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as Local System of
Innovation



INDUSTRIAL DISTRICTS AS LOCAL SYSTEMS OF INNOVATION

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Abstract

This essay examines the situation and the lines of development of industrial districts from the point of view of local systems of innovation. First of all, this article points out to the modernity factors of the district model – which are ascribable to the supply chain economy, to entrepreneurial dynamics and to the importance of geography as a competitive resource – through the analysis of recent contributions of economic literature that examined the emerging organizational models in knowledge economy. Secondly, the outcomes of recent research on leading companies of Italian industrial districts will be presented, looking at three particularly topics of ongoing changes: the process of international opening of the value chain, the technological conditions of competitive advantage, the relationship between strategies and economic performance. Finally, some considerations on the issue of policies will be developed. Such considerations underline the need to re-think the traditional models of local governance of development and suggest to look at the new external district economies, based on service economies, on much more considerable investments in training, technological and cultural activities and, finally, on more aware institutional actions with reference to the association of companies in innovation projects.

Keywords

Industrial districts, Innovation Systems, Entrepreneurship, Global Value Chain

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1. The international debate on new districts and the Italian paradox

In Italy, the debate on industrial districts is experiencing a strange paradox. Districts have been studied for a long period as a paradigmatic model of national development. However, when competitive difficulties began to seriously affect industry, the same districts received the harshest critics (Gallo, Silva 2006). Such charges may seem justified at first. As a matter of fact, if districts are a relevant element of the Italian industrial landscape - 40% of manufacturing workers, 50% of exports, reaching 70% for the made in Italy sector - when industry shows signs of collapse, the cause can only be traced back in the weakness of this production model. The is accused of having excessively extended a system of sectorial and dimensional specialization by many regarded as no longer suitable for modern competition. Such syllogism, however, is far from perfect.

Firstly, it is rather difficult to think that, once free from the ties of districts, the Italian economy will be ready to launch a new accumulation process driven by leading executive groups and by the high technology sectors. As Marco Fortis pointed out, the two entities above mentioned, were particularly responsible for Italian stagnation of the last ten years (Fortis 2006). More accurate analysis on the industrial decline come to similar conclusions too. While recognizing that Italy's specialization model proved considerable strength even under the strokes of Asian competition, it is acknowledged that the greater difficulties were experienced by other components of the economy - namely high tech and large enterprises (Faini 2004). Furthermore, to concentrate critics on the districts system risks to shift attention away from other and more important causes of Italian competition crisis, particularly those connected to the rigidity in the services and factors markets, to the lack of efficiency of public administration, to the lack of competition in large sectors of the economy, to the serious infrastructural deficiencies - especially in the field of mobility, communications, energy, education - which significantly increase the relative costs of enterprises exposed to international competition. In a time when competition became more difficult, also due to heavy monetary and social asymmetries, it was difficult to conceive that, given the disadvantages of the institutional context, the district system would remain free from the violent shocks of the past few years.

Therefore, the necessary question is whether the district model - intended as form of production organization of small and medium enterprise where the territory plays the role of infrastructure for economic, institutional and cognitive integration - is capable of giving, in the future, a significant contribution to the distinction of Italian industry, and whether its lesson will still be considered relevant on the international scene. We would like to clarify that the answer we attempt to give in this article is a positive one.

First of all, the starting point of our line of reasoning is a provocation: for which strange reason in Italy the competitive

strength of the district model is questioned, when the most developed and dynamic regions of the world are rediscovering the value of clusters as innovation support instruments? International literature, as a matter of fact, has never had such a wealth of theoretical and empirical material on the economy of clusters and technology districts. When debating on clusters, the aim is not to oppose their decline, but rather to create the conditions to foster the enterprises' investments in innovation, to attract specialized human and creative capital so as to increase the economy's competitiveness. Such trend is clear in the United States, first of all, where the long established studies on the *Silicon Landscapes* and the *High-Tech Clusters* (Saxenian 1994; Porter 1997; Bresnahan, Gambardella 2004) are now sided by interesting researches on territorial creativity (Florida 2002) and on cultural and artistic districts as competitiveness factors for the industry (Rosenfeld 2006). Northern Europe, especially Sweden and Denmark, greatly focus on districts. Here such model is employed as the ideal instrument to strengthen cooperation between the business sector and the research and education system (Iked 2004). Central-East Europe also looks with interest at the district model, with the purpose of creating the conditions to attract foreign investments and, at the same time, promoting the establishment of development within the territory (Ketels, Sölvell 2006).

Moreover, in the seventh research framework programme the European Commission has introduced a specific support measure to clusters, to boost joint investments of enterprises and institutions on innovation projects (Weiers 2007). A further participant to such initiatives scenario is China, where the focus on districts has greatly increased over the past few years. The Chinese Ministry of Foreign Trade has estimated that 50% of production in the South-East regions – the most industrialized area – is organized in specialized districts (Gi Qiang 2006). Today, the Chinese government is addressing such model both in order to foster foreign investments in the internal areas and to strengthen the innovation ability of high tech sectors. In fact it is not by coincidence that the 2007 annual conference of the international association of clusters will be held in Guangdong, one of China's most industrial regions.

The concise picture outlined above would seem to re-launch districts on an international scale. For which reason, then, are Italian districts receiving such criticism? The answer is that in Italy the idea of district - that has gained ground among both the supporters and the detractors of the model - is much more rigid and historically determined with respect to the scientific and policy thought developed abroad - In Italy the weight of district tradition makes it more difficult to identify the evolution process of the manufacturing local systems towards new organizational, technological and competitive structures as the dynamic factor of the model. Except for experiments on technology districts, which remained within the field of national policies, in Italy the idea of district was almost exclusively associated to traditional manufacturing production, forgetting that the nature of district economies – characterized by areas of specialized knowledge, marked division of labour among firms and strong competition – provides the ideal conditions to keep the learning processes alive, thus stimulating innovation.

