

The Industrial District Model: An Entrepreneurial Overview

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Abstract: The aim of this paper is to provide a description of the entrepreneurial dynamics within the industrial district (henceforth: ID) model. The main background premises refer to the relevance of the division of labour for the entrepreneurial development of a region and to the roles played by intangible resources (as social capital and human capital) in such processes. In particular, the work according to these co-ordinates provides a classification, arising out of the basic literature in such research fields, about the entrepreneurial “sparks” generating such regional clusters.

1 Introduction and Theoretical Assumptions

The paper analyses the business creation process within the various types of the ID model, elaborating a previous typology of the phenomenon (Markusen, 1996); in particular, the study stresses, following the theoretical mainstream about the so-called “network entrepreneurship” (Birley, 1985; Aldrich and Zimmer, 1986; Johannisson, 1996; Greve and Salaff, 2003), three theoretical elements and the relevance of their interactions for creating new ventures.

Firstly, the paper considers the division of labour, which is a method of working described by Adam Smith in “The Wealth of Nations” (1965), as the “active principle” allowing some one to be interested in an entrepreneurial project. This concept is based on the split of a broad task into subtasks, each of which is then assigned to a worker who specialises in carrying out that subtask. Division of labour, therefore, provides a double enhancement of the entrepreneurial process; on the one hand, there is an “internal” explanation, based upon the exit of the best corporate workers (as for spin-offs), interested to become new entrepreneurs; on the other hand there is an “external” explanation, due to the generation of industrial demand for those activities not regarding the corporate specialisation (Arora et al., 2001).

Secondly, the role of social networks for the entrepreneurial activity is underlined; these ones are defined in a generic way by a set of nodes or actors (individuals or organisations) connected by a set of social relationships or ties of a specified type (Brass, 1992). A family, a football team, a university department, a firms cluster are common examples of social networks. The most of the literature about entrepreneurship stressed their value for launching and managing new firms; for example, in Silicon Valley social networks help the movement of labour, the evolution of influence and power, and the production of innovation. Indeed, due to such networks, the firms can adapt quickly to market mutations via the “reshuffling of organisational and institutional boundaries and members” (Castilla et al., 2000).

Thirdly, the intangible resources are likely to influence strongly the entrepreneurial activity; they can be defined, as “non-physical assets whose values are difficult to define and measure, yet appear to play a major role in competitiveness” (Williams et al., 1991). In particular, the roles of human capital and social capital are crucial. The first one refers to that resource composed by the set of skills which an employee acquires on the job, through training and experience, and which increases his value in the marketplace. Moreover, it is “created by changes in persons that bring about skills and capabilities that make them able to act in new ways” (Coleman, 1988). On the other hand, the social capital is a kind of public good that refers “to features of social organisation, such as network, norms and trust, that facilitate co-ordination and co-operation for mutual benefit” (Putnam, 1993). The common

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scientific assumption is that high levels of both these resources are likely to ease the business creation within a social network (Davidsson and Honig, 2003; Schiavone, 2004).

The interactions of such elements reflect what should happen when one decides of opening a new venture within an ID (see next paragraph); nevertheless, various types of ID exist and, therefore, it would require an entrepreneurial deepening for each specific case. The main result of the analysis provided in the paper is the proposal of a matrix, emerging by the crossing of such theoretical co-ordinates, which classifies the entrepreneurial dynamics in such industrial networks. The paper is organised as follows: the second paragraph describes the features of the ID model and its linkages with the theoretical assumptions of the paper; the third section analyses such connections and it provides the classification proposal of these phenomena, enforcing the discussion with various empirical evidences. Finally, the conclusive paragraph stresses some interesting research addresses for further studies.

2 A brief description about the ID model

Even though the definitive success and spread of such industrial model of production is quite recent, the concept is about one hundred years old; indeed, Alfred Marshall (1892) was the first economist to write about IDs phenomenon, analysing the industrial agglomerations in Lancashire and Sheffield and defining them as populations of independent small and medium enterprises, coincident with the single productive units. Moreover, due to such “property right” of the English economist, a description of the ID model cannot overlook the insights contained in Marshall’s books and in the works of the Professor Giacomo Becattini, probably the most appreciated Scholar and prosecutor of his ideas. In particular, he recognised that for certain types of productions the amalgamations of the operations provided by many small businesses, geographically close and specialised in a specific task of the production phase, can substitute efficiently the manufacturing system based on large and vertically integrated firms.

