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Introduction
**The role of proximity relations in regional
and territorial development processes**

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Proximity analyses have nowadays turned out to be a part of the toolbox of regional scientists and this notion recently became very popular in the position of politics, and private or public stakeholders. Proximity is an argument for selling food or financial products, as well as a good slogan for local networks or social devices or even for policymakers.

In parallel, the notion of proximity spread in the academic literature and is now commonly used by scholars in regional science, geography or spatial economics. The use of the word proximity increased and grown in importance, in particular for authors interested in the question of milieus, districts, distance analyses, or in recent advances in economic geography or evolutionary geography. Interest is affecting now the works dedicated to innovation process, links between science and industry, relations between users and producers or sub-contractors, national systems of innovation, innovative milieus, about also local labour markets or urban policies. Indeed, the use of the concept of proximity, plural by nature by its spatial as well as non-spatial dimensions, is the key for overcoming the apparent opposition between the reaffirmation of the importance of the local and the death of distance and for escaping the sterile confinement in one or the other extreme positions.

But despite the substantial literature on proximity processes and relations, only a few academic works have been devoted to studying the link between regional development and proximity relations. This book intends to fill this gap and to pave the way for future research in this field. We consider that the integration of the notion of proximity into the framework of regional development analysis provides interesting input due to its plasticity and ability to draw connections between spatial, economic and social dimensions; but also suggests ways of possible changes for regional and territorial policies. The main outline is to try to assess the importance of proximity relations (or obstacles led by proximity relations) in regional development processes, and discuss approaches of different disciplines.

We aim to re-situate the analysis of proximity within the various theoretical approaches to the territory and, in particular, to highlight its place and the role it could play in the study of regional and territorial development processes, and possibly its contribution to public policies

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or collective action. Indeed, in a context of protracted crisis, often characterized by negative growth rates, uncertainty about the future of some nations, but also recurrent development problems, questioning about how to stimulate the economy while ensuring sustainable development has grown stronger. It combines the concerns related to the growing imbalances within sub-national spaces, and the resulting necessity of finding ways to maintain some forms of cohesion within nations and supranational groupings.

Thus, issues of development of regional development more particularly have come back to the fore, and with them the debates about the regions' contribution to the development process, or about the role of regional institutions in the implementation of European policies for instance.

It must also be recognized that the question of development has taken a new form in recent years, with at least two characteristics:

- 1) The recognized role of local production systems and the associated importance of regional dynamics (it is now accepted that these systems contribute to growth, which raises the question of their governance and more generally of the governance of regions and its role in the development process),
- 2) The development of long-distance relations, which leads some to conclude to the abolition of distance and a predominance of IT-based interactions; interactions thus thought to be freed of the constraint of geographical proximity..... with a spurious shift whereby it is recognized that the digital economy is one of the main drivers of global growth, and therefore that these characteristics condition the forms taken by the latter and give it a non-spatial quality, which leads to a criticism of regional policies.

Thus, it seems interesting to investigate the relation between proximity analyses and regional or local and territorial development; taking into account long distance relations and clusterisation processes has led to a renewal of development approaches. This investigation consists of three main axes of inquiry related to the ability to go beyond the sterile opposition between the local only and the decisive influence of distance relations.

- Are the themes addressed in these approaches wide and diverse enough to account for the mechanisms that reflect the diversity and complexity of the processes of local development (or are they, on the contrary, too specific to certain areas)? Have the results of these works proved to be sufficiently generic to justify that they be applied more widely and to help one understand how proximity relations influence the processes of regional development?
- Are the (conceptual and analytical) tools, models and applied (qualitative and quantitative) studies based on an analysis of the phenomena of regional development through proximity sufficiently robust and objectifiable (and can they be used to generate valuable measures)? Do they provide insights into the phenomena of development, at regional and local levels?
- Without necessarily adopting a normative approach, can the results of proximity based analyses be translated into recommendations for decision-making and

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coordination between stakeholders, including in the field of public action or policies?

The contributions brought together in this book are intended to open the debate, or in other words, to initiate a reflection on the place and role of the proximity-based analyses in the framework of regional and local development approaches. Those contributions come from development specialists who have studied the question of proximity and of the characteristics that can be used to promote development dynamics and processes. They were also made by experts in proximity relations, who have examined the possibility of introducing this approach into the theoretical models for understanding regional dynamics and the analysis of the various forms of public intervention.

