Learning orientated localisation strategies:
empirical evidence regarding some
value creation processes in Italian firms

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Abstract

In this paper it is argued that the territory of an industrial district is not only the geographical context in which economic activity takes place, but the place in which certain knowledge resources which are critical for production are created, accumulated and shared. At the same time, the district boundaries are actual barriers to the transferring outside of knowledge which was generated inside the district. Consequently, it is argued that a notable difference in the stock of knowledge exists between firms within and outside a district. Strategically, the prospective is that, if district knowledge resources were critical for attaining-maintaining competitive advantage, given that they can not be replicated outside the district, then firms which are external may be encouraged to move into the district in order to acquire this knowledge. Such localisation increases firm capability to create value.

1 - Introduction

This paper is based on the "*location paradox*" phenomenon, as it is called in the international strategic literature (Enright, 1998).

The location paradox phenomenon can be synthesised as the contradiction which exists between globalisation of the world economy and the concentration of a particular activity's competitive advantage in a limited geographical context, the district.

Many important international authors on firm strategy, not least Porter (1990), have become involved in the study of the phenomenon. They have defined the distinctive characteristics of the Italian industrial sectors, which were the most competitive on an international level, as disconcerting: on the one hand, their success is due to the exporting dynamism of small and medium sized firms while, on the other hand, they were concentrated in given areas of the national territory. In another work, Porter (1998) described clearly the reasons behind this apparent paradox, which also justify the growing tendency towards the geographical concentration or, rather, the "clustering" of certain economic activities. These reasons are the greater operating efficiency obtained by firms in clusters, due to the high level of specialisation achieved and the contemporary presence of efficient mechanisms for coordinating their activities.

Today, though, numerous scholars and operators ask themselves about the destiny of Italian industrial districts, given the energetic processes of economic globalisation. By adopting the analysis of sector and competition associated with the work of Porter, it is underlined that, in the present market climate, operating efficiency alone is no longer sufficient to guarantee Italian district firms a long-term, sustainable, competitive advantage. This is because of the emergence of international competitors that can exploit more advantageous conditions regarding labour costs and the supply of factors of production.

It is evident that the adopting of Porter's sector and competition analysis model would mean denying that Italian industrial districts might represent an example of *location paradox* in the future too. What is more, the dissolution of the Italian districts, the natural consequence of the eventual, intensive processes of economic globalisation, is something which has been theorised about by well-known representatives of international literature for some time (Amin, 1993; Amin, Robins, 1990).

Starting from different assumptions and theoretical contributions, which identify knowledge as the ultimate source of competitive advantage for firm systems and territorial productive systems, this paper aims to verify empirically whether, given the current process of *globalisation of the world economy,* the Italian industrial district can continue to be that *nar-*

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row geographical context in which competitive advantage in the practice of a particular activity is concentrated.

In the following section, a definition is made of a theoretical framework which adopts concepts formulated on the basis of the most recent theories of firm strategy and the geography of innovation. It is expected that a theoretical framework will be forthcoming which will interpret the territory not as a geographical context for economic activity, but as the place in which certain knowledge resources that are critical for production are created, accumulated and shared. Strategically, the prospective is that these critical knowledge resources are a lasting source of competitive advantage as a result of their being inimitable, i.e. they can not be replicated by other firms which do not belong to the district.

This research is aimed at identifying empirically the benefits firms which did not develop in a particular industrial district would gain from relocating there.

Therefore, in section 3, first of all the hypothesis will be formulated that firms which are external to the district find it difficult to replicate the knowledge resources present within the district. This might encourage external firms which wish to absorb the district knowledge to relocate to the district. Localisation might take place through acquisition of already existing district firms.

Besides, in section 3, the hypothesis is made that locating in a district can lead to an increase in firms' capacity to create value from their own assets.

Both of these two hypotheses are closely associated with the *location paradox* concept as it is understood today by geographers of innovation (Feldman, Florida, 1994; Feldman, 1994; Asheim, Gertler, 2005): knowledge of economic relevance tends to be concentrated in specific places and globalisation processes tend to reinforce this concentration Therefore, from this prospective, a firm which sells a large part of its production abroad will choose new localising contexts, possibly those of Italian districts, so as to exploit not better labour cost or legislative conditions, but specific local knowledge (Gereffi, Humphrey, Sturgeon, 2005).

In section 4, the empirical research is presented, together with description of the data, variables and methodology. The research will use econometric models constructed by applying variables which will be measured using classical firm quantitative methodologies; methodologies relating to the quantifying of intellectual capital and others which regard the *performance* of innovative processes. According to international literature, the latter are an important element within the firm's capability to create value (Hitt *et al*, 1997; Tsai, Ghoshal, 1998; Molina-Morales, Martınez-Fernández, 2004).

The results will be discussed in section 5.

2. Framework of reference

The theory guiding this study is based on some contributions by economic geography and firm strategy.

2.1. *Recent findings for tacit and codified knowledge in economic geography*

The first contributions provided by international literature, dealing with knowledge in industrial districts as a factor which can explain the superior performance of the firms which comprise them, are studies by some Italian scholars (Brusco, 1996; Becattini, Rullani, 1996). In their work, concepts such as "tacit" and "codified" knowledge have been called upon to explain what kind of innovation industrial districts are good at producing, and why. Codified knowledge is described as general and abstract: understanding it may require high education levels, and also some personal contacts, but no common social background. Codified knowledge, that is, can be easily transferred outside its context of generation. On the other hand, tacit knowledge can only be understood by people who have shared the same personal experiences, and possibly contributed actively to its generation. Therefore, the existence and diffusion of tacit knowledge requires the pre-existence of a community of people, rich in social links and endowed with a common cultural background. In this sense Becattini (1990: 39) had already defined a district as: "A socio-economic entity which is characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded area". While codified knowledge is implicitly seen as responsible for major technological and scientific breakthroughs, tacit knowledge is described as the necessary tool for translating them into economically viable innovations. That is, the two are seen as complementary. However, exploiting this complementarity requires tacit skills. Thus, industrial districts, which, by definition, rely upon long-established and homogeneous social networks, are best placed to diffuse and produce tacit knowledge. In addition, as long as they manage to gain access to codified knowledge, they will be well positioned for combining the latter with their own, and appropriating the results.