The ID therefore is a clear example of external network of firms, located within a concentrated territory, which work and co-operate in the same supply-chain. Within these territorial areas, every firm attends to one phase of the production process and it maximises the efficiency of trade relationships with the other firms placed upstream and downstream the supply-chain (Golinelli and Dezi, 1997). The ID is commonly defined as “the result of the relation between various factors: social and cultural traits of a community, historical and natural features of a geographic area and some technical features of the productive process. At the same time, the ID is the outcome of a dynamic integration process among division of labour in the district and the market enlargement of its products” (Becattini, 1991). Such definition underlines the social networks working in the IDs and such “industrial atmosphere” (Marshall, 1892) permeating the whole territory and living within its inhabitants. Such atmosphere is not just a common interest for some industrial activities but it is essentially also a social public good developing trust and community between the districts actors and affecting their behaviours.

Even though there are many interpretation of the phenomenon, the following features are widely considered as the key elements that build the competitive advantage of the ID model and especially of its Italian variant (Becattini, 1991; Brusco and Paba, 1997); the first one refers to the high firms specialisation in a specific industry which generates within the ID area various typologies of interfirm relationships (vertical, horizontal and diagonal). For example, the historical industry for many Italian IDs is the “Made in Italy”, that refers to “those goods of common use for the individuals and for the home, gifted of an high cultural

content: the culture of living Italian (the art, the history, the sun, the Mediterranean diet and so on) in which reality and myth of the country deeply tangle” (Becattini and Bellandi, 2002).

A second feature refers to the size of the companies involved in the district activities; indeed, here a large number of small and medium enterprises composes the predominant typology of the industrial system since they guarantee that organisational flexibility increasing the district firms performances; in particular, Marshall stressed deeply the size of the factors, especially when he says that such restricted size, on the one hand, does not dare the firm competitiveness, because it works in full synchronism with the other district companies and therefore it can easily achieve the performances of a fully integrated large corporation, and, on the other hand, it reaches completely the benefits of the localisation of the industry, easing the connections between the nodes of the network (Becattini, 2002).

Besides, the decomposition of the production processes in different phases characterised by optimal reduced dimensions appears to be another crucial aspect of such model. Indeed, it allows every firm, according to its core competencies and their capabilities, to realise a specific supply-chain segment, achieving for that activity a deep specialisation and notable dexterity of the workers. Such cognitive and operational backgrounds downing each district company design the network structure of the ID and they suggests the optimal sizes necessary for developing the corporate tasks. Moreover, many empirical findings state that such wide diffusion of the industrial activities encourages the spread of a common and specific industrial culture within the local territory, being the basis of the knowledge fertilisation and of that social capital involving the whole area (Becattini, 1991; Westlund and Bolton, 2003).

The development of subcontracts and co-operative behaviours between district firms is moreover a feature strongly related to the previous district factor and it often becomes the real propeller for the territorial entrepreneurship; indeed, it is the empirical outcome of the adoption of the division of labour principle within the network and it allows the genesis and the proliferation of the population of small and medium factories in the local system and the composition of a such fragmented supply chain. Moreover, situations both of co-operation and of competition coexist between such enterprises composing the production process; such peculiarity of the ID model allows the continuous regeneration of the district performances and relations since it causes a virtuous circle of innovative behaviours enhancing the firms’ competitiveness.

The presence of external economies for the single firm but internal for the local territory is another key factor of the clustering process too since it practically eases the opening (for instance decreasing the entry barriers of the potential entrepreneurs) of the district ventures; external economies differ by the internal ones since the latter are ownership of just a single firm well organised while the first ones “arise out of the collective organisation of the region, considered in its whole” (Marshall, 1892). In particular, an ID enhances its competitiveness via such economies since they reduce the transaction costs for the firms, thanks to the implementation of industrial relations based upon the trust between the district economic partners, in the reduction of the costs for developing the production process and finally, in the spread of innovative dynamics (Ferrucci, 1999).

