%
Sales Force Automation	21.3%	6.2%	2.6%
Customer Relationship Management	16.3%	8.5%	4.2%

Source: TeDIS, 2004

Half of the open networks have an ERP, that is a fundamental tool to manage internationalized manufacturing and commercial processes, with partners, suppliers and clients distributed around the world. Even more advanced technologies such as SCM, sales force automation or business intelligence are generally considered important to support interaction and information process management at distance, also with strategic implications. In this global scenario even videoconferencing (and hence broadband) can become a useful tool for those companies, by transposing the traditional face-to-face contact within the district with its virtual form.

The relevance of network technologies for the open network's competitiveness is confirmed by budget in IT (Table 10). Compared to the traditional district firms, innovative players are aware of the need to maintain and upgrade their technological systems to face international competition.

Table 10 – Firm's budget in ICT

Budget IT (% on firm's turnover)	Open network	Average	Traditional firm
< 1%	39.5%	51.4%	56.1%
1- 2%	40.8%	27.8%	23.8%
2 - 3%	7.9%	12.5%	14.2%
> 3%	11.8%	8.3%	5.9%

Source: TeDIS, 2004

3.4 District leaders and performances

Our research has also been oriented to understand the link between the evolution of the district firm model - the rise of open networks – and firms' financial and economic performances. More specifically, we were interested in describing how innovative strategies carried out by district firms may affect their performances in terms of growth of turnover and profitability (gross operative margin/turnover). According to the cluster analysis based on

district firms' balance sheets in the period 2000-2003[6], four different groups of firms can be identify depending on their performances:

- "*winners*" – firms with the capacity to increase their turnover and profit over the three years at a rate considered far above the industry average (28.1% of the firms interviewed);
- "*runners*" – firms able to increase their turnover with respect to other firms, but with negative consequences on their profits (lower than the industry sector average: 22.1%);
- "*cautious firms*" – firms aiming at maintaining their operative profitability higher than those of other firms, but reducing their growth (22.1%);
- "*losers*" – firms unable to develop their turnover or their operative profitability better than the industry performance (27.4%).

According to our perspective, we selected five indicators to explain firms' performances: technology innovation, design and product innovation, ICT adoption, productive internationalization, and commercial internationalization (Chiarvesio, Di Maria, and Micelli, 2006). The variables that influence the performances of most firms are the first three, while the relationship with internationalization seems to be weaker. More specifically, competitiveness of district firms does not depend on one of the three elements – R&D, design, ICT – but on a mix of them, coherently with economic dynamics of different industries.

A higher performance emerges when internationalization is coupled with focused innovative investments. Table 11 shows the characteristics of winners compared to their internationalization firm models. On average, open networks are characterized by higher investments in network technologies, R&D, design and marketing strategy than traditional district firms. Even if, on the one hand, we can consider open networks as leading firms on a general basis, on the other hand, however, not all open networks are winners. Despite this framework, the data highlights that investing in the same directions allows traditional firms to obtain positive performance as well.

Table 11 – Internationalization and performance: comparing district firm models

	Open network winner	Open network loser	Traditional winner	Traditional loser
Average turnover (median)	53.9 (22.5)	14.4 (11.6)	13.2 (8.1)	9.4 (5.9)
Leading position	40.7%	21.1%	24.1%	17.8%

[6] Data used to build clusters is the industry median value (cumulative growth of the turnover and the gross operative margin/turnover), to avoid distorted effects of the trend dynamics specific to firm industry specialization. See Chiarvesio, Di Maria and Micelli, 2006.

Member of Group	59.3%	47.4%	33.3%	26.7%
ERP	55.5%	47.4%	25.2%	32.3%
Design structure	63.0%	47.4%	42.5%	24.4%
R&D structure	74.1%	78.9%	59.8%	38.9%
Registered patents	48.1%	26.3%	21.8%	21.3%
Brand strategy	63.0%	57.9%	51.7%	39.3%

Source: TeDIS, Banca Intesa, 2005

The internationalization strategy has been proposed as a winner option for firms, to support their competitiveness through market enlargement and cost reductions. Instead, from our analysis, such a strategy must be coupled with explicit investments in innovation. Positive performances characterize firms that not only extend their business relationship beyond the local context, but which also renovate their sources of competitive advantage on a broad perspective.

