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Economics Series

No. 16, February 2001

Industrial Districts, ICT and Global Production Networks: The Italian Experience

Paolo Guerrieri

Paolo Guerrieri is a Professor of International Economics at the University of Rome, 'La Sapienza', and a Professor at the College of Europe, Bruges, Belgium. He is the author of several books and articles on international trade and policy, technological change, international economy, and European integration issues.

This paper was presented at the international conference on "The Internet, Global Production Networks and Knowledge Diffusion," at the East-West Center, Honolulu, Hawaii, January 11-13, 2001.

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1. Introduction¹

Globalisation and ICTs are changing both the concept of geographical proximity and the scope of competition: a necessary prerequisite for competitive survival is a capacity to foster the co-evolution of local and global linkages and networks, to develop new interactive modes of knowledge creation and to adjust strategy and organization at short notice. Globalisation has created an explosive mix of forces that facilitate international knowledge diffusion, increasing the variety of international knowledge linkages. This creates new opportunities and challenges for the development and upgrading of industrial clusters and districts, those particularly based on small and medium enterprises (SMEs)

In the last two decades the internationalisation of markets, the multinationalisation of production and the radical technological changes have interacted in urging the restructuring of small and medium enterprises' (SMEs) competitiveness in order to cope with the increasing degree of knowledge-intensity and globalisation of economic activities. In the case of Italian industrial districts (IDs), for example, the reaction to the global competitive challenge during the 1980s and the 1990s seemed to have broadly confirmed the relative strength of the Italian ID model (i.e., based upon the typical Marshallian mould).

However, as a consequence of the rise of new critical factors for competitive success and of the rapid shift towards information and communication technologies (ICTs), some new tendencies are emerging in the organisation of production and in the structure of inter-firm linkages which are likely to alter substantially the traditional ID configuration.

¹ This paper is based on a forthcoming book from the TSER project, SME Clusters In Globalised Industries. Italy and Taiwan edited by P. Guerrieri, Iammarino S. and Pietrobelli C. and to be published by Edward Elgar later this year

Among the crucial factors explaining the evolution of the IDs' industrial organisation are the (external) inducements derived from market competition and changes in demand, and from technology and technological change. Especially the latter appears important in the present world. The changes in the technology paradigms and trajectories, that crucially affect the foundations of competitiveness, are increasingly shaped by the internationalisation process, and contribute to determine the prevailing form of company strategy, and especially inter-firm attitudes, and the industrial organisation prevailing within an enterprise cluster. Interestingly, this dimension has often been underplayed in the studies of enterprise clusters and industrial agglomeration. This contrasts with the increasing evidence of cluster reorganisation in response to a changing environment of globalisation of economic and technological activities.

The aim of this chapter is to investigate first some models of evolution of industrial clusters and districts in light of the peculiar features of information and communication technology. To this aim, we shall first briefly review the literature on the typology of clusters and IDs, and in general on the variety of visions on the phenomenon of enterprise clustering, focusing on the explanations of their dynamics and changes in internal organization provided in the literature.

The second part of the chapter will use the Italian industrial districts as a case study. It will assess whether a renewal of competitiveness has occurred in Italian IDs and what sort of path has been followed by SMEs located in the district to cope with the increasing global competition and ICT technological revolution.

2. ICT technological revolution and the typology of industrial clusters

Two new major features of the social and economic systems are emerging and have characterised the last two decades. On the one hand, technology increasingly plays a central role for all economic activities, and the pace of technological change is getting more and more rapid. On the other hand, the scope of all economic and enterprises' activities has become global, since a key feature of the prevailing techno-economic model is the widespread internationalisation of all economic and technological activities. These two dominant features are intrinsically inter-related and mutually reinforcing.

There has been an intense debate on whether SMEs can compete in industries that combine high knowledge-intensity and high degree of internationalization. Small firms, by definition, have limited resources and capabilities and rarely possess substantial ownership advantages. They are obviously constrained in their knowledge creation capacity and have also a limited capacity to influence pricing and shape the development of markets, market structure and technological change. It would thus seem self-evident that small firms cannot be competitive in knowledge-intensive and highly globalised industries (Ernst 1998). Many countries' experiences, however, tell different stories: SMEs have been the main vector of its rapid development in many industries.