Finally, literature stresses the development of a productive and organisational common know-how, incorporated in the workers competencies, periodically regenerated and renewed by knowledge-exchange processes between the social network actors. In such perspective, the ID is like “a *cognitive system*, able to elaborate complex information, to create new knowledge, to activate conversion processes between practical and contextual know-how and scientific and technologic know-how” (Corò, 1997). Moreover, such knowledge does not affect only the interorganisational relationships and the production steps of the district factories but it embed also their outputs, loading them with emotional and cultural meanings that increase strongly their value for the final costumers.

The wide circulation of all these intangible elements within an ID allows that continuous process of regeneration (and innovation) of the organisational behaviours and practices (Schumpeter, 1934); moreover, due to the high mortality and birth rates of the IDs ventures, it contributes to ease the possibility of those individuals involved in such cognitive clusters of changing frequently the nature of their job careers, shifting from an employee to an entrepreneur position via the creation of new factories.

In such industrial networks, the principle of the division of labour, the human capital of the entrepreneurs and the social capital embedding the economic actors generate several advantages for various types of industries that a large corporation cannot achieve likewise and, on the other hand, they are the conceptual assumptions developing such main ID features. For instance, the division of labour is the theoretical foundation explaining the large amount of small and medium factories working within a district, the deep fragmentation of the supply chain and it is the key prerequisite of the spread of subcontracts arrangement between the ID companies. Nevertheless, the main consequence arising out of division of labour is undoubtedly the increase of the specialisation of the firms and their workers.

Unlike the features coming from the division of labour, those districts aspects emerging by the intangible factors active within the ID (human and social capital) cannot be classified so easily since they have both an individual and a network origin. For instance, the interorganisational learning processes depend on the individuals' skills to arrange and to activate knowledge exchanges but, at the same time, they reflect the availability of the social actors to begin such relations that come from the common values and experiences involving them. Moreover, the development of co-operative behaviours for instance comes from both the social closeness connecting the economic partners (many times linked by family ties too) and, on the other hand, it reflects the necessity for the specialised district companies to perform their production process via the arrangement of various inter-firm agreements due to the restricted basis of their human capitals. The so-called external (or Marshallian) economies have a strong social basis too; indeed, they substantially arise out of the membership of these economic actors in a social network and of the relationships linking them, which generate that indispensable trust for decreasing the transactions costs related to the economic exchange.

Table 1 – Relation between the foundations of the network entrepreneurship and the basic features of the ID model

<i>Conceptual Element</i>	<i>ID Model Feature</i>
Division of labour	<ul style="list-style-type: none"> - Large population of SMEs - Decomposition of the production process - Development of subcontracts - High firms specialisation
Human Capital	<ul style="list-style-type: none"> - Local learning processes between the individuals and between the organisations - Industrial know-how downing the district workers
Social Capital	<ul style="list-style-type: none"> - External economies - Co-operative behaviours

Source: Our Elaboration

Summarising, the three conceptual elements adopted in such study clearly do not affect just the entrepreneurial activity within such networks but they influence also the entire organisation and the working mechanisms of an ID since they allow the generation of those main features constituting the industrial model. Although the strong conceptual connection of

those principles makes harder any tentative of classification, Table 1 tries to link each of the theoretical bases of the present study (the conceptual elements) with the practical features of the ID model.