Those results support the idea of a deep transformation within districts, where firms with their strategies may develop alternative paths of innovation and heterogeneous competitive behaviors. In particular winner open networks can deeply transform local supply chains and innovation circuits, by promoting opportunities for SMEs' learning and upgrading – also through imitative paths.

4. Evolutionary trends of Italian district firms

Starting from the scenario described above, we compared the competitive strategies of exactly the same firms included in the TeDIS dataset in 2004 and 2005[7], for a total number of 436 firms. Our aim was to analyze the evolutionary trends of district firms in terms of their approach to innovation and internationalization, in order to show possible paths of transformation within Italian industrial systems.

Data presented in Table 11 highlight a modification in the sources of district firm's competitive advantages in the past two years. The role of quality and manufacturing costs are no more the most relevant competitive drivers. They are not able to sustain district firms' competitiveness as in the past, as well as the manufacturing flexibility. On the contrary, the

[7] In order to enable us to compare the trends of the same firms in terms of performance, strategies and internationalization processes, we selected only firms with available information in terms of balance sheets (TeDIS-Banca Intesa dataset) as well as included in the internationalization clustering.

percentage of firms focusing on product innovation (+7%) and innovative design are increasing.

Consistently with this framework, district firms based their innovation processes on many inputs, based on market analysis and customer involvement – but their role is decreasing – as well as on internal investments in R&D and innovation specialists such as designers. The characteristics of district innovation processes is changing, by giving new relevance to more formalized innovation framework and organizational management. In addition, a positive source for innovation is the collaboration with designers, that is communities of professionals not necessarily located within the districts. They can provide new knowledge about customer's needs and market trends, also playing a role of discontinuity compared to the district incremental innovation paths.

*Table 11 – Sources of competitive advantage for district firms**

	2004	2005
Product quality	34.2%	26.9%
Manufacturing cost reduction	23.3%	22.2%
Product innovation	15.7%	22.0%
Manufacturing flexibility	13.2%	12.0%
Quality of customer services	7.2%	6.9%
Innovative design	4.6%	5.1%
Investments in sales networks	1.2%	1.2%
Brand investments	0.7%	1.2%
Manufacturing delocalization	n.a.	2.5%

*Source: TeDIS, 2005. *Total n. of firms is 436.*

Considering the internationalization processes of district firms more specifically, we compared the organization of value chains in the two years between local district and global contexts. In a general perspective, there is a reduction in the percentage of firms that rely on strategic suppliers (from 58.6% to 53.1%), while the role of subcontracting increases (from 65.1% to 68.5%). The main impact of internationalization on the supply side is not only cost reduction, but also the increase of firms' focus on value-added activities (from 1.4% to 9.1%), specifically for firms open upstream.

4.1. Open networks and district evolutionary paths

With the aim to analyzing in detail how district firms change their strategies and transform their model over time, we compared the selected group of 436 firms between 2004 and 2005, based on internationalization processes (firm model). As shown in table 12, the most relevant result is the strong reduction in the percentage of firms with commercial extensions, from 27.1% in 2004 to 19.5% in 2005. Those data stress the difficulties of many district firms in efficiently and effectively controlling the market at the local or international level.

Despite the strong orientation toward foreign markets to increase their turnovers and market share, district firms are now suffering from those strategies (data supported also by a stable rate of investment in sales networks in the last two years as sources of competitive advantage, table 12). With less emphasis, the presence of open networks decreases, probably due to the same strategic problems. On the contrary, firstly the number of traditional local firms and, secondly, of firms open upstream, increases.