Therefore, in this essay we aim at looking at districts from a different perspective, which we deem much more fertile for analysis and economic policy. It is the perspective of local innovation systems. Firstly, we decided to recall the modernity factors of the district formula through the analysis of some recent contributions that look into the emerging organizational models in the knowledge economy. Secondly, we propose the outcomes of recent research on leading companies of the Italian main districts underlying three particularly relevant aspects of ongoing changes: the process of international opening of the value chain, the distinctive features of competitive advantage, the relationship between strategies and economic performances. Finally, some remarks on the issue of policies, in particular dwelling on the need to look at external district economies not only as a legacy of the past, but also as a more aware project to underpin innovation.

2. Networks, entrepreneurship, territory: the modernity factors of the district model

The international debate on districts confirms the goodness of an economic and social laboratory that - rather than outdated - is actually to be considered as a model of innovation and technological development, gaining ground in several advanced industrial economies (Breschi, Malerba 2005). In Italy – as well – it is therefore necessary to give adequate responses to the needs of development and strategic re-positioning of districts. All this not only to prevent the waste of an extraordinary legacy of industrial culture, but also to support the many innovation pathways already started and to extend the potentials of entrepreneurial growth to other territories. However, in order to strengthen a strategy of such type, we should detach from the inner debate of district analysis and attempt to identify the economic modernity factors that characterize more general transformation processes of competition scenarios. This leads us to consider the following three different angles for analysis. The first one is the *value chain economy*, which considers the value creation processes as the result of the productive integration of a series of specialized and independent phases inside networks of firms. The second angle highlights the importance of *entrepreneurial activity* in promoting and giving continuity to innovation. The third angle deals with the *value of territory* as an important institutional and cognitive resource of the knowledge economy. In the past, all of these three factors contributed to the growth of districts. All of them are still essential in order to guarantee future competitiveness, provided that they deeply renew their operation mechanisms.

2.1. The new value chain economy

The district model based its competitiveness on *flexible specialization*, that is to say on a form of production organization that can give effective responses to differentiated product markets, where the demand changes continuously. Charles Sabel and Michael Piore had proposed this production model, characterized by the technical fragmentation of the manufacturing cycle and by an original method of social coordination of the supply chain, as an historic alternative

to the large Fordist *corporation* – based instead on vertical integration and on managerial governance (Piore, Sabel 1984). Even if they can not benefit from the high economies of scale of large groups, small enterprises located within the districts could still take part in a widespread system of labour division, allowing to share specific external economies in the labour market, in intermediate inputs, in services, etc. - and to keep a continuous exchange of knowledge. Thanks to this particular social ability to organize systems of *versatile integration* of production, the small and medium enterprises were able to give an effective response to the requests for a differentiated and variable demand such as that of the *made in Italy* sectors.

The development of information and communication technologies has not reduced this network system of production, rather it expanded the possibility of crossing local borders. The diffusion of network technologies, in fact, has increased the potentials of technical fragmentation of productive cycles in a number of sectors, facilitating the access to 'technological modules' created externally. The phenomenon of modularization has acquired greater strength in the sectors where it was traditionally in use, such as mechanical industry. It has since long invaded typically scale intensive sectors, such as the chemical industry, where the differentiation between basic production – governed by integrated cycles – and specialized applications dominated by small and medium enterprises and *start-ups* was considerably developed (Arora, Fosfuri, Gambardella 2001; Cesaroni 2004). However, the clearest case is that of the information technology field. By in service acquisition of complex processing that require expensive hardware systems and specialized human capital, the small enterprise has access to such technologies, whose internal development would be not feasible within small scale production. However, production within the ICT industry, also shows clear fragmentation processes of production cycles, with an ever greater division of the specialized phases of research, planning and development on the one hand – and manufacturing production on the other hand (Lazonick 2005). As William Baumol demonstrated, the growing complexity of knowledge to be mastered in modern industry is leading to the spreading of 'technology consortiums', real supply chains that jointly develop subsidiary innovations. The innovation created in one of the loops of the chain may engender externalities in other loops as well, thus reducing the risks of investments in research (Baumol 2002). The concept of 'technology consortium' may actually represent one of the most advanced forms of production district.

The market costs reduction, together with the development of institutions for the protection of intellectual property, has therefore further driven towards production outsourcing processes, multiplying the spreading potentials of the supply chain economy. Evidence of such process is provided by the strong growth of intra-firm trade of intermediate goods (Feenstra 1998) as well as by the developments of international fragmentation of production (Arndt, Kierzkowsky 2001). The global value chains theory (Bair, Gereffi 2001; Gereffi, Humprey, Sturgeon 2005) gave an analytical description of the plurality of forms taken by the new international division of labour - which forms are also entailed by the growing efficiency of management models offered by logistics. As we will shortly see, the trans-national re-organization

pathways of supply chains followed by the leading industries of Italian districts, show a series of shared patterns with such models. Nonetheless, such studies reveal more than just continuity elements with the district formula. The main element of change lies in the international extent of the supply networks. Before the introduction of the Euro, the frequent competitive devaluations had supported the growth of exports, creating – on the other hand – macroeconomic conditions that were not very favourable to productive investments abroad. With the new currency regime, the situation has profoundly changed. The relative price of investments abroad tends to decrease while, at the same time, the profitability of imports of both components and manufacturing phases increases. For the above mentioned reason, district firms are motivated to develop at international level the supply chains that originally had a local base. In such a framework, the diffusion of information and communication technologies, together with the development of modern logistics and transport services as well as the adoption of certification and quality control systems, become a relevant enabling factor, as they contribute to the reduction of international transaction costs, thus increasing the marketability of the production phases.