3 Processes and dynamics of business creation within the IDs

Several (both old and recent) surveys and research reports, arising out of the desire of many policy-makers to develop and export the industrialisation patterns allowing the birth of the IDs, underline many factors enhancing the birth and the begin of the clustering processes within a specific geographical area. For instance, Feldman and Francis (2002), analysing the role of the entrepreneurs in the formation of the American hi-tech district in the Capitol region, occupy a position contrasting the premises of this paper in the understanding of the clustering dynamics since they state that in every area there is in the local population a “latent entrepreneurship”, which becomes real just when the government policies and the local environment interact with the potential entrepreneurs and help them to develop their skills and their business creation projects. Once achieved such connections, these ones indeed can shape “an agglomeration of mutually reinforcing firms and aligned interests”. Nevertheless, the present study agrees with the notion of a latent entrepreneurship but, considering the district features previously described, at the same time it stresses the idea that a transition of such hidden entrepreneurship towards the empirical development of business creation can happen essentially via the spread in a region of the not material assets and elements composing the social structures and the industrial skills of that specific business. In such macro perspective, the rise of an ID (close to Marshall’s vision) requires some unavoidable conditions Becattini (2002). The first ones are local supply conditions, which refer to the existence of countries having, on the one hand, a notable cultural complexity distinguishing such territories by other “standardised” nations and endowing the local productions and, on the other hand, a credit system encouraging financially the opening of small businesses, artisans workshop and so on devote to trade such goods; on the other hand, there are general demand conditions, which instead refer to the presence in many countries of wide market segments composed by middle class people interested to achieve a social status via the ownership of these differentiated and personalised products coming from these “complex” countries.

Even though the rise of the scientific debate about the ID model started in the economic field via the Marshallian works, the geographer Ann Markusen (1996) has been probably the Scholar that provided the best academic summary of the entrepreneurial phenomena within these networks, describing four main typologies of IDs that arise out from four different entrepreneurial philosophies and dynamics. Such classification accepts a wider connotation of ID, which instead usually refers to the Marshallian typology and its Italian variant, since it includes also those regional clusters in which the social conditions of the entrepreneurship and business administration (as the “social embeddedness” and so on) are less spread:

- 1- *The Marshallian ID*, that is the kind mainly developed in Italy constituting the “second industrial divide” (Piore and Sabel, 1984). It is based upon those features already described in the previous paragraph and recognised for the time by Alfred Marshall more than a century ago (deep division of labour, external economies, strong social background developing co-operative behaviours, industrial atmosphere, family businesses and so on) in his analyses about the Lancashire and Sheffield IDs and today identifiable in the most of the Italian IDs (see the following description of the Prato case). Due to the reduced sizes of the companies, scale economies are relatively low. In such districts, the spark of the entrepreneurial activity arises out of the interactions of many local SMEs, which ease the development of that industrial atmosphere allowing the individuals of moving from firm

to firm, of accessing to the specific competitive strengths of the ID and of launching new local factories;

2- *The Hub and Spokes ID*, that is typical of the American industrial clusters (as in the cases of Seattle or the central New Jersey), where within a geographical region one or more large corporations play the role of attractive pole (hub) for creating other SMEs (spokes) that gravitate around the first ones, for example being their suppliers or sub-contractors IDs (see also the following description of the FIAT districts case). Unlike the previous case, in such type the agent of entrepreneurship is individual (the Large “Motor” Company) whereas the division of labour and the inter-firm relationships within the district are numerous and frequent too. These ones essentially refer to the links connecting the hub with its local suppliers whereas partnerships between the district entrepreneurial firms are less spread. Finally, such ID can diffuse (like the Marshallian ones) unique local culture related to the industrial activities (for instance, Detroit is known as the “Motor City” due to the presence of General Motors, the American vehicle manufacturer);

3- *The State-Anchored ID*, that grows up via the action of a public or a non-profit organisation (as an university, a military base and so on) that increases in the region the creation of new local businesses devoted to interact, to supply or to arise out of such entity. Like above, one organisation centralises the business dynamics and it fosters the stimulation of the entrepreneurial activity in the regions that, nevertheless, generally does not generate at the same time a considerable level of intradistrict relationships but mainly just those ones orientated outside the ID. There are many empirical evidences of such district typology all around the world; some European cases are the consortium of four southern Italian Universities (Napoli, Catania, Benvento and Lecce), constituted under the aegis of the Italian Minister for the Scientific Research, is currently allowing in these areas the rise of four different knowledge-intensive clusters (Consiglio and Antonelli, 2001) or the Dutch region of Twente which, also without matching exactly with the present idea of State Anchored ID (see the below description), had a similar improvement of its entrepreneurial activity thanks to the role of the local university;