More recently, some research into the geography of innovation (Bresnahan, Gambardella, 2004; Asheim, Gertler, 2005) has shown how not only tacit knowledge, but also techno-scientific knowledge have strong localising tendencies, notwithstanding the fact that, by nature, they lend themselves to being codified and communicated via the normal channels of scientific communication (periodicals, conferences and so on). This is particularly true for the *creation* processes of scientific and technological knowledge, given that such knowledge is not codified in the experimental phase, and interpersonal contacts become fundamental

for generating new technological knowledge. With this prospective, three economic reasons may be identified which can explain the important role which territory can play in innovation processes. First of all, spatial vicinity promotes the transmission of informative elements which are particularly critical in technological application and which, usually, do not circulate along the traditional channels of scientific communication. One interesting example is that of *errors*, a factor that can not be eliminated from any innovation process, but which is not the subject of conferences, seminars or scientific articles in specialised periodicals. It is not easy to learn about them even through imitation or *reverse engineering*, given that only the best solutions, chosen first by experimental activity and then by the market, are included in the final product. It is possible to know about the errors, on the other hand, if one is near to someone who commits them: working within a district, then, helps you know early about errors committed by someone who is experimenting with something new and, therefore, indicates which paths it is best not to take. Knowing about errors allows firms, therefore, to economise knowledge.

A second reason is that researchers need a continuous rapport with leading scientific institutions – such as universities, research centres or the laboratories of leading technological firms themselves– and these have a well-defined domestic base. In the third place, the principle of reciprocal positive externalities applies: working within a group of excellent researchers raises the quality of one's own work and the probability this will occur increases with the number of specialised researchers present in the local system. After all, the spatial concentration of researchers and the specialised professional community provides the creative classes with elements of social identity and reputation, so further feeding the localisation process (Saxenian, 2002).

In the USA, there are well consolidated studies on *Silicon Landscapes* and *High-Tech Clusters* (Saxenian, 1994; Bresnahan, Gambardella, 2004) which show how important geographical concentration is for the success of a high tech firm.

With regards the importance that the territory might have, some authors reformulate, on a cognitive level, the *location paradox* concept in the following terms: economically relevent knowledge tends to concentrate in specific places which the globalisation process tends to reinforce (Feldman, Florida, 1994; Feldman, 1994; Asheim, Gertler, 2005).

The application of these concepts to Italian industrial districts has induced the literature to suggest that, in reality, the districts can not be associated just with traditional forms of production, but rather that they are well suited to the analysis of all those fields where it is difficult to standardise and programme production much in advance (Rullani, 2002).

The Italian industrial district may costitute the geographical context in which knowledge useful for firm production is concentrated and might become a node within the *global value chains* which are becoming common in the present context of globalisation of the processes of industrial production. The term *global value chain* refers to the phenomenon of transnational distribution of the various productive activities which make up the chain of created value for the final consumer of a particular product.

The phenomenon of *global value chains* has been the object of numerous studies since the capillary, pervasive diffusion of new information and communication technology permitted cheap coordination of productive processes on a transnational scale (Gereffi, Humphrey, Sturgeon, 2005). Therefore, within the present context of globalisation, new technologies allow full exploitation of specialisations which are geographically spread throughout the world. In this literature (Bair, Gereffi, 2001; Gereffi, Humphrey, Sturgeon, 2005): *1.* firms acquire a decisive advantage when they are able to utilise knowledge and "specialisms" from around the world rather than produce them themselves or acquire them locally; *2.* industrial districts, or *clusters,* become important to the extent that they possess knowledge and specialisations which are relevant within worldwide networks

The literature has dwelt upon the opportunity of leader firms in Italian districts to partecipate adequately in the global value chains so as to gain access to knowledge which is not available locally and combine it with district knowledge, a process which would clearly benefit the whole local system (Chiarvesio, Micelli, 2007; Corò, Rullani, 1998; Sammarra, 2003; Zucchella, 2006). There is, though, a lack of empirical studies of the opportunities that moving to the district holds for external firms. The importance which such studies could hold for scientific knowledge about the district has, though, been indicated by Grandinetti and Zoratti (2003) who associate investments made by external firms with the presence in the district of knowledge, skills and relationships which are of importance for competitive advantage in the specific sector. The aim of this paper is to extend analysis further in this direction, highlighting the fact that research and maintanance of competitive advantage might encourage an external firm to localise in a district. The framework, though, still needs to clarify how, when and why district knowledge can be the source of competitive advantage from a specifically strategic point of view.

2.2 Recent findings for knowledge resources of district firms in strategy studies

In this paper, the term 'industrial district' as defined by Becattini (1990: 39) is used, namely, "A socio-economic entity which is characterized by the active

presence of both a community of people and a population of firms in one naturally and historically bounded area". Thus, it may be said that an industrial district is comprised of numerous small firms engaged in related activities and which are located in a clearly identifiable community. This "togetherness" implies a cultural homogeneity that gives rise to an atmosphere of co-operative and trusting behavior in which economic action is regulated by implicit and explicit rules (Lazerson, Lorenzoni, 1999).

It is argued that the competitive factors of the industrial district can be related to recent firm strategy research. This argument clearly coincides with a number of other studies, of which some of the more interesting include those by Foss (1996), Lawson (1999) and Lawson and Lorenz (1999). Moreover, in order to link the idea of the industrial district with firm strategy perspectives, the notion is used of *shared resources*, taken as referring to those intangible resources and capabilities shared by industrial district firms. These shared resources have been theorized through the concept of *higher order capabilities* (Foss, 1996) and, in the same vein, the *advanced factors* included in Porter's diamond model (Porter, 1990). They are neither exclusive to nor the property of the individual firm and they are not made available to outside firms. In addition, these shared resources may yield rents for industrial district firms.

There is nothing inherent to firm resources and capabilities perspectives to prevent them from being applied at the industrial district level. In fact, *shared resources* may fulfill the conditions established by the resource-based view (Barney, 1986; 1991) for strategic resources and are often found to be valuable, rare and difficult to imitate and substitute (Maskell and Malmberg, 1999). This is the case, for example, of access to factors belonging to the district which provide market opportunities that are not made available to external companies. Shared resources also present *causal ambiguity* (Lippman and Rumelt, 1982) for non-members and outside firms are unaware of the combination of resources that lead district members to success, which, again, makes them difficult to imitate. The enduring differences in specialization and the persisting disparities in income generated between regions suggest strong barriers preventing localized resources from being imitated (Kogut, 1991).

Enright (1998) also calls for an integration of the regional advantages and the resource-based view by arguing that causal ambiguity is born from specific knowledge at the district level. This knowledge is tacit, complex and specific. On the other hand, Sölvell and Zander (1998) used the concept of the *isolating mechanism* (Rumelt, 1984) in the local innovation systems to underline the strategic nature of these collective resources. These social capital-based resources are highly immobile. This type of knowledge is based on history-bound routines, business

practices, unique institutions and multiple links among actors (Porter and Sölvell, 1998).