For several decades in many countries and industries SME clustering has offered a competitive alternative to the advantages achieved through a larger production scale, and through the ensuing economies of scale. So common to all these experiences is that they are attempting to complement the speed and flexibility of smaller firms with the advantages of scale and scope that normally only large firms can reap (Ernst, 2001).

However the accelerated spread of new ICT technological system, together with the current stage of globalisation, are drastically changing both the concept of proximity and the scope of competition of SME clusters.

The shift in the technological paradigm, that applies to all sectors, requires a substantial industrial reorganisation of industrial clusters. The capacity to foster the co-evolution of local and global linkages and networks, to develop the new interactive modes of knowledge creation, to adjust strategies and organisational forms at short notice, is a necessary prerequisite for competitive survival (Ernst, 2001). Firms traditionally operating within industrial clusters and IDs need to learn to source their technological knowledge from the most convenient locations outside the ID, and to reorganise their knowledge linkages from a cluster-based approach to a global and broader approach. The nature of technology raises the convenience to stretch out the reach of a company's technological activities, source technology abroad and strike R&D and technology partnerships with other companies and institutions (Pietrobelli, 1996). This knowledge needs to be sourced from different origins, as firms become less and less capable of supplying all the technological knowledge required, and all the inter-firm and inter-institution linkages matter more for science & technology (S&T) and R&D.

De facto, all this implies that geographical clusters of economic activities can no longer be conceived as closed and locally concentrated systems, and the risk of a rapid erosion of competitive advantages may turn to certainty for local systems of SMEs which fail in becoming open system through unavoidable organisational changes and restructuring. However, differences persist, there is not only one avenue for reorganisation, and technological opportunities widely differ.

A key question to address is that how technological regime changes are going to affect the enterprise clusters and particularly how they are going to modify their internal organisation, geographical location, and innovative behaviours

To try to answer to this question one could first utilize that strand of the literature that emphasises the link between industrial organisation and technological change, and focuses on the concepts of ‘technological régimes’.

An interesting approach to the analysis of the different patterns of innovation is centred on the notion of technological regimes (Nelson and Winter, 1982; Malerba and Orsenigo, 1995; 1996). Importantly, it has been shown that technological regimes are technology-specific (Malerba, Orsenigo, 1996 b), i.e. that the pattern of innovations in one sector is very similar throughout all countries. However, one can observe also systematic differences in patterns of technological change across countries in all sectors (Guerrieri and Tylecote, 1997).

Within this framework, a firm’s rate of innovation is influenced by the technological (and industrial) environment facing the firm (opportunity conditions; appropriability conditions; degree of cumulativeness; knowledge base, etc.): In this framework two polar models of innovative activities have been developed following Schumpeter , (1934, 1942), the Schumpeter Mark I and Mark II models. The major difference among them is the different technological environments that characterize and affect firm strategies in each of them.

The prevailing techno-economic model with the diffusion of the ICTs and the rapid internationalisation of all economic and technological activities would seem leading toward an increasing role and relevance of the Schumpeterian dynamics of the first type (Mark I).

Resources, capital and other inputs can be efficiently sourced in global markets.

Furthermore information and technologies become generic, increasingly codifiable and are readily available via globalization. More specifically, firms find it increasingly necessary to create knowledge through linkages with other firms and organisations.

Another fundamental aspect in the new prevailing techno-economic model is that new technologies, and particularly the ICT paradigm, have permitted the proximity that used to be possible only within a localized cluster to take place over long distances.

Change in technology and global competition have therefore diminished many of the traditional role of geographical location. The analysis needs to move beyond the boundaries of a region or nation state, and international knowledge linkages acquire increasing importance (Ernst, 1998).