The issue is what remains of district ties once the leading firms open to the new forms of enlarged production organization. However, as we will see further on, the international opening of the supply chain does not prevent an interaction with strategic local partners, which are much more selected ones with respect to the past, and are more involved in innovative processes. Furthermore, the development of international activities produces a much greater demand for services than in the past, compelling the territory to promote the growth of specialized tertiary functions – i.e. planning, technological training and development, logistics, finance, communication and marketing, and so on - which increasingly become fundamental components of new districts.

2.2. Entrepreneurial activity

A distinctive feature of the industrial districts' economy was undoubtedly the labour market, whose peculiar characteristics provided the enterprises advantages in terms of flexibility and competitiveness. In fact - when the economic situation is favourable - it is easier for individual firms to find within the district a labour offer that is already qualified. Similarly, when the demand decreases, exit mobility is easier. At the same time, the strong connection between sector and territory allowed the local building up of specialized technical knowledge. In a district context, the community takes active part in the production process, updating knowledge and skills thanks to processes of sharing, which often have an informal nature. According to Becattini and Rullani (1993), such processes of sharing played a key role in the competitiveness of the local system. Participation in community life ensured the development of unspoken knowledge, which laid the foundations of the competitive advantage of district firms. An important aspect to be highlighted is the diffusion of incentives for the technical learning as a consequence of the social mobilization of the market. In other words, labour (and learning) in industrial districts was not a mere compliance with

bureaucratic rules and procedures set by a times and methods office, but rather the active participation in the social construction of a meaningful economic system. Nonaka e Takeuchi (1997), too, when examining the organizational conditions that foster the creation of useful knowledge in the enterprise, underline - together with the wealth of resources - the importance of independence and of personal motivations of actors taking part in innovative processes. They propose a relationship chart that seems to follow closely the seemingly chaotic running of the district system. The diffusion of entrepreneurship in an economic system becomes, as a matter of fact, a speeding up factor in the research of innovative solutions, as it increases the change that those who produce innovation will also take advantage of its benefits.

Therefore, in this case too, the experience gained in the context of small district firms is but a case on the borders of history. Rather, it is the expression of *entrepreneurship* (Audretsch, Keilbach, Lehmann 2006) as well as that of a personal capitalism (Rullani 2004), which are emerging forms of organization in the knowledge economy. In advanced economies, in fact, labour is no longer simply the subordination to a technical rule. On the contrary, it is the ability of self-organization and learning, inclination to continuous improvement and to the search for innovative solutions. Such characteristics are especially connected to the economic activities with a higher added value, such as planning, design, technological research and development, communication and marketing, distribution, finance, and so on - on which the competitive advantage of industries is increasingly based. Such activities need to develop not only new skills, but also a new *entrepreneurial* attitude towards labour. The complexity of markets requires the ability to adapt and to give an immediate response, which translate into a demand of personal involvement in innovative work. By definition, knowledge workers are not confined to following their job description.

The entrepreneurship that marked industrial districts embodies a spirit of active participation and involvement of the worker. This in turn produces meaningful effects – not least effects of cultural nature – towards innovation. In the framework of large corporations, usually, the risks of market shocks are passively suffered by workers and the feeling of ‘insecurity’ varies according to the degree of protection provided from the contractual relationship. In other words, technological and market changes originate an opposition reaction in workers of large corporations and in their social representatives. In an entrepreneurial economy context, instead, a market change is likely to trigger a technical and productive renovation process, which occurs through strategies aimed at the re-organization of existing enterprises and through the creation of new activities, as well as with a strict selection of incumbents.

Rullani (2004) has rightly pointed out how uncertainty may turn into a good opportunity for those who count on a dense social, economic and professional network. The network guarantees protection in case of failure. Therefore, the issue of job insecurity, resulting from the growing complexity of the global economy, can not be solved by binding enterprises to rigid contractual forms. A solution could rather be found by strengthening the social and professional networks in which workers play an active role, both within their own community

and across larger interaction areas. From this perspective, too, the experience of districts can be very instructive.

2.3. Territory in global competition

The success of industrial districts tallied with the rediscovery of the territory as a competitiveness factor and, in more general terms, with the end of a *'one best way'* hypothesis among economic development models. In fact, the experience of districts proved that a settled legacy of knowledge, can become an important development factor in global competition. Within districts, the territory is not only the background of the economic actions, but also the place where some crucial knowledge for production are created, built up and later shared, whereas their conveyance through formal communication channels would be more difficult. However, one could think that the knowledge involved in such local sharing processes is exclusively of a practical one, i.e. - based on traditional knowledge of craftsman nature.

Researches on the geography of innovation, have actually widely demonstrated that technical-scientific knowledge also engenders a strong local drive (Feldman 1994; Asheim, Gertler 2005). This is especially true in the scientific and technological knowledge *creation* processes. During the experimental phase, such knowledge is not at all codified, thus personal contacts among researchers acquire a key role. In this prospect, it is then possible to identify three economic reasons that explain the important role that territory can play in innovation processes. The first reason is that space proximity facilitates the transmission of particularly relevant technological information, which usually does not flow within the traditional channels of scientific communication. A noteworthy example is that of *mistakes* – inevitable factors in any innovation process – which are not the subject of conferences or seminars, nor the focus of scientific articles on specialized journals. It is not easy to know them through imitation or reverse engineering either, as only best solutions, first selected by testing activities and then by the market, are finally included in the products. Mistakes, on the other hand, are revealed when one is close to the people who make them during the testing phase. Therefore, working in a district helps to know in advance the mistakes made by those who are experimenting something new and advises on the best routes to follow. Knowing the mistakes, thus, allow to *economize knowledge*.