In a dynamic vision of the firm, Foss (1996) suggested that some characteristics of the individual firm and the systems of capabilities might also be factors that could account for the benefits that firms obtain from belonging to the districts. Since lock-in to a certain course of path dependence, and the absorptive capacity (Cohen, Levinthal, 1990) also has individual firm and systemic levels, district firms can be more successful, for instance, in their adaptation to the new technologies than firms from other areas. Some authors have sought to build on insights from industrial district literature by integrating theories of knowledge creation and innovation (Lawson, 1999; Lawson, Lorenz, 1999; Keeble, Wilkinson, 1999). They used the notion of collective learning to emphasize the importance of the interdependencies that take place among industrial district firms in the processes of creation and diffusion of knowledge. Sölvell and Zander (1998) used the concept of local innovation system to describe the collective nature of the process of local innovation. It presents high immobility and is based on the embeddedness of knowledge. In the same way, Maskell and Malmberg (1999) concluded that: (a) knowledge creation is a key to understanding the contemporary emergence and reproduction of spatial agglomerations of related firms and (b) the region's distinct institutional endowment constitutes its capacities and enhances or abates the competitiveness of firms in the region.

The knowledge which district firms share and which was generated in the context of innovation processes carried out previously, is not exploited by all of the district firms in the same way. Certain firms choose, within their own strategy, to use some, rather than other, knowledge, just as different combinations of this resource may be utilised. As a consequence, the value creation activities of the individual district firms achieve differing results over time (Molina-Morales, Martınez-Fernández, 2004).

What, though, is the role of this shared knowledge resource in a district firm's economy?

First of all, the "shared" nature of the knowledge resource excludes the possibility that they may coincide with specifically individual immaterial assets. District firms' shared knowledge resources are pertinent to immaterial values which are not susceptible to specific identification and, as will be clarified in this paper, therefore, they are to be associated with the concept of goodwill.

From the strategic analysis point of view, the significance of these shared knowledge resources can be linked to the presence of a language, base knowledge and skills which, at any given moment, pool together the contexts of the individual firms within the district. These shared knowledge resources generate cognitive overlapping of the numerous firm contexts

within the district (Grandinetti, Zoratti, 2003; Camuffo, Grandinetti, 2005).

From the point of view of dynamic analysis, the significance and contribution of these shared knowledge resources is difficult to identify. The literature asserts that, from a dynamic viewpoint, cognitive overlapping promotes knowledge transfer between district firms and that this, in turn, will help reinforce, over time, the cognitive overlapping of the different firm contexts sharing the same district (Grandinetti, Zoratti, 2003). In particular, the importance of cognitive overlapping in the knowledge creation processes can be principly associated with the theory of absorptive capacity, originally formulated by Cohen and Levinthal (1989; 1990). Absorptive capacity is considered to be the firm's capability not only for "the acquisition or assimilation of information by an organization but also to the organization's ability to exploit it" (Cohen, Levinthal, 1990, pag. 131).[1] Absorptive capacity is determined on the base of a firm's knowledge and its development is necessarily *path dependent*. Therefore, received existing knowledge has an important role, since it guides the search for new knowledge, which it is considered important to acquire externally, helps in the recognition of its utility and renders its successive exploitation possible (Cohen, Levinthal, 1990; Zhara, George, 2002).[2] Cohen and Levinthal (1990, pp.132-133) explicitly

talk about cognitive overlapping, affirming that a certain degree of knowledge overlapping between two or more firms, which constitute a dataset, allows the cognitive distance between them to be reduced and, consequently, lowers the barriers which each encounters to access and interpretation of the knowledge of the other firms in the dataset.

A great quantity of empirical evidence has demonstrated the existence of intense inter-firm knowledge transfer within districts. In particular, industrial economists highlight the importance of "*knowledge spillovers*" (Audretsch, Feldman, 1996; Jaffe, 1989) and assert that geographic concentration is enough to allow knowledge to circulate more quickly and efficiently within a district. While other theoretical and empirical contributions have shown how physical proximity of players is not sufficient to explain the complexity of knowledge production and transmission processes at a local level (Capello, 1999). The execution of these processes is rendered possible by coordination between agents sharing the same behavioural rules, social customs and values. In other words close capital relations are necessary (Camagni, Capello 2002). This occurs in the district which, as Becattini (1990) and Rullani (1995) theorised, is a form of productive organisation that, over time, gives rise to and reinforces a network of relations. These include vertical inter-firm relations or those giving rise to horizontal agreements, as well as social relations between people who work in different firms.

In organising the contributions of the role of relations and absorptive capacity into a single framework, it can be said that, unlike generic externalities which generate benefits associated simply with physical proximity, knowledge linked externalities, which are generated in the district, are objectively opaque until a social (relations) or organisational (absorptive capacity) infrastructure reveals their economic value and the context in which they can be assembled, integrated and, therefore, utilised for product and process innovation. Similarly, district inter-firm relations become a means of knowledge transmission in so much as they run between players who possess aligned skills and knowledge and who, anyway, share a common knowledge base (cognitive overlapping).

In short, what is argued is that propositions from *economic geography*, the resource-based view and other recent approaches can be applied at the industrial district level to understand that a firm's belonging to a district affects both the stock of received knowledge (statistical analysis), and the future development of its own knowledge (dynamic analysis).

In particular, the extra step that this paper aims to take is to fill the void in the international literature regarding empirical verification showing:
1. how a firm's different localisation (within-outside a district) influences its knowledge base (matured);

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[1] Cohen and Levinthal (1989) define absorptive capacity as the ability to learn from external knowledge through processes of knowledge identification, assimilation and exploitation. Based on previous studies such as Allen (1984), they hold that absorptive capacity is a by-product of an organization's R&D efforts. Since the publication of this study, R&D has been considered as a key factor in organizational learning. In a later paper they revise this original definition, putting forward a new view with a greater focus on the cognitive aspects underlying the learning process. In this second approach, Cohen and Levinthal (1990) redefine the absorptive capacity construct as the capacity of a firm to value, assimilate and apply, for commercial ends, knowledge from external sources. This new approach considers absorptive capacity as a by-product not only of R&D activities, but also of the diversity or breadth of the organization's knowledge base, its prior learning experience, a shared language, the existence of cross-functional interfaces, and the mental models and problem solving capacity of the organization's members.

[2] Cohen and Levinthal were the first to show that firms exploit their knowledge both to learn (generate) *intra muros* new and further knowledge, and to learn, and successively absorb into their own product portfolio, knowledge generated externally (by other firms).

2. how the cognitive specifics of districts can influence value creation processes of firms which, although not originally from the district, decide to localise there.

3 – Formulation of hypotheses

On the basis of what is affirmed in the framework, the district boundaries are considered to be barriers to external access to and interpretation of district knowledge. Therefore, a firm from outside the district will find it difficult to absorb the knowledge of district firms.

When an external firm localises in the district, it overcomes the barriers to access and interpretation of district knowledge. In line with the framework, the expectation of a firm which localises in a district is purely strategic: to develop, in the long term, a greater capacity to absorb the district target knowledge.[3]

Technically localisation can take place in two ways. The first is direct investment and the second is the acquisition of an existing, functioning district firm. This paper only considers the type of localising choice effected through acquisition of district firms, henceforth called *target*.