I. The questions of proximity, slowly taken into account in the analysis of economic relations and development processes

The term Proximity was for a long time scarcely used in Regional Science and is generally absent from the best known works of economic analysis, including those conducted by authors interested in space-related questions. While numerous studies have been published on the questions of distance and location or on the different means of transport and related costs, the concept of proximity is generally absent from the analyses; so we have had to first find the authors who were interested in the concept without referring to it explicitly and then observed the progressive emergence of the term in the economic literature (Torre & Gilly, 1999). And yet, though the term was not used, the intuition was already there, and many authors have discussed proximity-related topics, without necessarily applying this term to the questions they were interested in. We observe an identical path from indifference to the implicit and then explicit realization of the significance of proximity relations, in research studies on regional and local development; indeed the latter shifted from showing relatively little interest in the topic to introducing it in the recent evolutions of the new institutional geography.

I.1. A brief history of the notion of proximity in economic analysis

The question of spatial or geographical proximity has been present in economic analyses for a long time, even though the notion itself only appears incidentally or discreetly. The shift towards taking it into account occurred progressively and in different stages. Initially, the word itself was not used and the question of spatial proximity was often, only implicitly addressed. Soon however, beyond the question of transport costs and land scarcity, the notion emerged that some other factors (spatial and non-spatial) played a role in the processes of location and local development. Externalities, local atmosphere, industrial secrets... are all slightly vague terms that marked the first hesitant steps of the analysis of proximities in their various dimensions, until the different types of proximity- both geographic and non geographic were finally identified.

a) This question holds an important but hidden place with some authors who deal with the integration of space in the economic analysis, the most important of whom are Von Tünen and Marshall.

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Von Thünen (1826) thinks of proximity from the angle of the advantages of location. He offers an explanation of the location of urban and agricultural activities which emphasises the economical strengths at the scale of a city surrounded by an agricultural landscape. The locations of the first order are situated in the centre of the system, whereas the others follow decreasingly the concentric circles. In this case the proximity of the city is sought after, the annuity offered according to the location originating from the differences of transport costs. This concept can be found in several theoretical works inspired by the Thunenian scheme. For example, Alonso (1964) and Fujita (1989) privilege the study of the urban occupation of the ground but they always put in the foreground of their analysis the proximity of the town centre. As shown by the New Urban Economics, this variable is a decisive factor in the allocation of land for industrial, commercial and residential uses in urban areas, and in particular, in the implantation of so called proximity shops.

The contribution of Marshall (1890), more often mentioned, constitutes at once, the starting point of studies in terms of economies of agglomeration and of the analyses in terms of industrial districts. As a matter of fact, Marshall emphasises the advantages for enterprises of being close to each other. This benefit gained by proximity originates from the spatial division of labour and even from the effects of localised spillovers illustrated by the famous sentence: The secrets of industry are in the air. The advantages of production on a large scale can be found thanks to the concentration, on a given area, of several specialised firms related to the same labour market. In this case, however, as with Thünen, the black box of the proximity externalities is not open and the analysis lies essentially on a study of the phenomena related to the dynamics of proximity, without the secret of their origins being really lifted.

But Standard economics has not paid much attention to the questions of proximity and has seldom used the term. Indeed, it generally prefers approaches in terms of distance or location: Space is treated as data, the effects of which on economic activities must be taken into account. The analysis of the role played by geographical spillovers within agglomeration processes occupied, for a long time, an important place in traditional literature. The works of geography on the role of information in the urbanisation process (Pred, 1966) is one example; those dealing with the place occupied by inter personal contacts in the setting up of localised inter action process (Utterback 1974) is another. Lucas deals with the same concept (1998) when he considers the reasons why economic agents concentrate in the centre of Chicago or Manhattan, even though those areas are more expensive, sometimes uncomfortable, and so many cheaper areas are available everywhere else. The answer is simply that they wish to settle close to each other. In these approaches, proximity is at best considered as a causative variable, with valuable virtues, without its ingredients being really studied.