The second well-known and investigated reason, is that researchers need constant connections with specialized scientific institutions, such as universities, research centres or the laboratories of leading technological enterprises. Even if such institutions employ - by definition – universal languages, the continuous relationship between enterprises and academics, researchers and laboratories strengthens the knowledge exploitation potentials. The third reason is to be found in the principle of mutual positive externalities. Working in a group of excellent researchers and technicians increases personal performance and the likelihood of this to happen grows with the number of researchers and specialized technicians in a local system. The development of new technology clusters is not only the result of

policy makers' activeness, but also the consequence of the knowledge localization economies (Bresnahan, Gambardella 2004).

The process of international economic globalization has therefore contributed to speeding up the development of new forms of spatial division of cognitive labour. A first effect was already described when dealing with the fragmentation of supply chains at international level. Telematic networks tend to eliminate distances and to making the world increasingly 'flat', as information is accessible in the space of flows, which, by definition, has no geographic borders. The production processes reach an impressive geographic extension without causing the increase of the coordination costs borne by enterprises. This flattening trend appears nonetheless counterbalanced by a just and meaningful trend that stresses the importance of a geography of division of cognitive labour. The knowledge linked to economic purposes tends to concentrate in specific places that the globalization process tends to strengthen. Richard Florida's expression "the world is spiky" expresses this process of geographic concentration of knowledge marking the current stage of the world's economic development.

The transformation phase industrial districts are going through, does not lessen the importance of the territory as a place where knowledge and skills that are relevant for economic activities with an added value concentrate. District firms that are able to compete at global level 'flatten' their productive processes, count on a new geography of production, bet on new technologies to manage an ever global and complex logistics. At the same time, the growing focus on tertiary and creative functions leads enterprises to find - within the territory - those external economies of reputational and cognitive type, that today define the new 'culture of product'. Culture of product means more than just manufacturing. It implies a legacy of knowledge and skills that entail to a dialogue with production, market, design, with the search for new solutions, thus turning into the source of innovation processes.

It is however useful to clarify that the notion of territory - emerging from the evolution of the competitive framework - features characteristics that differ from those employed for districts by the traditional policy. The relevant value of the territory is no longer restricted to the legacy of a past - in some cases a distinguished and renowned one - but has to be considered as the result of a more aware institutional planning. This being a determining challenge for the new productive districts.

3. Districts on the move: the findings of the TeDIS observatory

A good starting point to understand the evolution of leading firms in Italian industrial districts is the analysis of data gathered by the TeDIS observatory from 2001 to 2006. The observatory bases its work on a series of quantitative surveys carried out through structured questionnaire and case studies investigated at quantitative level. The observatory examined 45 districts, including important *made in Italy* sectors (known as the '4 As' by their Italian initial letters) home furnishing, apparel and textile, automation and mechanics, agriculture and food. The firms under analysis registered an annual turnover exceeding 2.5 million euro, which is a selective threshold

between firms of industrial or craftsman nature. In addition to data collected through interviews and questionnaires, the observatory has taken into account the data of the Balance Sheet Centre (Centrale dei Bilanci) processed by the Banca Intesa studies centre, to complete the strategic analysis with a set of economic and financial information (Chiarvesio, Di Maria, Micelli 2006; Corò, Micelli 2006).

The characteristics of leading firms under analysis are soon revealed: a limited average turnover (around 16.5 million euro) and personnel of slightly over 70 units, on average. Today a relevant percentage of these firms (around 37%) belong to a formal or informal group. The data collected by the observatory confirms some key hypothesis on the projection of district firms abroad. The average percentage of turnover exported is around 45%. Over 40% of firms examined export over 50% of their total turnover. In terms of competitive strategy, a fourth part of firms examined states to have a leadership market position, even if with regards to a limited volume niche markets. 50% of firms analyzed states to be in a position of significant importance on the market, with respect to their competitors.

Table 1 – Main features of firms studied by TeDIS observatory

Main business	Finished products for the market	49.5%
	Finished products for other firms	33.3%
	Parts, components and other manufacturing activities	17.2%
% Average turnover 2003 (m euro)		16.5
Turnover (median) 2003 (m euro)		9.0
Number of staff (average) 2003		73.1
Number of staff (median) 2003		46.0
Average percentage export on turnover		45.1%
Competitive position	Leading	23.5%
	Relevant	50.8%
Belonging to a group		36.9%

3.1. Leading firms as open networks

It is no news that district firms managed to consolidate an important export share. It is more interesting to notice that – beyond sales - foreign relationships also involve a structure of increasingly qualified foreign markets. An ever greater number of branches, franchising and distribution networks consolidate a more stable and qualified commercial position. A further new element is the international vocation of the production chain. Around 30% of firms examined claims to carry out production through a system of worldwide suppliers. Abroad district firms have three types of interlocutors: the

first one being the so called strategic suppliers. Such suppliers are relatively rare and produce key components for the manufacturing of the final product. The geography of said suppliers (over 60%) is mainly European, namely German and French.