From a statistical analysis point of view, the aim is to verify whether different firm localisation (intra or extra district) is capable of generating a great difference in their knowledge base (matured). In particular, whenever both types of firm, *extra-district* and

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[3] This purely strategic expectation is linked to the well-known theory of *dynamic capabilities*. The concept of dynamic capacities has its origin in the work of Teece (1986; 1987), Teece, Pisano (1994), Teece, Pisano, Shuen (1997). Firms with these capabilities distinguish themselves, according to the authors, by the rapidity of their strategic manoeuvring and their capacity to generate innovation continuously. In their works, Eisenhardt and Martin (2000) overcome the theoretical imprecision of the concept of *dynamic capabilities*. Eisenhardt and Martin *argue that dynamic capabilities are a set of specific and identifiable processes such as product development, strategic decision making, and alliancing*. Finally, more recent international strategic literature (Zhara e George, 2002) extols the strategic role of absorptive capacity, so much so that this becomes an important element in firms' dynamic capability, thereby extending the breadth of the concept of dynamic capacity itself and of Eisenhardt and Martin's (2000) work. More technically, from the strategic point of view of dynamic capacities, absorptive capacity is understood as a determinate element in a firm's capability to develop and reuse resources and knowledge in different ways, in line with the changes which influence the markets over time, and more quickly and at lower cost than their competitors can (Zott, 2003).

intra-district, wish to buy the same district target firm, it follows from the framework that:

a) many of the target's knowledge resources would already be shared, or easily replicated by the acquiring *intra-district* firm. Naturally, given this, the acquirer is not willing to pay for these because the firm does not require them or can reproduce them without cost*;*

b) *T*arget knowledge resources are inimitable for the *extra-district* acquirer. Given this, the acquirer will be prepared to pay for them.

Therefore, hypothesis *1* can be expressed in quantitative terms:

Hypothesis 1: *A district firm's knowledge resources are acquired by firms which do not belong to the district at significantly higher costs than district firms would pay.*

Naturally, the knowledge resources referred to are those whish can be freely replicated by another company. This excludes all those immaterial assets which consist of legally protected rights and which, singularly identifiable, might be released on to the market, possibly autonomously, by the corporate complex to which they belong; examples of these include patents, licenses brand names and much more.

Therefore, the following hypotheses and assertions all refer to the firms remaining intangibile resources. This refers to all those resources (knowledge and human, organisational and relational skills) which, not singularly identifiable, can not be autonomously released by the corporate complex to which they belong. It should be noted that limiting the analysis to this typology of resource does not diminish the importance of the research. Indeed, the doctrine states that the resources which can not be released autonomously by the corporate complex form the largest part of the three components into which the firm's intellectual capital (human, structural and relational) is divided (Lev, 1996; 2001; Bontis, 2001). For the sake of simplicity, as this paper progresses, the term "intellectual capital" will be used to indicate the firm's complex of immaterial, not singularly identifiable and not autonomously transferable resources. These non separable resources are all quantified together in the goodwill which the buyer pays the seller for at the moment of the transfer. Other studies of intellectual capital also use this simplification, and indeed Trequattrini (2008, pag. 158 and segg.) relates intellectual capital to the concept of goodwill, in the area of synthetic methods for the estimation of the value of intellectual capital.

The natural consequence of knowledge resources not being releasable individually is that a market price, to which buyers can make reference, is not established for them and this might explain the great differences in evaluation. It means that different buyers might attribute significantly diverse values to a given complex of these intangible resources: the con-

cept is known as subjective firm value or, in other words, the value of the acquisition of a corporate complex which includes the benefits for a specific buyer (Massari, 1998; Zanetti, 2000; Taliento, 2005).[4]

The empirical analysis aimed at demonstrating hypothesis 1 will look at the acquisition of district firms, henceforth called *targets*, carried out by two opposing typologies of firms: on one hand, that of buyers belonging to the same district as the targets bought; on the other hand, that of buyers not belonging to the same district as the targets bought.

In relation to the extraordinary operations of firm acquisition, the hypothesis formulated originally will hold true *if it is demonstrated empirically that, all else being equal:*

Extra-district firms face goodwill costs in their acquisition of targets which are, on average, significantly higher than those faced by intra-district buyers.

For the formulation of the second hypothesis, attention is focused upon extra-district buyer firms.

Localisation carried out through the acquisition of district target firms could herald important, positive effects for the extra-district buyer. Indeed, the framework has shown that the network of relations which ties the target to other district firms may convey district knowledge and it is precisely this which the extra-district firm wishes to absorb through its acquisition.

The buyer takes over the target's existing social ties, both formal-contractual and those relating to the target personnel who will become part of the acquiring organisation.

For the extra-district buyer, the target corporate complex may become that "organization's direct interface" with the external cognitive context which Cohen and Levinthal (1990, pag. 130) refer to in their model. Indeed, the acquiring organisation will absorb the target personnel which has the same expertise as that of other district players who can provide useful information.

While the buyer's original personnel has expertise which differs considerably from that of actors belonging to the district.

Therefore, knowledge absorption will be promoted by personnel from the target who will be able to assume the "relatively centralized gatekeeping or

boundary-spanning roles" (Cohen, Levinthal, 1990, pag. 130).[5]

From this prospective, the target complex would function as a gatekeeper (Burt, 1992), that is as a unit which practises the recognition and assimilation of district knowledge, activating contacts with sources of information and knowledge which are of value to the extra-district firm.

It is understood that the results of the entire recognition, assimilation and utilisation process for external knowledge will greatly depend, according to the theory of Cohen and Levinthal (1990, pagg. 131-132) referred to in the framework, on the development of the *absorptive capacity* within the firm (buyer). The internal development of *absorptive capacity*, accepting what the aforementioned authors hypothesised and demonstrated empirically, is *path dependent* and closely connected to investments in Research and Development, henceforth simply RD. RD assumes a double role (Cohen, Levinthal, 1989; 1990): to generate new knowledge within the firm and to learn and utilise knowledge generated outside the firm. From this prospective, the district, with its characteristic intense knowledge spillovers, represents an effective incentive for a extra-district buyer to invest internal resources in research and development.[6]

Therefore, *from the viewpoint of dynamic analysis, the aim is to verify* how the knowledge creation processes of firms which localise in districts are influenced by knowledge specific to the district. In quantitive terms, hypothesis 2 is formulated as follows:

Hypothesis 2: *A firm's capacity to create value from the intangible assets of research and development (RD) increases following its localisation in a district context.*

As Hitt, Hoskisson, Johnson and Moesel (1996, pag. 1085) noted, "Firm innovation has become important for value creation". Many other studies consider a firm's innovative capacity to be the main determinate of its capacity to create value; among the more important authors in the international literature are: Tsai, Ghoshal (1998), Molina-Morales, Martınez-Fernández (2004) and Vinding (2006).