A large part of the standard analysis is motivated by a very similar conception. The agglomeration phenomena originate from a hypothesis favourable to proximity, as the need for the concentration of agents and firms is constantly highlighted. It is the case in the approaches in terms of spatial externalities (Papageorgiou & Smith, 1983) which lie on the hypothesis according to which individuals have a fundamental propensity to interact and to seek social contact, considered as a basic human need which is not necessarily fulfilled on the market. Each agent benefits in this case from positive spatial externalities produced by others. The intensity of these externalities diminishes with distance. It is the very existence and the properties of these externalities which encourage the agglomeration process, as the agents

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looking for contacts try to get closer to each other. The initial spatial equilibrium can then be overturned if the preference for contact becomes important, and explains to some extent the formation of cities or spatially concentrated geographical areas. The need for contact is considered here as fulfilled by the physical proximity between economical agents. The models of economic geography aim at building, on this basis, a theory of the formation of cities, by extending the need for contacts to the case of enterprises (Ogawa & Fujita, 1989). In this case, it is the exchange of information during the process of production which is highlighted and which the firms look for. Producers then tend to spatially concentrate in order to benefit from these positive externalities of proximity, i.e. information which circulates more easily on a restricted perimeter and whose message tends to be diluted when distance increases. The analyses in terms of spatial competition, have tried, since Hotelling (1929), to find a solution - different according to the situations studied - to the following question: must the firms be localised close or far from other firms? The answer given depends to a large extent on the prices and degree of products differentiation. The reference to Hotelling is primordial, because he has shown that competition for purchasers constitutes a centripetal force which pushes traders to concentrate in the same areas.

As a whole, these standard models are all characterised by a tension between inter firm competition - which forces them to go further away in order to obtain selling space for their products - and their search for advantages drawn from location close to clients (advantage of the market) or to competitors (positive externalities). The benefits of proximity, much praised, are seldom explained, and are to a large extent mistaken for the very process of spatial agglomeration, to which proximity can contribute without necessarily being associated to it. Proximity relations are considered as causative variables, without their content being ever considered.

b) *But other studies have attempted to open the Black box of proximity relations.* Some scholars have tried to understand proximity relations by attempting to highlight their significance as well as their different contents. Besides the traditional filiation of the analysis of the factors of localisation in terms of economies of agglomeration, issued from the works of Marshall and Hoover, there exists another (and more recent) tradition of research aiming at opening the black box of proximity relations and at explaining, not only the search for proximity, but also the very causes and the origins of these effects and the role they play in production and innovation processes.

This movement has been largely inspired by the districts, milieus and production and innovation approaches, which have opened the way to valuable contributions on the notions of local and territory. These authors have mainly placed emphasis on the relations between firms and on the networks that develop, mostly at local level. They have highlighted the systematic nature and the importance of these systems, structures and modes of organization. They also showed that industrial districts and localized production systems are not only the result of a concentration of firms initially attracted by favourable factors, such as primary resources for instance. Rather, they are built upon an organizational settlement in the territory which makes the disengagement from relations to an area or a local system difficult for producers, given the presence of local skills and trained workers.

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Becattini (Pyke et al., 1990) carried out the first research on localised production systems, at a time when the signs of competitiveness between small firms located in the same area, first appeared. He revitalized the notion of industrial district initiated by Marshall to show that the success of these local systems is based upon a group of small enterprises in contact with each other and situated in a given area. If the most obvious characteristic of the district is the networking of many small firms in a geographical perimeter, through relations of competition and co-operation, the core question in terms of proximity is about the causes of the localisation of firms and their fidelity to a given geographical area. The industrial district is an organisational settlement which makes the disengagement from the territory difficult for producers. This privileged link is due to the existence of externalities of proximity which constitute a common asset available to all within the district. These externalities generate positive external effects and are at the origin of a spatial lock-in of the firms. One of the main components of these externalities is the presence of localised human resources with specialised know-how, which increases with successive learning.

A second track of analysis can be found in the approaches that emphasize the horizontal links within localized production areas. The traditional analysis of external economies is challenged here because the frontier of the firm fades in favour of the organization into networks, like that found in the emblematic case of the Silicon Valley (Saxenian, 1994). Beyond the characteristics purely linked to the specificity of the technologies in question, three main dimensions are at the origin of the competitiveness of these industrial systems: a) the existence of local institutions guaranteeing the circulation of a local culture, b) the specificity of the firm internal organization and c) the presence of a particular industrial structure based on the existence of recurrent contacts between local actors.