The second interlocutors - as far as the supply channels at international level are concerned – are connected to the large use - on an international scale - of local contractors. District firms identify and choose craftsman workshops or small-sized firms, located mainly in Central and Eastern Europe and offer them raw materials and technical assistance in exchange for competitive manufacturing in terms of labour cost. This does not imply, however, the end of relationships with all local suppliers and contractors, which are assigned targeted duties, such as the production of prototypes and first serials. In this case, they are real partners, selected on grounds of the quality of services performed and of the ability to contribute to the innovation process of the product.

The third aspect related to the internationalization of productive processes concerns direct investments abroad, focussed in the Central-Eastern Europe area. Such internationalization method, long considered by the economic literature on corporate as the only legitimate form of presence on international supply markets, is for small and medium district firms just *one* of the ways with which to expand borders within an opening process marked by flexible and differentiated strategies.

Table 2. Internationalization of district firms

<i>Firms with international of supply (% on total)</i>	30.7%
Strategic suppliers abroad*	63.3%
International contractors	17.1%
Direct investments abroad	38.2%

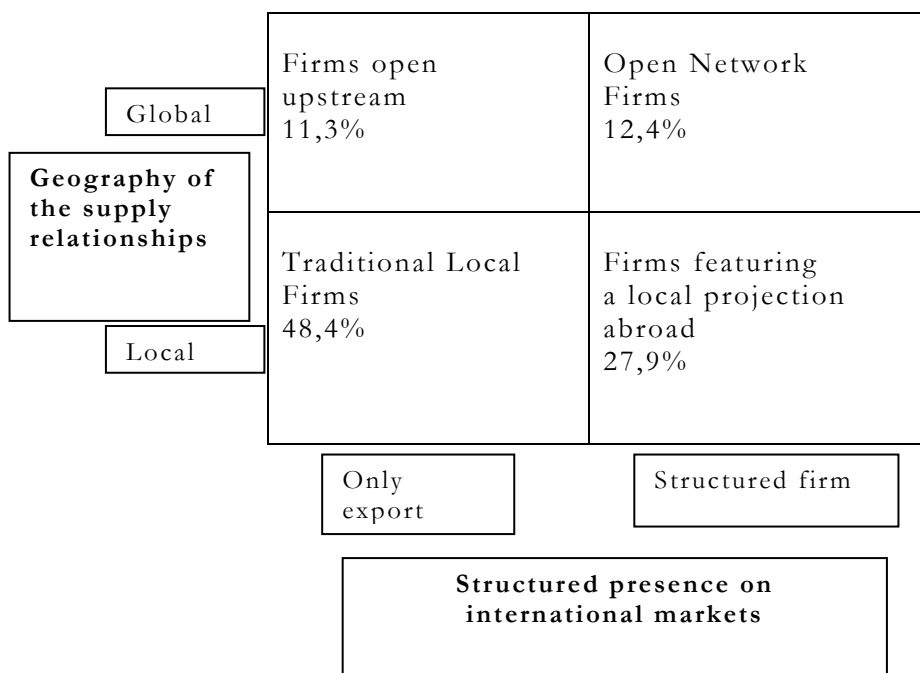
*The total exceeds 100 because firms may have more than one internationalization method.

According to the figures just outlined, the international opening of firms represents a structural data of districts' evolution. For many leading companies the district area is no longer the perimeter that encloses the entire production process, nor is the only space where commercial decisions are made. The district ceases to be a *self-contained* economic space, as it was labelled by some Anglo-Saxon economic literature. On the contrary, it represents the local junction of international economic processes that begin and end elsewhere. In order to understand the future of districts, it is necessary to examine the instruments through which firms began to integrate in these international chains of the division of labour and to assess the value of the competitive advantage gained at territorial level. The territorial context remains an element of the strategic landscape of firms, but it certainly takes on a different meaning if compared with the past, when it represented both a constrain and a competitive resource. After all, if the ability of firms to be strongly present in the market is

no longer given by the total control of the productive chain - but rather by the ability to manage specific added value phases – especially in the area of services – then the relationships with a network of selected local partners becomes a decisive condition in order to maintain control over the productive cycle.

If we consider the two dimensions of the internationalization process of district firms, on one hand the degree of *productive internationalization* and the *degree of presence on final markets* on the other, it is then possible to establish a four area matrix that helps us understand the strategic positioning of firms.

Table 1. Four firm models in industrial districts



The lower left area contains more traditional firms, that is those firms that keep a geography of production focussed on the territory and that only *sell* abroad through traditional channels. At present such firms are the numerical majority (almost 50% of firms under examination) even if their weight in terms of total turnover experienced a considerable reduction. With respect to the sample analysed, the total turnover of such firms slightly exceeds 30% of the total turnover produced by the firms considered. A considerable share of firms (around 28%) decided to launch an investments programme in order to increase control on foreign markets through differentiated forms of presence in receiver countries. This is a classic pathway of growth, based on the strengthening of the traditional commercial opening of district firms towards the outside. On the other hand, a small percentage of firms is structured as upstream open firm, that is to say firms that starts an internationalization of production process (especially through contractors and direct investments abroad) in order to gain competitiveness through a product cost reduction.

A share of firms – relatively small but particularly important in terms of visibility and turnover – attains to the firm model of open network type, that is those firms able of international projection both upstream and downstream the value chain. In terms of numbers, open networks are just above 12% of the sample examined. If we look at the turnover produced by said companies with respect to the total turnover registered by the companies under analysis, their weight is decidedly more relevant. Today such companies produce around one third of districts’ turnover (33.2%). An analysis of the open networks’ distribution in the different industrial sectors and the different geographic areas offers interesting hints. Open networks register a greater presence in the automation and mechanics sector, characterized by global supply chains, such as that of automotive and household appliances. Their presence is smaller in the home furnishing sector, still marked by strong productive roots at local level. Furthermore, open networks are more present in district areas of the North East than in the South of Italy. The phenomenon however is a distinctive feature of considerable importance across all sectors of the entire country, which marks irreversibly the evolution of the district model.