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[4] Each firm has its own peculiarities which render its acquisition more or less attractive. It is, therefore, reasonable to expect that normally the value of an acquisition differs for each potential buyer. It is the capability to use resources which come with the target, in synergy with those already developed by the buyer internally, that can lead different buyers to attribute very different values of acquisition even when it is the same corporate complex for sale.

[5] "For technical information that is difficult for internal staff to assimilate, a gatekeeper both monitors the environment and translates the technical information into a form understandable" (Cohen, Levinthal, 1990, pag. 131).

[6] Great credit goes to Cohen and Levinthal for having questioned the classical theory which held that knowledge spillovers discouraged investments in RD. In effect, the possibility of gaining knowledge spillovers is an incentive for firms to invest in RD (Cohen, Levinthal, 1989; 1990), since the capacity of a firm to absorb knowledge spillovers from outside can be associated with its level of RD investments.

4 – Empirical research: data, variables and methodology

This paper aims to refer the entire empirical analysis to firms which hold specific positions within district productive networks. In particular, reference will be made to suppliers of machinery for the district's manufacturing process and to other capital goods used in the production processes of firms involved in the district *core business*.[7] More precisely, the firms are those included in sector 28 of the ATECO 2007 classification (sector 29 in ATECO 2002).

The choice of the machinery production sector and, more in general, of equipment for use in industry was not casual. In this sector, knowledge resources, both tacit and explicit, are fundamental in the acquisition and maintenance of a firm's lasting competitive advantage. Besides, the strategic weight of the mechanisms for knowledge transfer within the network of relations that suppliers of technology keep up with the various technology using firms within their districts should not be undervalued. The international literature (Von Hippel, 1988; Lundvall, 1988; Becattini, 1990) has dwelt upon knowledge transmission in the district productive network, highlighting the important role customers might have, at the end of the productive process, in providing the innovative process with input and new ideas: a continuous flow of increasing innovations might be generated through localised producer-customer interaction, interaction which is undoubtedly helped and encouraged within industrial districts (Rullani, 1995).

4.1 – *Data, variables and methodology to test hypothesis 1*

Sample and data
The databases of sample surveys of Italian manufacturing firms (carried out by Capitalia in the eighth "1998-2000" and ninth "2001-2003" editions and Unicredit Corporate Banking in the tenth "2004-2006" edition) have permitted the identification, amongst the other 6,000 firms involved in the survey, of all those that had taken over another firm and that, at the moment in which they carried out the acquisition, exported more than 20% of their production. From this buyer population, the samples were extrapolated for our empirical testing. In particular, by making use of information from the AIDA data base of the Bureau van Dick (https://aida.bvdep.com), it was possible to reveal the ATECO codes for the sectors to which buyers and bought firms belonged and,

in this way, we separated all the acquiring capital companies with ATECO code 28 which acquired district firms (target) that were also capital companies with ATECO code 28.[8] Within this set, making use of a great deal of geographical and accounting information available on the AIDA data base, it was possible to define the two following groupings of firms:[9]

– The first, that of the *intra-district* buyer firms, made up of all those district firms which acquired target firms belonging to the same district between 1998 and 2006, whose average operating income, over the previous three years, was positive;

– The second, that of the *extra-district* buyer firms, made up of all those district firms which, between 1998 and 2006, acquired *target* firms belonging to other districts, where the *target's* average operating, over the previous three years, was positive;

Therefore, two examples were built on the unit of observation "operation of acquisition of a district target firm": on the one hand, the sample of take overs carried out by the *intra-district* group of firms and, on the other hand, the sample of take overs carried out by the *extra-district* group of firms.

In particular, so as to render the samples comparable, they are constructed on the basis of take overs by *extra-district* firms.

For every acquisition made in a given district by an *extra-district* firm, an analogous take over on the part of an *intra-district* firm has been looked for, starting from the most recent acquisitions.

Those district cases in which it was not possible to find both of the opposing typologies of buyer were excluded from the construction of the two samples.

Likewise, in those districts which present a different number of take over operations on the part of the two opposing typologies of acquisition, the most remote acquisitions, and those surplus to the creation of comparative pairs, carried out by the buyer typology with the highest number of acquisitions were excluded from the results.

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[7] There are many districts in which, besides the firms which produce goods for consumption, there are many others that create the machinery and technology necessary for this production.

[8] Buyer firms are part of the same sector as bought firms. This choice was necessary in order to guarantee that the completed acquisition processes had all taken place with the same aim. In particular, these were investment operations aimed at increasing the tangible and intangible resources used by all buyers in their *core business* activity. This was necessary because of the fact that differing strategies, for example vertical integration or diversification, could lead the same buyer to make different investment choices (Brugnoli, 1996).

[9] In order to identify the district geographical context, it was decided to adhere to the official lists of the municipalities which belong, normatively and statistically, to each district.

At the end, the two distinct samples were found to be composed of the same number of buy out operations, 31, and, consequently, 62 of firm transfer operations were revealed and analysed in total.

The following data emerged for each firm transfer operation:

− The price for the transfer of the entire corporate complex and the total value of the debts taken over by the buyer. The source used is the Cerved Databank which permits consultation of deeds and transfer contracts (http://www.cerved.com/xportal/web/ita/);

− The goodwill value, so-called "derived" as a result of the effect of the transfer upon payment. The value is written in the accounts of the buyer companies following the transfer operation. The source used, as for all of the other accounts data, is the AIDA data base at the Bureau Van Dick: (https://aida.bvdep.com).

The goodwill, as is noted, is the highest value that the transferred corporate complex has with respect to the algebraic sum of current values estimated for each individual asset and transferred debts. However, having revealed the data listed before permits us to calculate algebraically the total value of the individual tangible and intangible assets transferred to the buyer. Naturally it is not possible to obtain the value of each tangible and intangible assets individually,[10] but only their aggregate value.

Finally, the average level of the target firm's operating income in the three years prior to its acquisition has been revealed, using the Bureau Van Dick's AIDA data base.

The variables

The econometric model for the testing of hypothesis 1 should be based on measures which are suited to quantification:

1. From the buyer's prospective, the value of the *target's* knowledge resources which are taken over in its acquisition.