A similar idea can be found in the analysis of national and local systems of innovation (Lundvall, 1993; Nelson, 1993). It lies on the sharing of skills within a group of localised firms or within innovation milieus. Maskell and Malmberg (1999) show how proximity matters, in particular thanks to the interactive character of the learning processes, which provides a geographical dimension to the relationship. In this case, the benefits of proximity change into agglomeration forces, by acting on the firms engaged in the interaction process.

In this perspective, face-to-face relations are emphasized and investigated because of their importance for addressing problems related to the dissemination of information and to coordination uncertainty because they promote the agglomeration of individuals or activities, and thus facilitate a better diffusion of innovations in a context of geographical proximity. These so-called buzz situations present advantages in terms of knowledge transmission, whether they are based on intentional or unintentional face-to-face interaction. Thus, the buzz can be understood as both the process that enables information to circulate, and as the mode of participation of the actors who operate the networks (Storper & Venables, 2004).

The third track of analysis is found in the so-called geography of innovation which emphasizes the process of spatial concentration of innovative activities, be there within regions or smaller geographical areas, and directly introduces the notion of proximity into the analysis. Innovation, as shown by Hagerstrand (1967) in his pioneering work, is concentrated essentially in a few zones in which one can find, not only units of production but also public research laboratories or universities. This empirical evidence reintroduces the idea of the

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importance of the relations of proximity in the generation of the new technologies. Compared to the previously mentioned approach, which emphasized the systemic dynamics, the emphasis here is placed more on the interactions that take place within the networks.

Moreover the link between this movement and that of the spatial concentration of industrial activities is made: firms' choice of location can be explained by their need to develop relationships not only with other firms (Inter-firm relations) but also with science (Science-Industry relations).

The explanation often refers to the very nature of knowledge, which is presented as not totally appropriable and thus liable to cause spillover effects from an enterprise or institution towards another. The localised character of transmission is explained by the fact that knowledge traverses corridors and streets more easily than continents and oceans (Feldman, 1994). Thus, the industries, characterised by the importance of the spillover effects, see their competitiveness increase in the case of geographical concentration (Audretsch & Feldman, 1996). The externalities of proximity are caused by these very characteristics of knowledge. Innovation is, then, considered as a cognitive process, different from information, which can be transmitted at distance without any loss; whereas the transmission of knowledge cannot be made in a totally standard manner. Even if severe doubts are now raised about this rather simplistic explanation and the assimilation between tacit knowledge and proximity relations (Grossetti & Bès, 2001) these approaches opened the way for a more detailed and acute analysis of proximity relations, their meanings and their main characters.

1.2. Approaches to regional development that have only recently integrated the notion of proximity

The question of regional or local development has been discussed in detail in many publications, and a large literature provides remarkable and comprehensive reviews on this topic, the details of which cannot be given here (Rodriguez-Pose, 1998; Stimson et al., 2006; Capello, 2007; Pike et al., 2010; Boschma & Martin, 2010).

Rather, we shall in this paragraph, attract attention to the importance granted to proximity relations in these approaches, by highlighting the sometimes small place occupied by this issue, as well as lacks and shortcomings that logically results from this, and possible avenues of research. We may say that the analysis of the processes of regional or local development rest on the coexistence of three competing visions that correspond to strong and different analytical assumptions and share the field of development analysis between themselves.

a) We first find schools of thought that seek, first and foremost, to balance the interests and gains drawn by the different local actors from the development process and to elaborate principles that will enable the different stakeholders to obtain maximum satisfaction. Thus, the standard economic approach, founded on the theory of equilibrium, seeks to maximise the utility of the stakeholders on the basis of their more or less perfect rationality, and to meet their needs, but to not do so at the expense of their neighbours' needs (Solow, 1956; Romer 1990). Attaining an optimum utility of growth mostly makes it possible to define a pathway

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the different stakeholders can follow together¹. One has to notice that these approaches do not use the notion of proximity to underlie their analysis of regional development processes.