3.2. Factors of competitiveness

A detailed analysis of the features of the various district firms types reveals significant differences in term of organizational and management models. The difference between traditional firms and firms structured as open networks are not ascribable simply to the degree of productive and commercial internationalization. Such differences also concern the degree of management of innovation, that of use of new technologies and that of communication ability. In other words, the opening process tallies with a managerial effort for upgrade that is reflected at different levels and that contributes to redefine, globally, the enterprise’s competitiveness.

Table 3. Open networks and traditional firms: a comparison

Enterprises	Open networks	Average sample	Traditional
Investments in trademarks	55.7%	42.5%	37.0%
Investments in product innovation processes	83.8%	75.5%	65.7%
Specific resources dedicated to design	51.3%	37.4%	3.4%
Resources dedicated to Research and Development	82.5%	57.2%	46.8%
Patents	45.0%	29.7%	19.9%
Enterprise Resources Planning Solutions	51.3%	36.4%	27.9%

Table 3 displays a detailed framework of the main differentiation areas within the new district firms. With respect to traditional firms, open network firms decidedly prefer to invest in trademarks in a

much higher percentage (56% versus 37%), they sensibly believe more in production innovation (83% versus 66%), they invest more in design and research and development, they have own patents (45% versus 20%). Last but not least, they are characterized by IT equipments that are clearly more advanced, as shown by data concerning the spread of Enterprise Resource Planning solutions. The implementation of the latest integrated management solutions requires a deep knowledge of corporate processes as well as a coding ability that is often little known to entrepreneurs and managers with a more traditional background and attitude.

3.3. Industrial Strategies and Economic Performance

It is legitimate to wonder whether these emerging enterprise models are able to achieve positive economic performance and whether the investments necessary to initiate the strategic repositioning we have just outlined are, in point of fact, counterbalanced by a satisfactory economic return. In order to answer these questions, it is necessary to turn to the company accounts from a period of time long enough to verify possible trends in sales revenue growth and variations in the contribution margin. The analysis has been carried out by jointly processing the surveys examined above and the data from the accounts of each firm.

The global analysis of account data relating to the sample under examination reveals the difficulties district firms have faced during the last few years. By considering the overall sales revenue delivered by the approximately 700 firms in the observatory, we can see that the value basically remained stable over the three-year period of 2000-2003. Actually, this seeming stability conceals a few differences already mentioned in the previous chapter. The automation and engineering industry, notwithstanding the difficulties due to the new competitive scenario, rose by about 5%; whereas sales revenue in the clothing sector lost about 7 percentage points out of the total turnover. Looking at the gross profitability (the indicator used in this case was the gross operating margin – EBITDA), all sectors showed a decrease (the value of the median dropped from 8.3% to 6.9%, from 2000 to 2003).

In order to analyse the relationships between business strategies and economic performance, we selected three aggregated variables; each of them expresses synthetically different management parameters:

- *Technological Innovation*: it synthesizes the presence of in-house Research and Development departments, ownership of patents, and, if existing, cooperations with research institutes;
- *Design and Product Innovation*: it takes into consideration the investments in product development and the size of the dedicated offices in the design department;
- *Adoption of ICT*: it highlights the presence of information and communication technologies, classified as infrastructural (Intranet and Extranet), managerial (ERP, supply chain management, sales force automation), and communicative (e-mail, website, groupware, CRM).

In a nutshell, the emerging data shows that investment along these guide lines pays as long as the firm is able to build its own strategy by exploiting a coherent mix of these three variables, thus not focussing on just one of them.

Table 4 points out the linkage between investments in innovation and economic performance. For each variable under examination, we have taken into consideration the most successful firms (the best ones) and the least successful ones (the worst ones) using respectively the 75th and 25th percentile of the distribution of each variable. In other words, in drawing up a hypothetical ranking list for each variable examined, we selected, respectively, the firms in the top 25% of the list (the best ones), and the firms in the bottom 25% of the list (the worst ones). For each group we calculated some – particularly relevant – economic performance levels: first of all, the variation in sales revenue during the time span considered (2000-2003), in order to verify whether the firms that invested in the three variables under examination increased their volume of business; secondly, we analysed the relationship between the gross operating margin and the sales revenue as an expression of the firms' profitability, to verify their competitive capacity in the markets.

Table 4. The innovation strategies and economic performance of district firms

		Variation in Sales Revenue 2000-2003 (median)	EBITDA/Sales Revenue Average 2000-2003 (median)
Technological Innovation	Best	5.9%	8.2%
	Worst	-5.5%	6.4%
Adoption of ICT	Best	6.0%	8.1%
	Worst	-9.9%	6.8%
Design and Product Innovation	Best	4.2%	8.0%
	Worst	-2.3%	7.1%

These figures point out how the firms that invested in technology, product innovation and network technologies (ICT) feature performance levels higher than average in terms of growth in the volume of business, as well as in terms of profit margin. Conversely, the firms that did not make any investments in these three areas show performance levels which are less convincing, especially as far as the growth (cutback) of their sales revenue is concerned. This differentiation brings the entrepreneurial and managerial efforts to the fore as a key factor in pursuing a pathway of innovation targeted on competitiveness.