Table 12 – Open networks and other district firm models: comparing 2004-2005

	2004	2005
Traditional local firm	48.4%	54.1%
Traditional local firm with commercial outlets	27.1%	19.5%
Firm with upstream foreign suppliers	11.0%	14.9%
Open network	13.5%	11.5%

Source: TeDIS, 2004-2005

Within the last two years, firms with no proprietary sales networks increased from 45.4% to 61.5%. The Italian market is the specific area where firms disinvest with much more emphasis, while the approach to foreign markets is stable. Comparing the industry trends (table 13), commercial problems hit firms in the fashion sector in particular, both at the national and international level, although the home and furniture industry suffer from commercial difficulties also. However, the presence of sales networks abroad is stable, except for the fashion firms.

Table 13 – Proprietary sales networks: industry trends

	Italy		*Abroad*		*Italy/Abroad*		*None*	
	2004	*2005*	*2004*	*2005*	*2004*	*2005*	*2004*	*2005*

Home-Furniture	10.6%	7%	4.4%	4.4%	38.1%	28.9%	46.9%	59.6%
Mechanics	14.3%	9.8%	3%	3%	42.1%	32.3%	40.6%	54.9%
Fashion	17.4%	5.3%	3.2%	2.1%	31.1%	25.4%	48.4%	67.2%
Average	14.7%	7.1%	3%	3%	36.5%	28.4%	45.4%	61.5%

Source: TeDIS, 2004-2005

To sum up, we can see a deep transformation in the district firm models, where the internationalization processes are still in progress and have deep impacts on the district configuration. Many firms move from one box of the matrix to others (e.g. from firms open upstream to traditional firms, and vice versa), but the two most relevant trends we observed are the two we described.

5. Conclusions

Our results show that within industrial districts there are processes of experimentation going on, in terms of re-localization of manufacturing and commercial activities and innovation organizations that lead to the evolution of the traditional district firm model. Opening local networks to global value chains both at the commercial and manufacturing level is important to acquire knowledge and sustain competitive positions. However, as we suggest in this paper, internationalization is not synonymous with performance, but it has to be coupled with clear strategies of innovation in terms of product, processes, and technologies.

Even if the internationalization of manufacturing processes has recently received great attention, the control of sales networks and markets at the international level by district firms seems to be a critical process, which is not yet stabilized. Despite the benefits stressed by researchers and analysts on the control of markets and customer's interaction, the alternative trends of district firms highlight the difficulties that small and medium enterprises are facing in extending their sales networks, particularly in the national context. At the same time, not all district SMEs invest in network technologies, specifically in those tools that might sustain their competitive advantage even outside the district.

We can consider open networks and particular winners as new key players of the district systems, able to reconfigure local business-to-business relationships and the governance framework through more formalized mechanisms (hierarchical but flexible organizational forms based on groups and technological tools).

According to our results, among the priorities in the policy agenda are three relevant issues. Policy for the new districts should focus, firstly, on supporting a profound reorganization of the local labor market. Innovative professional profiles require innovative academic and training curricula as well as their social recognition: local policy makers will have to invest in developing a new set of competencies and creating a favorable environment for their access in firms and in local administrations.

Secondly, a new generation of business services should be promoted at a local level. District strength has always been linked to the presence of qualified suppliers that guaranteed easy and flexible access to components and intermediate productions. Today, the relevance of key managerial functions such as research or design require the development of new services offering to support firms in their growth, not necessarily available at the local level. Some of these services may grow at a territorial level; most of them, though, should be attracted from outside by offering business opportunities and a vibrant cultural environment. Without new services the necessary upgrade of district firms will not take place.

Thirdly, an innovative financial offering should sustain a new generation of spill-over. In the past, entrepreneurship in Italian districts did not count on specific financial products and services: banks have been hesitant in entering the private equity market, especially as regards early stage interventions. The emerging scenario stresses the importance of discontinuity: in order to sustain growth and innovation, local financial actors have to adapt and evolve coherently with the needs of the firms and of the local system as a whole.

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