In this group belong the approaches on which the neoclassical theory is based, approaches which envisage a homothetic growth based on capital and labour inputs, subsequently extended to a third input of a more technological nature, in most cases knowledge or R&D investments (Solow, 2000). This involves assessing the volume of production and its growth, and placing them in parallel with the optimal combination of factors and the efforts made in terms of productivity or capital accumulation for example (see Johansson et al, 2001). This approach, which considers the possible elimination, in the long term, of inter-regional disparities, has met relative success - relative because of its limitations in terms of homothetic growth and its inability to account for the imbalances signalled early on by the authors of polarisation theory or of bottom-up growth for example. It has been quite adequately replaced since the 1990s by the New Economic Geography, which makes it possible to take into account the dimensions related to unbalanced growth and to the polarization of activities in the analysis of development processes.

The economic base analyses (Alexander, 1954; Sombart, 1916) also advocate seeking a balanced development. They rest on the idea that regional economy can be divided into two main components:

- A so called "basic sector", which produces goods and services destined for export and allows for regional development through capturing external revenues;
- A domestic sector, whose production is destined for local consumption.

Development then relies on an expansion of the basis sector, which, in particular, gives rise to a Keynesian multiplier effect on the local economy as a whole. The rise in the incomes of this sector's workers then generates an increase in their consumption level and, as a result, a development of domestic production sector. This fosters a virtuous development dynamic, based in most cases, on the essential place of urban agglomerations in the production of basic commodities.

Proximity questions are obviously far from being at the heart of these approaches, which remain mostly confined to macroeconomic analyses and devote little attention to the relations between the different stakeholders at local level. Furthermore, issues of innovation and cooperation, as well as conflict and trust relations which are relevant to proximity analyses are seldom examined by approaches that are clearly not concerned with the institutional dimensions and particularities of local systems. Let us note that this type of analysis is poorly represented in the schools of thought on development, which rest, rather, on the two following approaches.

¹ One can draw a parallel the approaches that integrate environmental dimensions or think in terms of sustainable development (Bourgeron et al, 2009). Also founded on a paradigm of negotiation supposed to lead to a balanced distribution of rights and duties between the different local stakeholders, following a deliberation process, these works seek to take into account both the objectives and the constraints of an economic and environmental nature, in a perspective of weak sustainability. Development must not deplete resources, including through the substitution of the natural capital by man-made resources (Pearce et al, 1996).

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b) The second, most important group consists of approaches according to which the compromises reached between the local actors are purely temporary and the development processes generate inter-regional inequalities that are difficult to reduce. Inversely to the previously mentioned group, these approaches consider that development contributes to widening, often lastingly, the disparities between regions or territories. They also highlight the existence of local systems with significant particularities at institutional, economic and technical levels, and whose successes or failures lead to fundamentally unbalanced development processes.

These works are based on the analysis of growth poles initiated by Perroux (1969), Myrdal (1957) and later Hirschman (1958) or Higgins (1983). Perroux's initial idea is that development cannot occur everywhere, at the same time and with the same intensity. Proof of this is the existence of less developed countries or areas, which the growth pole theory was the first to recognize. Development rests on a polarization of activities, which is itself based on the existence of large dynamic firms, situated at the heart of the most developed regions. It is these firms and industrial complexes which generate market linkages - towards suppliers or subcontractors, and towards their end clients or industrial actors. This results in a polarization of activities and wealth benefiting some regions at the expense of the less developed ones.

Inverting the idea of a convergence of regions' growth rates and economic strength levels, the New Economic Geography (NEG), introduced by Krugman (1991) and popularized by authors such as Fujita, Thisse or Ottaviano for example (Fujita & Thisse, 2002; Ottaviano & Thisse, 2004) acknowledges the high probability that phenomena of spatial polarization and concentration of activities might occur, phenomena that can benefit one region at the expense of its competitors. From the possibility of increasing returns in some industries and the supposed preference of consumers for variety and differentiated products, the NEG deduces the probability of divergence phenomena that testify to the industrial specialization and therefore the enrichment of some regions or nations, at the expense of competitors which are less developed as a result of their late start in the race for the production of non-agricultural and non-traditional commodities. The NEG gives a vision of the world in which polarization increases, particularly to the advantage of cities, in which enterprises, employees/consumers are co-located, the advocated development being that of productive activities, often at the level of large areas (regions, or even nations), through reciprocal spillovers between activities and workers/consumers. Thus, the questions to be raised are that of the activities' capacities to generate spillover effects at regional level (for example the spillover effects emanating from the construction industry), that related to the reciprocal impact of firms' and workers/consumers' location, as well as to the decrease in transport costs which reinforces the processes of polarisation at the expense of the peripheral areas. Paradoxically, and sometimes surprisingly, the approach to inter-regional inequalities is embodied in analyses of an entirely different nature: those of local production systems.