But all that reveals only one side of the coin. In fact one could say that location remains fundamental to competition, albeit in different ways in the new techno-economic model dominated by ICTs (Cox, 1997 and Storper and Salais, 1997). The relevant knowledge base involves tacit as well as increasingly codifiable and codified aspects. The former are related to firms' specialised capabilities, while the latter refer to technological knowledge which is new, widely applicable and generic. So if technology can be licensed or sourced from other locations, components and equipment can be out-sourced, more advanced dimension of competition remain geographically bounded and related to Schumpeter Mark II model. The enduring technological and competitive advantages in a global economy are often still significantly local (Cox, 1997 and Storper and Salais, 1997).

Also proximity matters and will continue to matter, provided that local systems become more and more open and globally integrated systems. The global economy is

boosting the importance of functional integration *vis á vis* geographical integration, which was one of the fundamental conditions for the emergence of IDs, and which will continue to be an essential factor provided that the necessary organisational changes connected with complex technologies are introduced. Globalisation has given rise to “ever more finely grained patterns of locational differentiation and specialization” (Scott, 1998: 399).

Moreover, cross-border geographical dispersion of economic and innovation activities is heavily concentrated in a limited number of specialized local clusters: there is evidence of such a trend in the European Union (see, for example, Cantwell and Iammarino, 1998, 2000, 2001), but strong spatial concentration is observable also within East Asia. This indicates that intra-firm and inter-firm network specialisation also defines the opportunities of local clusters within a particular macro-region.

In this perspective the spread of global production networks (GPN) may be understood as an organisational innovation that may enable a firm to gain quick access to higher quality and/or lower-cost foreign capabilities that are complementary to its own competencies while maintaining an effective home base for innovation activities (Ernst, 1998:5).

To our goals, it is important to emphasise that the recent patterns impose drastic reorganisations on all enterprises. Particularly, such changes are sweeping and imply comprehensive industrial restructuring, new skills and intermediate inputs. Unless the requisite new technologies and skills can be rapidly developed, competitive advantage will shift to another enterprise, group of firms or location.

The aim of this section is therefore to investigate some plausible conceptual models of evolution of IDs and clusters in light of the peculiar features of ICT technology and technological change.

Very little attention has been paid to the transformation of IDs, and to models geared to explaining their shift from one mode of internal organisation to another. This contrasts with the increasing evidence of cluster reorganisation in response to a changing environment of globalisation of economic and technological activities.

There a large variety of visions on the notion of ID in the literature, and very vast is the array of experiences of enterprise clusters and agglomerations that have been recorded worldwide. In fact some ‘concrete instances of industrial districts are closer to a set of stylised facts than a model (Humphrey, 1995:152), and none of the IDs is strictly equal to another, as also demonstrated by the variety of product specialisations, degree of complexity of organisational and network systems, cultural and social backgrounds. Moreover, the scope and variety of inter-firm organisations is continuously expanding, in relation to the globalisation of technology and the increasing internationalisation of economic activities.

In this perspective a useful taxonomy of the different typologies of industrial clusters is provided by Markusen (1996) by including several different forms of industrial organisation within the definition of an industrial district. She argues that the emergence of ‘sticky places’ in a ‘slippery space’, characterised by dramatically improved communications, and increasingly mobile production factors and enterprises, may be related to numerous variants of industrial districts. Thus, she opts for an expansive connotation of industrial district, which does not confine it to the most common usage (i.e.

the Marshallian – ‘Italian’ variant – district). Therefore, the definition of ID utilised is the following: “...an ID is a sizeable and spatially delimited area of trade-oriented economic activity which has a distinctive economic specialisation, be it resource-related, manufacturing, or services” (Park and Markusen, 1994)² Through an inductive analysis of the more successful metropolitan regions in the US, the conceptualisation proposed focuses on the following essential classificatory principles: firm-size, inter-firm relations, and internal vs. external orientations. Table 2 summarises the main characteristics of the Markusen’s four types of Ids.