When considered by sector, the results now examined show a few significant differences. In the automation and engineering industry, the relative importance of technological innovation and ICTs tends to prevail over design. Such is the case of those firms that operate in the sector of components manufacturing for the automotive industry and are required to make permanent efforts to improve their products and processes, and along with real-time integration with the business processes of their customers. However, even in these cases, the available data show that the role of design is not marginal. Vice versa, in the clothing industry what tends to prevail is the weight of design and product innovation paired by that of network technologies; technological innovation, in this case, plays a less relevant role. Such is the case of many companies in the clothing districts that have decided to invest in creativity and communication and assigned production to a multiplicity of suppliers, based both in Italy and abroad, thanks to an innovative use of new technologies. However, even in this case, firms do not abstain from investing in research, being aware that, even in the so-called “low tech” sectors, it is still important to manage innovation in technology.

With respect to our reasoning concerning districts and the transformation in the models of local development, it is necessary to underline how firms operating in the same industry and/or same district might achieve very different economic results depending on the business policies and strategies they have implemented. The performance of successful firms is based on an original mix of factors which tends to stabilize over time. In this context we are talking about “idiosyncratic” strategic pathways that are difficult to duplicate and imitate, but share common basic ingredients on which successful firms have invested with great resolution. The creation of conditions favourable to the diffusion of such pathways to innovation should therefore represent an important issue of the new district policies.

4. Three principles for a new district policy

Acknowledging the modernity of the district system does not entail indulging in a novel hagiography of this model; on the contrary, it means regarding the changes under way as evidence of the ability of renewal of the local productive fabric and of competitive repositioning. In the case of the Italian districts, the speed dictated by the new international competition makes such renewal even more pressing. The effort that needs to be made, which involves institutions as well, is not easy at all, as it entails a change in the perspective of the local economic policies whose underlying meaning might be described as the transition from industrial districts to local innovation systems. The data included in the previous section suggests three principles that should guide such transformation.

The first principle is connected to the acknowledgment of the main role played by leading firms in innovation projects. The processes for the international reorganization of the chains of supply have caused the emergence of a demand for “tertiary intelligence,” to which the leading firms in the territory have offered an original response. Again, the district leading firms have developed in-house departments which are more and more connected to product development and management of decentralized production cycles, such as engineering

and design, research, patents, quality control, logistics and distribution, marketing and communication, and finance. In order for these in-house departments to be able to grow and become well-established, it is necessary that territories accompany this evolutionary phase by developing a market of services specializing, in particular, in those areas that are now the most critical for the firms' competitiveness: research and technological development, creativity and design, logistics, and finance. Should the local market of services not be able to move in this direction, the risk is that primarily successful firms – those that have developed more production networks abroad and consequently require more qualified services and infrastructures – will have to look for new and more adequate locations, possibly within metropolitan contexts. In this sense, the features of the future districts will be much more tertiary-oriented than industrial, and they will therefore be much more similar to cities, with their diversified economic life.

The emphasis given in recent studies to “medium-sized firms” has perhaps made us lose track of the fact that, actually, these firms are almost invariably the junction of much wider networks of value creation, to which small manufacturers, service companies and qualified professionals all contribute. A contraposition between medium-sized firms and districts is pointless, especially considering that such firms' competitive advantage is almost always based on a rich local fabric characterized by technical and productive cooperation. To encourage the diffusion of innovation, then, it would be more useful to acknowledge such a role, assisting chain projects in which medium-sized firms might act as coordinators and institutional interface. However, assigning to medium-sized firms an institutional role would imply reconsidering a well-established interpretation regarding the community governance of districts, one that recognized entitlement to economic representativeness only to public and associational institutions. It is instead important to go beyond that interpretation, for at least three reasons. First of all, because this allows a more realistic view of the internal organization of the district productive systems, where *team play* has almost always been intended as to *play between different teams* in competition with each other. Secondly, this provides useful elements to increase the efficacy in exploiting the resources committed to innovation and technological transfer projects, for which the existence of business incentives and expertise remains an irreplaceable condition. Thirdly, it can serve as an instrument for these firms to increase their investments in the relationship with the territory, facilitating the district's upgrading process.

The second aspect is the often mentioned one concerning the international opening of the value chains. Districts are no longer closed productive systems, communicating with the outside world through the purchase of raw materials and export of end products. We have seen how the development of international production relationships is a distinguishing feature of the Italian district systems. The leading firms that have reacted in the best way to the new competitive scenario are those that, by relocating some phases of their production cycle, have been able to harness, and not only suffer, the low-cost labour potential existing in the world economy. Moreover, our studies have shown that these strategies have benefited

not only the firms that relocated - but also - in the medium term, the whole local economic environment that reacted by developing new technological and service businesses, to a lesser degree exposed to cost competition (Tattara, Corò, Volpe 2006). Today a new phase of *made-in-Italy* (and *made-by-Italy*) products internationalization is opening, that brings leading firms to explore distant markets through joint investments in production and distribution networks, without which it would be very difficult to serve these new and more promising areas. But modern industry also requires a different type of internationalization, which concerns the opening of financial capital as well as human and creative capital towards the cultural and scientific circles. In several districts, the ability to attract human resources from the outside – not only labour force, but also specialized technicians and managers – has by now become a necessary condition to ensure the continuity of local production development. Furthermore, the most innovative projects require capital resources that can only be intercepted in the international financial circuits. The local institutions – *in primis* the associational, financial and educational establishment – should therefore aim at opening themselves to such resources, thus contributing to make their area more appealing to international investors.