Initiated in the 1970s, the approach also rests on the observation of geographically differentiated development processes. Initiated by the analyses of Italian districts (Beccatini, 1990), and later of different forms of groupings ranging from clusters, agro-food systems or of Localized Productive Systems, it is founded in the systemic nature of the relationships between the actors who, together, belong to one territory and shape it through their cooperation and common projects. Vertical or horizontal relations, belonging to a

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homogeneous social group or relations based on repeated interactions, what matters is the creation of a local community founded at once on alliance and cooperation networks and on more or less formal governance structures through which the rules accepted by all the participants can be complied with. Development depends on the efficiency of the system and on its ability to renew and transform itself in response to exogenous shocks such as variations in consumers' preferences or the arrival of new competitors. Generally small in size (sub-regional) the zones in question pertain to the territorial dimension and are characterized by different levels of development, due precisely to the characteristics of these systems and their ability to mobilize and to bring local resources to fruition. There is here the idea of bottom-to-top development - dear to authors such as Stohr (1986) as well as a desire to typologize the forms of development (Italian-style districts, State based systems, systems with a core of large firms or based on innovation...) (Markusen, 1996), but little analysis of the actual processes of development and of their dynamic. Many of these analyses aim to identify the particular conditions (trust, cooperation ...) that generate externalities that cause imbalances and polarisations in development processes.

Of particular importance are two approaches that have played an important role in the systemic analysis; the first is Porter's analysis (Porter, 1985, 1990), because of its wide impact. Porter considers that the competitive advantage of a region or a territory rests on four main factors that must be exploited in order for the region in question to gain a lead over its competitors: the strategies, structures and the rivalry between firms, the state of the demand, the geographical relationships between linked firms and the state of production resources or factors (traditional or in terms of skills). Thus, agglomeration processes are based on the location strategies of firms competing in regions whose economic fabric is specialized. This movement generates externalities, and leads to the implementation of localized development processes. More particularly, the presence of local clusters, of groupings of firms and laboratories with strong links helps create and reveal factors of production².

Analyses in terms of residential or "presential" economics, according to which territorial development is based on the capture of external revenues, propose another illustration of inter-regional disparities. Adapted from the economic base theories, but excluding the latter's approach in terms of balanced relations between local actors, they describe the development of regions or territories that benefit from inflows of revenue from other regions without possessing the sufficient industrial or agricultural production capacity to use this revenue as a basis for producing export goods (Davezies, 2008; Markusen, 2007), some of these studies placing emphasis on the role of cultural and artistic activities as driving forces behind these models of growth, founded on the logics of service consumption, included in rural areas.

The basic sector no longer contributes to the development of the region through production, but through the capture of two sources of external revenue (temporary residents and tourists' incomes; and transfer incomes). This results in an inversion of the usual development criteria,

² Let us not forget the Socio-Ecological Systems' approaches (Anderies et al, 2004), derived from analyses in terms of institutional arrangements (Ostrom, 1990) and which integrate into the systemic approach questions related to the sustainable management of local resources. The originality of these works lies in their envisaging systems in which individuals are in direct interaction and interdependence with biophysical and non-human biological entities, which lead to not only consider the inter-individual relations but also the uses of the resources and the resulting exclusions.

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development which rests on a service-based economy relying on the consumption of these migrants, often at the expense of the regions that gain very little from their production activities.

Interest in proximity relations varies greatly depending on the works considered here, and the approach is mostly static in nature; indeed studies have concentrated on identifying situations of proximity, on highlighting the benefits of such or such a type of proximity or on looking for ways of improving these situations. Regarding the NEG, concern with issues of geographical proximity is very important: it implies understanding the rationale behind the polarization processes currently taking place at industrial level as well as at the level of human agglomerations, and therefore also implies a search for geographical proximity by the economic actors, households or businesses.