2. The returns expected on the buyer's investment in the *target's* activity.

The first variable should be connected with goodwill, since, as indicated in the framework, the knowledge resources to be analysed are all quantified together in the goodwill which the buyer pays for upon the firm's transfer. What is more, the goodwill

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[10] By Italian law, the *contract of firm transfer (art. 2556 civil code)* does not necessarily have to identify the assets being transferred exactly. These are identifiable through being inherent to the organisation prepared by the entrepreneur to carry out his economic activity. On the other hand, it is necessary to identify precisely the assets to be excluded and the entity of the transferred debts because it is necessary for the buyer to accept them.

can not be used directly for comparison because it is an absolute measure. It is for this reason that *Tobin's* Q is adopted into the economy of this work. *Tobin's* Q is reintroduced into the group of monetary models for the evaluation of intellectual capital (Zambon, 2003). It is a measure which is used by international literature for various empirical studies of intangible resources (Lindenberg, Ross, 1981; Wernerfelt, Montgomery, 1988; Villalonga, 2004).

Tobin's Q, in its original formula (Tobin, 1969) refers to stock market quoted companies and is the following:

$$Q = \frac{Market\ value\ of\ installed\ capital}{Replacement\ cost\ of\ capital}$$

where:

− the "market value of installed capital" is equal to: equity market value + liabilities book value, i.e. the market value of the firm (expressed as the flow of shares on the stock market, if quoted on a stock exchange) increased by the weight of their liabilities.

− the "replacement cost of capital" is the total cost of replacement/substitution that would be sustained if one were to buy back all the individual firm assets on the asset market.

In particular, given that the *Target* is an unquoted firm, *Tobin's* Q is adapted as follows:

$$Q = \frac{sales\ value\ of\ entire\ business\ activity}{aggregate\ value\ of\ individual\ assets}$$

Where:

− the ratio numerator is given by the total current value, estimated in the act of sale, for all the target firm's business activities transferred to the buyer;

− the ratio denominator is made to coincide with the total estimated current value of the individual assets transferred. Note that, if the estimated values approximate to market prices, the ratio denominator becomes equal to the cost that the potential buyer should meet if, instead of buying the target firm, he were to theoretically buy (on the asset market) assets individually equal to those that make up the target firm's corporate complex.

The link between the "sales value of entire business activity" and the "aggregate value of individual assets" is given by the goodwill attributed to the corporate complex, since the latter arises from precisely the coordination of the company's individual assets.

In this paper, *Q* values superior to 1 were observed. When *Q* is greater than 1 it means that the investment in the *target* 's firm activity has a value for the buyer superior to the value of the single assets received. This difference lies in the value attributed to the intellectual capital, which coincides with the goodwill "derived" from the transfer upon payment of the *target*. The greater *Q* is, the higher the value that, from the buyer's prospective, the *target* corporate complex has, assuming that the individual assets

transferred are of equal value. In equivalent terms, as the total value of the target's individual assets measured on a basis of 100, the greater *Q* is, the higher the value attributed to its intellectual capital will be.

Successively it seems clear that Tobin's Q is preferred because it is a particularly effective measure in comparing intellectual capital of firms of differing dimensions (ratio denominator).

In theory, the second measure should bear in mind the present value of cash flows expected by the buyer in the wake of the extraordinary operation, but it is difficult to gather this information. Being unable to attain the calculation of the normalised operating income, in other words calculated as an average of past and expected operating income, the model considered the average level of operating income registered by the target firm over the three years prior to the sale.

The average level of operating income was used to estimate the rate of return that capital invested in the target firm's business activities would provide

(provisionally) to the purchaser immediately after the extraordinary operation.

The capital invested overall in the target firm's business activities, following the sale, corresponds, firstly, to the price paid by the purchaser (for the equity transferred) plus the target firm's liabilities to be borne, and, secondly, to the current total value, estimated in the act of sale, of all the target firm's assets transferred to the buyer. Therefore, it can be stated:

$$ROI = \frac{average\ level\ of\ operating\ income}{sales\ value\ of\ entire\ business\ activity} \times 100$$

The use of the rate of "*return on investment*" is justified from a RBV prospective. The differences in terms of profitability between firms within the same industrial sector are caused by the possesion/control of limited resources (Hansen, Wernerfelt, 1989; Rumelt, 1991).

Even though within the same sector, firms achieve different profits since the firm specific resources differ (Rumelt, 1984), particularly knowledge resources (Grant, 1996).

Table 1 Values (Roi, Q) observed in the sample of intra-district firm acquisitions	
Roi	*Q*
4.7400634	1.635463
5.5266904	1.8321596
5.9616552	1.937613
3.3435871	1.492
5.3639646	1.74872
4.17492	1.706508
4.871166	1.862117
4.737816	1.863489
3.121939	1.662315
3.153315	1.588953
4.541715	1.675737
4.557403	1.860591
3.623959	1.782501
4.290705	1.803549
5.106488	1.869438
4.557403	1.828715
5.012581	1.684691
3.985907	1.682838
4.719245	1.60857
5.616506	2.104776
5.012581	1.885106
2.809745	1.621898
2.837983	1.574159
4.264035	1.813768
4.384049	1.845187
4.101663	1.820174
4.892559	1.823682
4.048965	1.780061
2.773947	1.619915
2.940099	1.642335
4.264035	1.783264

Table 2 Values (Roi, Q) observed in the sample of extra-district firm acquisitions	
Roi	*Q*
5.105939	1.74166
4.849094	1.78297
4.3125112	1.730762
6.0767207	2.1958797
3.2769	1.428
5.7649714	1.79155
4.849094	1.78297
4.683568	1.702409
4.104346	1.846538
4.261926	1.919577
2.932759	1.586023
4.262849	1.926357
4.664317	1.816058
3.30984	1.759289
3.277226	1.600929
4.486496	1.972199
4.98349	1.970746
4.766449	1.969132
3.629334	1.886486
4.982416	1.968671
4.1618	1.914046
2.907467	1.632123
3.018789	1.696428
4.274178	1.91749
5.785439	2.15628
5.061466	1.995077
2.987433	1.634121
5.184048	1.978494
4.472395	1.843463
4.573765	1.952829
4.402468	1.908762

In equivalent terms, within the same sector, the differences between firm's *ROI* performances are associated with the firms' control of different critical knowledge resources. Therefore, with the total value of capital investment in the target measured on a basis of 100, higher profit levels are achieved by the target due to possession/control of firm specific, above all knowledge, resources

Methodology
Tables 1 and 2 present the pair of values (*ROI, Q*) emerging for each extraordinary acquisition operation comprising each of the two samples, on the one hand the sample of acquisitions carried out by the group of *intra-district* firms and, on the other, those carried out by the group of *extra-district* firms. The first step towards the construction of a model, drawn up using the two variables mentioned previously, is to verify the existence of a statistically significant correlation between the *rate of return and Tobin's Q (ROI, Q)* value pairs, recorded in the acquisition operation of both samples observed.