4- *The Satellite Platform ID*, that is a congregation of branch facilities of externally based multiplant firms. Its main feature is that the financial and technical resources allowing its development come from outside the region, via the action of national governments or provincial entrepreneurial governments for encouraging the foreigner investments within underdeveloped areas. In this case, there are several entrepreneurial sources which, without interacting considerably, develop the industrialisation process of the region; for instance, the area of Manaus in Brazil became thanks to the Brazilian government policies a import/export zone whereas the software cluster of Bangalore (India), thanks to its relatively low labour costs, has been generated by attraction of many branch plants of Multinationals.

A classification about the entrepreneurial dynamics in such networks arising out of such typologies can divide them between districts featured with a high or low degree of interorganisational relationships for the fostering of the entrepreneurial activity, in relation to the spread of the division of labour principle; on the other hand, another crucial variable could refer to the “entrepreneurial source” which generates the creation of business within the district and it is affected by single or plural agents of entrepreneurship. Such considerations shape a matrix (see figure 1) useful for the understanding of the district entrepreneurship.

The discussion begins analysing the types of the so-called “Italianate” variant, mainly based on the Marshallian model of ID; a famous example of how social and human capital help the entrepreneurial activity is given by the textile district of Prato, near Florence. Arisen in the 13th/14th centuries, it always has been composed by hundreds of SMEs managed by merchants-entrepreneurs, active in all the production phases (except the worldwide wars

periods when there were few integrated large corporations). Such deep division of labour produced all over these centuries a great productive specialisation in the whole local system that enhanced the entrepreneurial inclination towards the textile industry. Moreover, once gone back to its original configuration, Prato district had a notable development over last fifty years, thanks to its “industrial atmosphere”, that continuously created new local entrepreneurs, facilitated also by the low district entry barriers (Conorzio A.A.S.T.E.R., 2001). The social capital creating trust and efficient transactions between the district actors arises out, therefore, directly of such network “milieu” affecting all the area and its inhabitants; these ones, according also to their capabilities and relations in the local system, therefore were able to launch their own new independent “project” companies, that most of the times were the outcomes of all the social networks (family, friends, colleagues) behind the single entrepreneurs (Becattini and Bellandi, 2002).

Figure 1: A matrix for the entrepreneurship within the IDs

		Entrepreneurial Source	
		Single	Plural
Division of Labour	High	<i>Hub and Spoke ID</i> (e.g. Detroit, USA)	<i>Marshallian ID</i> (e.g. Prato, Italy)
	Low	<i>State Anchored ID</i> (e.g. Benevento, Italy)	<i>Satellite Platform ID</i> (e.g. Bangalore, India)

Source: Our elaboration

Always in Italy, some cases of “Hub and Spoke” IDs exist too; for instance, over last years an empirical example of such district typology has been provided by the processes of entrepreneurial agglomeration started up by FIAT before in the Piemonte region (where is the historical strategic basis of the Italian firm) and then in the southern region of Basilicata, in Melfi. Via the development of a deep outsourcing strategy the Turin firm created a proper ID in its region (Piemonte), where the automobile industrial culture always had a wide spread between the population, and in Melfi, where the outsourcing processes, encouraged also by the Italian government, allowed the growth of a new industrial context specialised in the automobiles production. Particularly, the open of a new FIAT factory in the southern Italy allowed the entrepreneurial development of many local SMEs dedicated to supply the new “hub” with automobile components. These processes followed the classical dynamics generating spin-offs, in which the human capital more skilled, relying on the support of his social background, took the entrepreneurial opportunities provided by division of labour of

FIAT in that southern area; such crossing has been the fundamental conditions for the industrial clustering of Melfi area (Negrelli, 2000).

Even though the ID model had the best empirical development in such country, it is interesting to illustrate some international cases of the ID model too, for understanding if the foundations assumed by the theoretical framework proposed in the paper and its elements (division of labour, social networks, human and social capital) find empirical confirmations just in the Italy or they are also useful (of course with different degrees of application and working) in other local contexts and in other entrepreneurial typologies of IDs. In particular, the growing Indian cluster of Bangalore, specialised in the production of hi-tech outputs, and the knowledge intensive district in region of Twente (the Netherlands) are interesting examples for a deepening in such address.