The first is the concept of *Marshallian Industrial District*, and its *Italian Variant*, that was first introduced by Alfred Marshall, who noted that small firms in the same industry realise economies of scale external to the firm through co-location (Marshall, 1896). The *Hub-and-spoke* ID is the second type of district empirically detected in the US and elsewhere by several studies (Markusen, 1996). The *Satellite platform* is the third type of ID described by Markusen: it consists of a congregation of branch facilities of externally based multi-plant firms. When industrial activities are ‘anchored’ to a region by a public or non-profit entity, such as a military base, a defence plant, a university or a concentration of government offices, then a ‘*State-anchored District*’ may emerge

Of course a real-world district may be an amalgam of one or more types. In order to simplify these categories even further by singling out one key characteristic, we may explore whether a form of leadership is present. Thus, IDs may differ depending on

² Her definition of ID is clearly different from the definition proposed and utilised by the Italian (mainly Florentine) school (Becattini, Bellandi, Dei Ottati, Brusco and others) as she acknowledges several different institutional set-ups as having the essential features of a ‘district’. In fact, her typology groups together several different forms of organisation of production where a common geographical localisation plays a central role. As a consequence of this very broad approach the “Italian” version of ID ends up being only one possible form of inter-firm organisation, very close to the original Marshallian idea.

whether all forms of leadership are absent, as in the Marshallian type, or whether a leadership is provided by a hub, a parent company located elsewhere, or an anchor financed and promoted by the State.

Over time districts may mutate from one type to another.³ In search for a dynamic theory of IDs facing the new technological regime, could we interpret these types as different stages of a possible continuous evolution? This would be especially interesting insofar as the latter forms of ID may exhibit greater propensities for networking across district lines rather than within or, in other words, greater propensities for diversification into different production lines through more complex networks and inter-firm linkages, rather than for upgrading along the present sectoral specialisation.

In this perspective, some possible transitions through different types of ID are illustrated in Graph 3. Thus, instances of a transition from a Marshallian ID to a Hub-and-spoke, with the emergence of larger oligopolistic companies (1); in principle, the same process might occur through the recruitment or incubation of a hub within the ID. Similarly, satellite platforms may transform into a Marshallian ID by strengthening and intensifying backward and forward linkages among SMEs, both suppliers of intermediate goods and competitors for the same final markets (3). In the event larger firms prevailed, or SMEs as a result of increased competition or economies of scale (and of organisation) grew bigger and established leader-follower or hub-and-spoke links, then a hub-and-spoke district might prevail (4). In principle, also a hub-and-spoke might convert into a Marshallian type of district (or an infant variant of it) (2), following the failure or the loss of influence and power of the anchor-firm (institution).

From the above analysis, two working hypotheses may be singled out:

A shift in the technological paradigm, that applies across sectors, and that requires a substantial industrial reorganisation is being observed world-wide. Again, firms traditionally operating within the ID would need to learn to source their technological knowledge from the most convenient locations outside the ID, and to reorganise their knowledge linkages from a cluster-based approach to a wider and global approach.

The prevailing form of the ‘Marshallian’ ID may not be the most adequate for the new technological areas promising faster and more sustained demand in world markets. In other words the internal organisation of the IDs, and its strength based on local interactions within the cluster, were essential to explain their past performance in traditional sectors. Yet, this kind of organisation may prove less capable of tackling the challenges posed by a new technological regime and an environment that demands the internationalisation of production and commercialisation, and most notably, of knowledge creation.

3. Some stylised evidence from Italy

The ongoing processes of internationalisation and globalisation of production and technology have brought about relevant changes in the location and organisation of economic activities, altering some of the specific features traditionally characterising Italian industrial districts.⁴ In fact, the global competition has rendered less momentous the traditional externalities at work in the district, attaching more relevance to the strategic

³ For instance, Silicon Valley hosts an industrial district in electronics (Saxenian,1994), some important hubs (Lockheed, Hewlett Packard, Stanford University), and platforms branches of large corporations (IBM, Oki, Hyunday, Samsung, NTK Ceramics), but it is also the fourth largest recipient of military spending in the US.