With this in mind, the *P* index of the Bravais-Pearson formula is calculated:

− for the distribution of the pair of values (*ROI, Q*) observed within the context of the sample of acquisition operations carried out by *intra-district* firms, the index is:

$P_{intra-district} = +0.7134$

− for the distribution of the pair of values (*ROI, Q*) observed within the context of the sample of acquisition operations carried out by *extra-district* firms, the index is:

$P_{extra-district} = +0.7302$

To verify the significance of the determinants (goodness of the model), the results obtained for the two distributions were subjected to one-tail tests. The verification procedure confirmed the existence of a strong linear correlation between the two variables. Indeed, at a 0.05 standard significance level, the critical value for the linear *P* correlation coefficient, corresponding to *N=31*, is *0.306*.

The results obtained in (1) and (2) suggest that, in both of the samples observed, the degree of correlation between the two variables is very high, and that the values that *Q* assumes, on average, grow along with growing values of *ROI*. Therefore, as the rate of return on the capital invested in the target firm's activities grows, both types of buyers attribute increasing values (not absolute, but in relation to the transferred values) to the intellectual capital of the same target firm.

Thus far the model does not provide precise information on the amount *Q* increases on average for each growth variation of *ROI* in the context of the two respective samples, and therefore, it is not understood if the sensitivity of *Q* to changes of *ROI* is

greater in the sample acquisitions carried out by extra-district firms or in the sample of acquisitions carried out by intra-district firms.

To this end, it may be useful to use a bivariate linear regression model where it is assumed that *Q* is dependant on *ROI*, i.e.:

$$\overline{Qi} = a + bROIi$$

Where:

− $\overline{Qi}$ is the expected value for the variable *Q*, on the basis of the linear relationship of the regression;

− *ROIi* is the value that the *ROI* indicator assumes in a generic acquisition "*i*";

− While the coefficients *a* and *b define the linear relationship of the regression*, identifying the *intercept* (*a*) and the *regression coefficients* (*b*) of the regression line.

By expressing the model in this form, a causal link is introduced between the two variables: the values the buyers give to the intellectual capital of the target firm (Q*i*) are dependent on rates of return on capital invested in the activities of the target firm (*ROIi*).

In particular, coefficient *a* is the *intercept* and indicates the value of $\overline{Qi}$, when *ROIi* assumes the (hypothetical) value zero.

Much more important in the economy of this work, is the regression coefficient *b*, which is the angular coefficient of the regression line. *b* expresses the effect on $\overline{Qi}$ of a unit of variation in *ROIi* . The calculations have shown that:

− for the distribution of the value pairs (*Qi, ROIi*) observed within the context of the sample of acquisition operations carried out by *intra-district* firms:

(1.3) $b_{intra-district} = +0.1048$; $\overline{Qi} = a + 0.1048\,ROIi$

− while, for the distribution of each pair of observations of *ROIi* and *Qi*, relating to the sample of the acquisition operations carried out by *extra-district* firms:

(1.4) $b_{extra-district} = +0.1414$; $\overline{Qi} = a + 0.1414 ROIi$

With ΔRoi indicating the unitary increase in the rate of return on invested capital in the *target* firm's activities, and Δ*Q* indicating the increase which *Tobin's Q* undergoes on average according to the linear regression bivariate (1.3) and (1.4), it is revealed that:

− for target firms acquired by intra-district firms

(1.5) $\Delta Q_{intra-district} = +0.1048$

− for target firms acquired by extra-district firms

(1.6) $\Delta Q_{extra-districto} = +0.1414$

Hence, it is concluded that the same unitary increase in the rate of return, achievable by the activities of the target firms invested in, and which, in the theo-

retical perspectives posited in the premise to this paper, is attributable to the presence of the greater knowledge resources, pushes both the intra and extra-district buyers to increase the values assigned to the intellectual capital of district target firms, measured (in relative terms) through Tobin's Q. Furthermore, the increases that the aforementioned values of intellectual capital sustain are also different in the two different utility perspectives of the purchasers. In particular, the increase that is recorded in (1.5) in the value attributed to intellectual capital by district buyers is almost 26% lower than the increase, recorded in (1.6), in the value attributed to intellectual capital by purchasers from outside the district. All of this demonstrates that hypothesis 1 is correct. Knowledge resources, which permit a higher level of ROI to be earned, are paid more for by extra-district buyers than by intra-district buyers. The latter already share, or can replicate without cost, a large part of the target's knowledge resources and, therefore, do not attribute any value (subjective buying value, to use Massari's definitions (1998)) to these knowledge resources in the case of acquisition of the particular *targets*.

4.2 – Data, variables and methodology to test hypothesis 2

Sample and data
In order to test hypothesis 2, it was necessary to analyse the entire set of firms which had carried out a firm acquisition operation and were the subjects of the eighth (1998-2000) and ninth (2001-2003) Capitalia surveys.

The sample is composed of all of the firms which took over other firms, whether or not they belonged to districts, about which the ninth (2001-2003) and tenth (2004-2006 period, the latter carried out by Unicredit Corporate Banking) Capitalia surveys provide RD and innovation performance data for at least three years following to the acquisition.[11]

Only those buyers which belonged to the same industrial district as the acquired firms were excluded from the sample, indeed for the formulation of the second hypothesis attention is focused upon extra-district buyer firms. Further conditions for sample formation were borrowed from the preceding phase, i.e. buyer and acquired firms belonging to sector 28 of the Ateco 2007 (29 of Ateco 2002), both have the form of capital company, the buyer's minimum export level is 20% of turnover and, finally, a positive average operating revenue for the acquired firm over the three years prior to the acquisition.

The sample was composed of 23 firms which took over district firms (only partly coincident with

the extra-district buyer sample from the previous phase) and 46 firms which took over non district firms. All together, the sample analysed was composed of 69 firms.

For each firm in the sample, using the data base from the Capitalia sample surveys, details emerged of:
– The total sum of RD expenditure. This information was not obtained from the accounts, since they only show explicitly the capitalised element of the spending; while the sample survey provides much information on RD spending, both that carried out autonomously by the firm and that carried out in collaboration with other firms or institutions;
– The innovations introduced during the three year period following the acquisition: numerous innovations in terms of product, processing, organisation-management regarding product innovation, and organisation-management regarding processing innovation.

The variables
The econometric model for testing hypothesis 2 assumes *INNOV*, the innovative performance of the buyer in the three years following to the acquisition, as a dependent variable. In this work, *INNOV* is equal to the sum of the data regarding the innovations introduced in this three year period. The dependent variables are:
– RD is calculated as the Total sum of expenditure on RD over the three year period divided by the aggregate turnover for the period;
– DUMMY is a dichotomic variable which assumes a value of "0" when the acquisition was of a non district target firm and a value of "1" when a target belonging to a district was acquired. This expresses, therefore, the localising dynamics associated with the acquisition of a firm.
– LOGSIZE is a control variable. It is calculated as a natural logarithm of the capital invested in the firms activity, on average, by the buyer in the three year period following the acquisition. The inserting of this variable is to keep account of the fact that, following the extraordinary acquisition operations, buyers considerably increased their firm dimensions. Therefore, this is an attempt to understand whether innovative performance variability is totally or partially due to the development in firm dimensions rather than the localising dynamics.