The software cluster of Bangalore is probably the best outcome of the expansion of the ICTs industry in the Indian economy, today mainly based upon the export of software and ICT services to the U.S. market; the ITC phase of such area began in the late 1980s as the outcome of FDI (foreigner direct investments) of Texas Instruments for offshore software development. In few years, other hi-tech multinationals, as Motorola or Hewlett-Packard, followed such strategy, allowing the rise of a centre of excellence for the global software industry (Saxenian, 2001; Hochtberge et al., 2003). Such cluster rose evidently as a “Satellite Platform” ID.

The skilled human capital in the region attracted several foreigner companies thanks to its low labour costs and it constituted the main reason of the development of an international division of labour (Arora et al., 2001), in which the Indian subcontractors firms are all headed by local entrepreneurs of Indian origin, and started their existence, by supplying software professionals such as programmers and analysts to clients in the US.

Also for this case therefore the diffusion of co-operation behaviours and division of labour increased the local entrepreneurship in its initial stage of development; moreover, the local embeddedness and the social inclusion in the Bangalore region had a relevant influence in such entrepreneurial networking. In particular, the ethnic dimension of the business creation, based upon spatial and cultural proximities, did not allow just the spread of knowledge spillover and innovation behaviours between the local firms but also the rise of transnational networks with the Indian entrepreneurial community in Silicon Valley (Taeube, 2004).

Also in Europe several regional clusters confirm these theoretical hypotheses, even though, like for the case of the Dutch region of Twente, they are not perfectly identifiable in just one district typology (and therefore called, according to Markusen’s definition, “sticky mixes”). Such area, close to the German border always had an industrial tradition, due to the presence until the 1960s and 1970s of many textile firms. In the recent years the region had a notable economic development thanks to the effort of the local university, which created academic spin-offs essentially in five areas of research: Information and Communication Technologies, Micro Systems Technology, Biomedical Technology, Chemical Process Engineering and finally Institutional Programmes (Van der Sijde and Ridder, 1999). Moreover it fostered the entrepreneurial activity within the region creating TOP, an educational program finalised to stimulate the entrepreneurship among its students, increasing their human skills and offering them direct support to start new enterprises by offering facilities, mentoring and interest free loans.

Such public stimulation of the local entrepreneurial dynamics clearly approaches the Dutch cluster to the State Anchored ID typologies; nevertheless, such case does not match properly within the such typology, due to the presence of considerable interorganisational connections (encouraged also by other public regional administrations) within the network for

the processes of business creation which allowed the circulation of an entrepreneurial culture in the area and which partially makes the Twente cluster as an “industrial hybrid”.

4 Conclusions

The paper explored the main entrepreneurial dynamics working within an ID, describing for each type of ID the role of those factors that the entrepreneurship literature stresses as fundamental for the business creation (division of labour, social networks, human and social capital). Moreover, such analysis relied on the description of some empirical cases that confirmed for each type the presence of these conditions.

The main conclusion arisen out of the discussion relates to role of the division of labour in early stage of an ID; indeed, it does not allow just the birth of an industrial environment around a large corporation (as in Bangalore), but it seems encouraging the growth of those social elements featuring the network too (as an industrial culture, formation of associations and so on). Moreover, independently by the degree of division of labour spread in the network, the human capital of the entrepreneurs and the social inclusion affecting his entrepreneurial decisions confirmed in each type their key roles in the business creation within a social network, allowing those individuals well downed of them to launch an independent venture that will become a new node of the ID.

Further research developments can be summarised in two main addresses; firstly, the understanding of the connection between the level of district auto organisation and its entrepreneurial activity would be interesting (e.g., is the launch of a new business easier in a Marshallian ID or in a State Anchored ID?). Finally, the understanding of which factors and policies could allow the shift from a type of ID towards another one would be concretely useful for reorganising and managing the entrepreneurial processes within a region.

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