⁴ At the end of the ‘70s, Becattini defined the industrial district (ID) as «a socio-territorial entity which is characterised by the active presence of both a community of people and a population of firms in one naturally and historically bounded area. In the district, unlike in other environment, such as manufacturing towns, community and firms tend to merge» (Becattini, 1990, p. 38).

variables of knowledge and technology and actually shifting the type of evolution of the district from an «extensive» pattern of growth (i.e. based on increasing volumes of production, exports, employment and productions units) towards an «intensive» type of development (i.e. based on strategic factors, sometimes leading to a decline in both employment and number of firms) (Carminucci and Casucci, 1997).

The successful performance of Italian IDs, which have managed to stay competitive without turning down the basic structure of a traditional and experimented model of economic and social organisation, has to be considered the result of a continuous adjustment to external pressures carried out by local forces.

IDs, in the main, have derived their competitiveness from the use of flexible and multipurpose technologies (either «traditional» or electronic), craft and design ability and product adaptability, rather than from the generation of new products.

Innovative activities in the Italian SMEs seem to fall mostly within the ‘widening’ model of innovation (Schumpeter Mark I). Italy’s technological advantages appear stronger when natality, mortality and discontinuities are high, and they would be associated with processes of ‘creative accumulation’ by a ‘turbulent fringe’ of SMEs, and by the activities of a small core of large firms (Malerba, Orsenigo, 1995:187)

During the 1970s and 1980s the present structure of highly specialised, geographically clustered, family-owned small firms has been modernising its production equipment at very fast rates, the fastest among OECD economies.

Particularly during the 1980s, the Italian IDs show on average a stronger propensity to upgrade their production specialisation. The majority of districts has indeed reacted to demand and market changes with the expansion of product ranges, shifting specialisation in

subgroups of products within the same sector, and/or improving product quality and value added per unit through product differentiation and the introduction of minor or incremental innovations. Although the rigidity shown towards actual shifts of specialisation in different and newer sectors with higher technological content has been indicated as one of the main constraint affecting the strategic culture of the district, it should be noted that processes of diversification have indeed occurred, particularly towards sectors which are complementary and related to the original specialisation of the district. Indeed, the growing interdependence between SMEs operating in traditional sectors and machinery and mechanical equipment producers within the ID has played a fundamental role, especially during the 1980s (Barca and Magnani, 1989). It may be argued that the maintenance of the ID traditional model during the '80s proved to be a successful response for keeping a competitive position in the world markets.

The phase of the acceleration of globalisation processes has brought about a kind of renewal of the ID model, leading to a weakening of some of the distinct features which had traditionally characterised it. Particularly in the late 1980s and in the first half of the 1990s, some general trends were observed in Italian IDs: (i) re-internalisation of phases of production, particularly those influencing product quality (*vertical linkages*). This strategy, at the beginning implemented by larger firms, has increasingly interested also SMEs, more prone to imitate than to innovate, greatly affecting the characteristics of the sub-contracting system in many districts; (ii) decentralisation of production: relocation has occurred increasingly outside the local context, with the shift of both stages of production and sourcing of intermediate goods mainly motivated by price competition. This relocation process has also shown an international dimension but it has been confined to the

externalization of low value added parts of the production activities; (iii) hierarchisation of inter-firms relationships, mainly explained by competition on innovation. The emergence of leaders, both local and external medium sized firms, is changing the modes of relationships inside the district (*horizontal linkages*), modifying the traditional competitive and collaborative «atmosphere».

Indeed, despite the common features displayed by IDs as forms of industrial organisation, there are also remarkable differences between them, not only in scale, but also in growth dynamics and social and territorial structures. As emphasised by Pyke and Sengenbergh «it could be said that just as with large firms, no two industrial districts are exactly alike» (Pyke and Sengenbergh, 1990, p. 3). Furthermore, particularly in the Italian experience, the industrial district has often proved to be rather a «stage» in one of the possible different paths of industrialisation, providing support to the choice of the district to help understand the «endogenous sources of industrial dynamism» (Becattini, 1987, p. 32).

Overall, the recent trends and the gradual internationalisation (both active and passive) of ID firms have turned out to be, at least so far, a rather successful strategy, able to cope with the competitive pressure coming from newly industrialised economies (NIEs) and less developed countries. By shifting towards different and higher segments of the world demand and by delocalising the highest labor intensive phases of the value chain, Italian IDs have avoided traditional price competition, betting much more on quality and design and renewing a model of spatial organisation, while holding basically unaltered their traditional characters and organisational forms.