The answer is fundamental: due to individuals' preference for variety, which leads them to look for ever-more differentiated goods, as well as to decreasing transport costs, it is only logical that large human and productive concentrations should develop, agglomerations where firms can find both clients and labour, while households can have easier and more immediate access to employment and consumer goods. Populations located in more remote areas can then obtain the products of industry or services (Internet ...) thanks to relatively low transport costs. This is therefore a market related explanation for issues of geographical proximity; as for the other types of proximity, their case is not considered due to the fact that the inter-actor networks are not taken into account and the actors' rationale is that of homo oeconomicus.

Research studies on districts or local production and innovation systems, on the contrary, examine proximity related issues very thoroughly. The older approaches, such as the districts (Piore & Sabel, 1984; Becattini, 1987) or innovative milieux (Aydalot & Keeble, 1988; Camagni, 1995; Maillat, 1995) approaches, involve works that were precursory to the analysis of spatial and non spatial proximity relations, marked by the insistence on studying issues such as localized learning (Amin & Thrift, 1994; Saxenian, 1996; Storper, 1997; Maskell & Malmberg, 1999; Keeble et al., 1999), the establishment of trust-based and cooperation relationships; Dupuy & Torre, 1998), the particularities of local network relations ... but without the notions of proximity being clearly identified and analytically distinguished. We also note that though the local dimension is very significant and well identified, we cannot really distinguish between the geographical characteristics or short distance on the one hand, and the dimensions related to the origin or local culture on the other. Another, more recent analysis of these systems or districts is actually based on an approach in terms of proximity and its variations (Giuliani & Bell, 2007; Asheim & Coenen, 2005).

c) The third and last category of approach rests on the idea that regional or territorial development is profoundly linked to the occurrence of dynamic shifts, resulting from processes of innovation or creation, at the origin of paces and volumes of development that vary from one region or territory to the next. The analyses of regional development based on the processes of innovation and regulation, as well as some of the systemic approaches consider that local systems are subject to successive phases of growth and stagnation, or even recession, which reinforce or reduce the inequalities between social categories, as indeed, the fruits of the economic growth can be appropriated by certain groups or off-shore firms that may be in the hands of external capital. It is, first and foremost, internal shocks which

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generate transformations in the system and cause processes of geographical concentration of people and wealth, and zones of social and spatial exclusion to emerge.

The approach to development as resting on innovations or technology is based on taking into account the importance of R&D or innovation activities in local development. Partly inspired from Schumpeter's analyses, it is based on the idea that innovations constitute the key to development processes and that the efforts made in terms of R&D or of incentives to innovate can play an important role in the implementation and success of growth dynamics. This often implies a systemic approach, which highlights the role played by the transfer and diffusion of innovation at local level (Feldman, 1994; Autant-Bernard et al., 2007), as well as the importance of face to face relations and of stages of spin-off creation and development or phases of support to creation (firm or project incubators...) (Rallet & Torre 2000). The driving force of development then lies in the existence of localized innovation or knowledge spillovers within the local system and which can give rise to highly competitive local innovation systems such as technology parks or competitive clusters. It is innovation that drives development, and marks the difference between dynamic systems and the others. Often founded exclusively on high-tech activities, these approaches find broader expression in terms of territorial innovation in the more rural or less developed territories, by relying on organizational innovations and the mobilisation of local populations. Some authors, who see the rules of collective action and the institutional mechanisms as factors explaining innovative territorial dynamics, consider innovation as a social construction shaped by the geographic context in which it lies; rooted in practices, it is therefore necessarily situated in space.