Before passing on to the methodology, it should be said that the studies of firms and innovation, which focus attention on the relations between innovation and *absorptive capacity*, identify a positive relationship between innovative performance and RD (Cohen, Levinthal, 1989; 1990; Vinding, 2006). In turn *absorptive capacity* is measured as the investments in RD divided by turnover by the authors of this theory themselves (Cohen and Levinthal, 1989; 1990).

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[11] Therefore the three year period in which acquisition of the target took place were not considered.

Table 3 – *Descriptive statistics, mean, standard deviation and bivariant correlation for all pairs of variables*

Variables	Mean	S. D.	Innov	LOGSIZE	RD	Dummy*RD
Innov	11.94	0.51	1			
LOGSIZE	16.36	0.07	0.35 (*)	1		
R&D	1.3	0.39	0.66 (*)	0.19	1	
Dummy*RD	0.43	0.77	0.53 (*)	0.19	0.12	1

Pearson's correlation is significant at the P<0.05 level *

Methodology

Given the sample composition, 69 value combinations of the INNOV, LOGSIZE, RD and Dummy variables were found. Immediately after the discovery of the values assumed by the variables, the relative statistics and Bravais-Pearson correlation coefficients for each pair of variables to be used in the model were calculated. The results are presented in Table 3.The tests for collinariety of the dependent variables were negative. Therefore equation (2.1) was formulated. This permitted the second hypothesis to be estimated, indeed it expresses the innovative performance of buyer firms in relation to the profuse efforts in RD, of the localising dynamics and dimensional control variable.

(2.1) *INNOV*= Intercept + b_0 *LOGSIZE* + b_1 *RD* + b_2 *Dummy*R&D*

Table 4 presents the "summary output" of the multiple regression produced in excel, after having introduced into input the 69 combinations of the values (*INNOV*, *LOGSIZE*, *RD*, *DUMMY*) found with regards each buyer in the sample.

The elaboration output shows that (2.1) is statistically significant as a multiple regression of *INNOV* with respect to the *LOGSIZE*, *RD*, and *Dummy*RD* variables.

The Adjusted R Square, in particular, indicates that 64.8% of the variability of the phenomenon under observation can be linked to model variables. Besides, at a standard significance level of 0.05, the regression coefficients appear significant. Indeed, the p-value observed is lower than the theoretical p-value of 0.05.

Therefore, equation (2.1) can be written as:
(2.2) *INNOV*=   -17.527 + 1.143**LOGSIZE* + 7.363**RD* + 2.788**DummyRD*

It is possibile to interpret the equation in the following way. In the three year period following a firm's acquisition, be it district or non, the innovative performance of the buyer improved on average as the firm dimensions (*LOGSIZE*) and the share of turnover invested in research and development (*RD*) increased.

What is more, the innovative performance was influenced by efforts in *RD* in a variable measure which depends upon whether the acquisition took place within or outside a district.

Table 4 – *Summary output of the multiple regression of the INNOV variable.*

Regression of Innovation

Regression Statistics	
Multiple R	0.814604901
R Square	0.663581145
Adjusted R Square	0.648054121
Standard Error	2.485670016
Observation	69

ANOVA

	df	SS	MS	F	Significance F
Regression	3	792.162013	264.0540043	42.73717494	2.24474E-15
Residual	65	401.606103	6.17855543		
Total	68	1193.768116			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-17.52748256	8.545385598	-2.051104933	0.044291469	-34.59379589	-0.461169221
LOGSIZE	1.143057362	0.531777127	2.149504564	0.035322031	0.081025114	2.20508961
RD	7.362812146	0.935321328	7.87196007	4.92793E-11	5.494846486	9.230777806
Dummy*RD	2.787871452	0.484730303	5.751386777	2.57888E-07	1.8197982	3.755944704

Therefore, at this point attention is on the contribution that *RD* makes to the achieving of higher levels of *INNOV*, in relation to the localising dynamics associated with the acquisitions. In particular, from equation (2.2) it is possibile to affirm that:

− After a non district firm acquisition: the innovative performance increases on average by 7.363 for each unitary increase in RD.

− After a district firm acquisition: the innovative performance of the buyer increases on average by 10.151 (i.e., for *Dummy* of 1, the coefficient of 2.788 of the Dummy is added to that of 7.363 of *RD*) for each unitary increase in RD.

These results confirm that hypothesis 2 is correct. Firms not from a district which acquire firms from that district are able to take advantage of the generation and transfer of knowledge within the district. The advantages are associated with the higher values created by RD. In a way which is consistant with the framework adopted, RD permits the firm to understand, and later use in innovation, the district knowledge transmitted and acquired through the network of relations, within the district, of which the acquired target is a part.

5 – Discussion

Overall, results support our hypotheses. Verification of the first hypothesis leads us to conclude that district boundaries are effective barriers to the transfer outside of knowledge which is generated within the district; within the district boundaries, knowledge is shared between firms or easily transferable between them.

Verification of the second hypothesis leads us to conclude that the localisation within districts which external firms aim at generates relevant benefits for their value creation processes; this result is associated with the fact the barriers which prevent a non district firm from obtaining district knowledge are overcome through this localisation.

The results obtained are of importance in the field of research regarding industrial district knowledge which becomes relevant within global networks (*global value chain*).

With regards this, research has, until now, dwelt principally upon the opportunity which Italian district *leader* firms have to insert themselves adequately into *global value chains*, through trans-national division of their productive, as well as sales, activity.

As underlined in this work, the aim of this for the district *leader* firm is to gain access to knowledge which is not available locally and combine it with local knowledge (Chiarvesio, Micelli, 2007; Corò, Rullani, 1998; Sammarra, 2003; Zucchella, 2006). This research, on the other hand, shows empirically the benefits available to non district firms which sell part of their production abroad from localising in the Italian industrial district.

Other results regard entrepreneurial behaviour and research.

In particolar the theory of absorptive capacity, originally formulated by Cohen and Levinthal, and today fixed in international strategic literature within the framework of firm dynamic capacity (Teece, Pisano, Shuen, 1997; Eisenhardt, Martin, 2000; Zahra, George, 2002), maintains that there are factors which may limit or promote an organisation's capacity to absorb other firms' knowledge.

In this work dealing with the knowledge generated within districts, localisation has been identified as a condition that might help obtain this knowledge. Indeed, in this paper, localisation in a district is a response to a precise strategic need, the creation of a gatekeeper that will allow a firm to learn and absorb district knowledge.

Therefore, investments made in a district from outside are interpreted as the consequence of there being, within the district, knowledge, skills and relationships which are of value for competitive advantage in the sector of reference. The presence of these strategic assets is the principle attraction for external firms.

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