This successful trend has been reversed in the nineties, as firms' responses deepened the same industrial structure (i.e. technical concentration was reduced even

further) and progressively slowed the adoption of technological changes. The difficulties have been related to the nature of the innovation prevailing in these years, that has taken the form of ICT model.

Modernisation in mature industries is shaped by the co-evolution of technological and organisational changes (Antonelli – Marchionatti, 1998).

The evidence suggests that so far, the Italian IDs specialised in traditional sectors have exploited the potential offered by the global networks to strengthen ICTs only to a very small extent.

On the basis of recent studies carried out on Italian IDs, one could argue that there is already some evidence to suggest that, into the 2000s, the organisation of economic activities in IDs will be post-Marshallian, that is, less locally confined and less vertically disintegrated (Guerrieri and Iammarino, 2001).

The presently prevailing organisation of this sector would not be adequate to the widespread diffusion of new information technologies (NIT), a crucial condition for future success. The limited knowledge of new global technological languages, as well as the lack of substantial organisational changes required by the new technologies to be effective, may progressively cut out geographical clusters and, as a result, industrial atmosphere might not be anymore enough to stay ahead in the global economy.

Insofar as it is possible to generalise from traditional sectors, one could point out the adoption of the innovations required for industrial restructuring and modernisation and the ID diversification seem to be constrained by the form of organisation of industry that is prevailing. It follows that the diversification of some Italian IDs now in traditional industries would require a modification of their internal organisation of industry.

What are the possible avenues for such a process to occur?

In principle, larger firms, by internalising stages of production and marketing might be better equipped to adopt and make efficient use of innovation; leader firms, or hubs in the above terminology, may be in the position of facilitating this process and bear the prolonged delays between the adoption of ICT and its positive effects in terms of cost reduction and productivity growth. On the contrary, small firms, in order to overcome such drawbacks, need to reach out international markets to source and generate technology, and should strive to set up forms of tighter co-ordination to exploit the possible complementarities, remedy the lack of economies of scale, and bear the cost of large minimum size and complexity of investment to adopt new technologies.⁵

In a recent series of studies attempting to monitor the evolution of the Italian IDs (Censis, 1997 and 1998), the following main features have been noticed:⁶

- an expansion of the relationships between the ID firms and international markets and agents, that are not limited to imports and exports, but are increasingly including : decentralization of (parts of) the production, exports of licenses, technology transfers, alliances with foreign firms. This appears to happen mainly with Eastern Europe and the Mediterranean countries;
- a frequent entry of foreign firms (sometimes multinational corporations) into the ID through acquisitions of local firms.

In other words, the internal organisation of the Italian ID would be shifting from the traditional circle (horizontally and vertically integrated organisations geared to production

⁵ Organisation changes include modifications such as: closer interaction among internal functions such as production, marketing, finance and strategic decision making; higher levels of vertical integration and product diversification; closer interaction with customers and providers of intermediate goods and services, etc...

and innovation and located in the same, confined, area) model, to a star, that is centred on a strong and clearly defined kernel and spreading out with long rays (Censis, 1997). This would be the consequence of the growing globalisation of markets and of the more competitive framework.

A central result of these studies is to highlight that there is not only one strategy of production, trade and marketing to be competitive.

Additional evidence of the increasing hierarchisation of relations among firms within the Italian IDs has been provided recently (IDSE-CNR, 1999), and suggests that the network of inter-firm relationships is quickly taking a more formalised and structured nature. This is especially occurring in IDs specialised in less traditional sectors, such as metalworking, where the network of relationships is assuming a more structured nature, often involving equity linkages, with potential forms of emerging leadership. In contrast, in traditional sectors such as the textiles, clothing and shoes, the informal network of relations of subcontracting, interactions with local institutions and within producers' associations is not changing, but it still enables SMEs with a little sophisticated internal organisation to be competitive.