The renewal of the intermediate institutions becomes, then, the third cornerstone necessary to accompany the current evolution of the industrial districts. The intermediate institutions – i.e., entrepreneurs' organizations, universities and research institutes, consortia and fairs, service providers, technical and vocational schools, local banks – have undoubtedly been an important factor in the industrial success of districts. In addition to producing local public goods, they have also contributed to nourish a cooperative climate in the local market, and provided district firms and employees with identity resources. However, in order for the districts to keep pace with international competition, these institutions also need to be renewed, rising above the risk of performing a function of mere distributors of public resources. Also because, in the meanwhile, the district puts forward demands for new services and infrastructures coherent with the competitive advantage of the new firms. Creativity and technological experimentation play a fundamental role in the *made-in-Italy* innovations. The scientific and technological content of the “traditional” productions has increased and can be seen from different perspectives: in materials technology; in the pursuit of increased functionality, safety, health and eco-friendliness of products; in the development of new systems of automation, prototyping, logistics and communication; in the building of technological plants upstream from end production. All this entails, above all, a much closer relationship between firms and scientific institutions, starting from the universities, and makes a radical revision of the technical training courses offered necessary. The quality development of human capital and of technical absorption capacity is, in fact, the condition needed to increase innovation potentials within the firms. The traditional technology transfer service providers need to reach *economies of scale* that unavoidably exceed the local demand. Some interesting cases of district local centres which were able to achieve a service level recognized from the outside as well show that in this way they also contribute to the

enrichment of the local fabric of expertise and relations useful to all firms (Corò, Grandinetti 2007). The fact that the intermediate institutions have so far remained safe from competition makes renewal more difficult, but not less necessary.

5. Districts, from legacy to strategy: an institutional challenge for the Italian economy

A recent document released by the Swedish governmental Agency for innovation goes as far as to claim that “[c]lusters are today recognised as an important instrument for promoting industrial development, innovation, competitiveness and growth” (Iked 2005). Michael Porter had reached a similar conclusion, stating that cluster theory does not only offer indications on how to strengthen the innovation potentials of a relocation but also leads to consider the geographical concentration of interconnected companies as *the general criterion of industrial policy*. The aim of a policy supporting clusters, therefore, goes beyond local development, becoming that of strengthening competitiveness of a national economic system (Porter 1997). In line with this position is the decision taken in 2004 by the French government who proposed the relaunch of an innovation policy articulated through 67 poles of competitiveness, each one with the aim of attracting special economic, institutional and human resources in order to ensure the management and advance of determined technological frontiers.

These positions show a substantial change with respect to the traditional approach to districts. In fact, districts are not here interpreted as historical and geographical elements in a country's industry, but rather as *instruments* in the policy of innovation. This position is by far more controversial than it might appear at first sight. Actually, the hypothesis supported by Marshall's theory is that clusters are, essentially, the result of a historical and social process which, at some point, combines with clear market dynamics: only when this combination occurs can the process of local accumulation of specialized external economies begin. The action of market forces is not a secondary aspect; rather, it is essential in cluster theory: if ever, it is the *release* of such sources – as the political, commercial, logistical barriers constraining the mobility of factors fall – that encourages the formation of a geography characterized by productive agglomerations, where (specific) capital and (specialized) labour meet in a determined location to benefit from increasing returns (Krugman 1996).

Industrial policy, therefore, has nothing to do with it. On the contrary, most observers have highlighted the spontaneous, self-organizing nature of the district productive settings, which does not welcome regulatory actions conducted from the outside. However, if today we want to provide districts with continuity and perspective, we have to try to respond to the perhaps most insidious challenge, one which firms themselves and local economic institutions have to face: finding a way to transform external economies from a *legacy* into a *project*. We have, in fact, to admit that the external economies that were spontaneously created in districts not only have provided firms with localization advantages, but have also made the firms themselves accustomed to use such economies without worrying about

reproducing them. In the long run, however, even these collective resources – expertise, flexibility, trust, reputation – if not adequately renewed, run out or lose value. As in the well-known tragedy of the commons, the exhaustion of collective resources can occur as a consequence of the success of a productive system, a success, though, that makes development unsustainable because it uses up its own premises more quickly than it manages to restore them.

Therefore, a new policy for the productive districts in Italy is necessary but twice as difficult. The limits that need to be overcome depend on both the distrust, on part of the firms, towards awareness and more taxing forms of institutional cooperation, and on an administrative culture not very inclined to grant autonomy to actors making high-risk investments on innovation, and to whom acknowledge the social benefit of the external economies generated through the projects that are realized. The first experiences of regional district policy failed exactly because it did not manage to find the right balance between competitiveness and cooperation in allotting public resources, under the illusion that the complex governance of the districts could be narrowed down to the customary social concertation. The national industrial policy ushered in by the “Industria 2015” draft law and the 2007 financial law is perhaps dismissing a bit too quickly this experience, virtually renouncing the acknowledgement to the territories of the important function of versatile production integration that belongs to the best tradition of the Italian districts, which Sylos Labini, in his latest works, had also taken an interest in. However, a few recent regional experiences – starting from Veneto and Friuli Venezia Giulia, and now including Puglia as well – seem to be showing that a different pathway is possible. In these regions, productive districts do not only represent a historically determined phenomenon, to be recognized and safeguarded in a traditional way, but rather local coalitions between firms and institutions sharing a mid-term development strategy and showing that they are willing to make high-risk investments on the territory for innovation projects. It is in this perspective, as well, that districts in Italy could become something more than an important element of industrial heritage, and attempt to take on the role of vehicles – fundamental even though not exclusive – of the competitive repositioning of the whole country.

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