Finally, the presence of new leaderships in the IDs, together with the remarkable opening of the leaders to resources and assets external to the original district, appear to positively affect the system's economic performance and competitiveness (Grassi and Pagni, 1998).⁷

⁶ These studies are based on a structured questionnaire to a panel of selected 'privileged observers' of a selection of 40 IDs, that has been repeated every year since 1996 (Censis, 1997 and 1998).

⁷ Examples of a dynamic form of reorganisation exist in Italy, but are few and isolated, such as the networks developing around INVICTA (Belussi and Arcangeli, 1998, Camagni, 1997)

It is important to emphasize the diversity of linkages and their non-linear evolutionary character. International linkages include a variety of ties with sales, manufacturing, and engineering support affiliates of foreign firms; they also include different forms and trajectories of integration into global production networks. Taiwanese firms for instance have typically pursued different approaches in parallel, rather than concentrating exclusively on one particular linkage. It is through such concurrent and multiple linkages that a virtuous circle between knowledge outsourcing and knowledge creation becomes feasible.

However, nothing is automatic about these processes. Integration into international networking poses a fundamental challenge. An increased mobility of firm-specific resources and capabilities across national boundaries may erode established patterns of specialisation, especially for smaller firms. It may also erode the strengths of existing clusters. This may increase the global divide between firms and local clusters that have and those that do not have access to the information and knowledge that is necessary to reap the benefits of network participation.

As also shown by the Taiwan's experience, reaping the benefits from participation in international network cannot be left to market forces alone; much depends on the nature of supporting institutions and policies. An appropriate long-term perspective for the development of industrial districts must focus on improvements in specialisation, productivity and Hirschman-type linkages, all of which necessitate local capability formation and innovation.

Implementing such policies, however, poses daunting political and administrative challenges. That effort needs to be based on a sound understanding of how disruptive

technological change and liberalization have changed the parameters of global competition, and hence the strategic options for developing SME-based local systems.

4. Future Research Development

To sum up , the Italian IDs specialised in traditional sectors have only very partially exploited the potential offered by ICTs and global networks to strengthen communication and information capability . The limited knowledge of new global technological languages, as well as the lack of substantial organisational changes required by the new technologies to be effective, may progressively cut out geographical clusters and, as a result, «industrial atmosphere» might not be anymore sufficient to stay ahead in the global economy.

Moreover, the on-going hierarchisation of firms relationships affects the market structure within the district and, whilst backward linkages have proved to be rather intense in the ID reality, the observed weakness of forward, commercial and inter-organisational linkages may hamper the competitiveness of the district as a whole.

Therefore, several fundamental questions are still open at this stage which the conclusive part of this chapter will try to address to: in which way the trend towards globalisation will affect the type of traditional advantages of clustering and geographical agglomeration? To what extent will such “Marshallian type” of advantages play a role in what appears to be a ‘global’ economy? More specifically, are Italian IDs really less equipped to cope with the current structural technological transformations and to provide a complex and articulated response? What can be done to facilitate and speed up the co-evolution of international and local linkages in SME clusters?

The “concentrated dispersion” mentioned above also gives rise to other crucial questions: what factors explain that some value-chain activities are more prone to

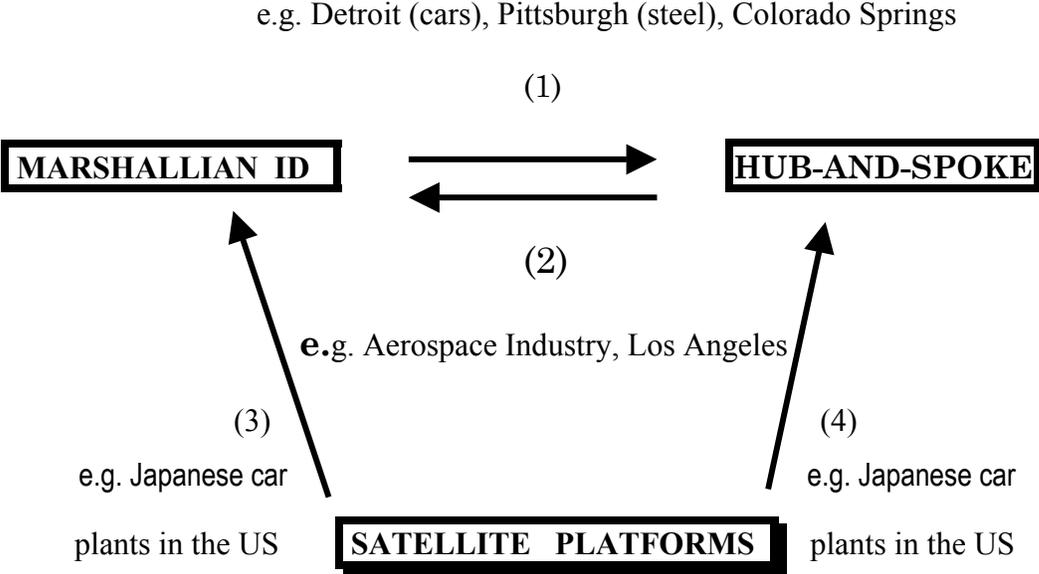
geographical dispersion, while others are more prone to proximity constraints? There is a strong presumption that high-wage and more knowledge-intensive activities are more prone to agglomeration effects, and hence resistant to geographic dispersion. By the same token, geographical dispersion can be expected to be most prominent for low-wage and low-skill value chain activities. Yet, are differences in labor costs and knowledge-intensity sufficient elements to fully grasp the future global geography? A positive answer would imply that a clear-cut separation is possible between low-end activities that are highly dispersed, and knowledge-intensive ones that require localized clusters.

Features	Marshallian ID (ITA, Italian variant)	Hub-and-spoke district	Satellite industrial platform	State-anchored industrial district
Prevailing market structure	Local SMEs	One/several large firms and suppliers	Large firms external to the district	One/several government institutions providing infrastructures
Economies of scale	Low	high	High	High
Local firms' level of activity	High	Low, except for services	Low to moderate	Low or none
Intra-district trade	Highly developed	Between large enterprise and suppliers	Minimal	High between institution and suppliers
Key investments	Local decision	Local decision, but globally dispersed	External decision	In local government or external to the ID
Buyer-producer cooperation ⁽¹⁾	Important (ITA)	Low	Low or none	Low
Regulation of relationships	Long-term contracts	Long-term contracts	Short-term contracts	Short-term contracts
Cooperation with firms outside the ID	Low	High	High with parent company	High with parent-company (institution)
Labour market	Internal to the district Highly flexible	Internal to the district Flexible	External to the district, internal to the large enterprise	Internal (government capital), national from other institutions
Personnel exchanges	High (ITA)	Medium	High , external origin	Medium/high (professional)
Workers' commitment	1 st with ID, 2 nd with enterprises	1 st with large firm, 2 nd with ID, 3 rd with SME	1 st with large firm, 2 nd with ID, 3 rd with SME	1 st with Gov.Institution, 2 nd with ID, 3 rd with SME
Labour immigration	High	High	High for high skills, management / low for low skilled labour	High
Labour (out)migration	Low	Medium	High for high skills, management / low for low skilled labour	Low, unless Gov.Institution leaves
Local cultural identity	Developed	Developed	Virtually absent	Developed
Sources of financing and technical assistance	Internal to the ID	Large firm	External	External (national or local government, military base, State University or research Centre...)
Patient capital *	Exists	Scarce out of the large firm	Non-existent	Non-existent
Local trade associations	Strong presence (ITA)	Virtually absent	Absent	Weak
Role of local government	Important (ITA)	Important	Important	Weak in regulation and industry promotion / Important in infrastructure
Long-term growth outlook	Good outlook	Depending on large firm & industry dynamics	Threatened by relocalisation of activities	Depending on government institution

Source: own elaboration from Markusen, 1996 and Castellano, 1999.

* Presence of financial institutions willing to take long-term risks, for the confidence and information they possess.

Graphic 1 Possible Transitions through types of ID



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