During the last decade, the analysis of spatial dynamics has been enriched by works conducted as a continuation of the evolutionist theory (Frenken & Boschma, 2007), which considers the unequal distribution of activities in space as the result of largely contingent historic processes. Evolutionary Economic Geography grants great significance to the entrepreneurial dimension, whether it pertains to the history or processes of emergence, growth, decline and interruption of activities of enterprises (Boschma & Frenken, 2011). Particular emphasis is placed on the role of spin-offs and of the mobility of the workforce in the processes of territorial development (Maskell, 2001), as well as on the routine reproduction mechanisms within the local industrial network. Drawing advantage from geographical, industrial and technological proximity between different sectors of activity (Torre, 2008), as well as from institutional mechanisms and networks structures, these technologies are disseminated through a snow-ball effect between technologically related enterprises and industries, and end up locking the local systems into growth path dependencies. This process - which explains much better than co-location economies the ability of clusters to transform themselves and therefore to survive over time - functions particularly well when it involves emerging industries or industries based on closely related technologies; indeed, this small cognitive distance facilitates the diffusion of knowledge externalities (Nooteboom, 2000).

In line with these works, situated at the crossroads of the evolutionist approaches and economic geography, more recent contributions have highlighted the crucial role of proximity relations as a factor of development, thereby emphasizing the need to not confine the analysis to the geographical dimension of proximity (Boschma, 2005). Too much proximity between actors is also identified as having negative effects on innovation, which reveals a kind of "paradox of proximity" (Broekel & Boschma, 2009). Furthermore these authors examine the

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processes of evolution of regional industrial fabrics, highlighting diversification trajectories that rest on pre-existing activities in a logic of relative variety (Frenken et al., 2007), which can be interpreted as a form of "proximity" between the different industrial sectors of a region.

From this point of view, the influence of geographical proximity in producing spillovers that promote territorial dynamics is now widely accepted in the literature, which is based on research conducted since the 90s on proximity questions (see below). Thus, the recent studies have aimed to throw some light on the nature of this influence and of the mechanisms at work. They focus on the diversity of spillovers that can be identified in the different territories, and seek to determine the conditions favourable to the emergence of such or such type of spillover. Thus are brought to light the correlations between the various types of activities, the size of businesses, the life cycle of industries and products, or between geographic scales and particular forms of spillovers.

A growing number of these studies have, at the same time, highlighted the sometimes negative effects of geographical proximity (lock-in mechanisms, competition over resources), and aim to simultaneously integrate the questions of mobility and of temporary geographical proximity. The role of networks and social capital are also identified by most authors as important factors in the coordination processes that generate spillovers, thereby underlining the impact of cognitive proximity on coordination mechanisms, for example when addressing the questions related to trust and collective learning in coordinations. Finally, proximity-based approaches are central to studies dealing with innovation as driver of regional development, and are placed at the heart of the analytical mechanisms and constructs as well as of the public policies that arise from them (on this latter point, see the smart specialisation (Foray et al., 2009) and place-based policy (Barca et al., 2012; Partridge et al., 2012) approaches.

II. The rise of interest in proximity related questions in development analyses

While previous periods were characterized by a relative disinterest in proximity relationships, the last thirty years have witnessed a growing interest in these questions, and have also been marked by a desire to theorize and deepen the analysis of the notion of proximity. An original school of thought has thus developed in France and internationally; it has aimed to define and categorize the different types of proximity and their role in social-economic relationships and systems. Only once this phase was well under way with an established analytical corpus did researchers start conducting studies bringing to light the contribution of proximity relationships to regional and local development, a process which is still unfolding and being refined.

II. 1. From the forerunning studies to the recent advances: the diversity of the contributions of proximity-based approaches

The first researches really devoted to the study of proximity relations were conducted in France in the early 1990s by a group of researchers nowadays known as the French school of proximity. They led to the creation of the so-called Proximity Dynamics group in 1991, and later to the publication in 1993 of a special issue of the *Revue d'Economie Régionale et Urbaine*, entitled "Economies of Proximity" (Bellet et al, 1993). In that special issue, written

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entirely by researchers of this group, were published various articles, all of which presented the concept of proximity and approached in different ways questions pertaining to production and innovation processes. All the articles were devoted to production related questions and place emphasis on the geographical component of these relations. This journal's special issue advocates the integration of the spatial dimension in the analysis of industrial relations and provides a first interpretation of proximity relations. It introduces two types of proximity, called "geographical proximity" and "organizational proximity" respectively; at the intersection of both categories one finds the so called "territorial proximity", a notion which deals with the complex interplay between productive relations and spatial relations and their being inextricably linked. This founding act was followed by a period of intense reflection and development of a theoretical framework.

a) The following publication by the group of a multi-authored book (Rallet & Torre, 1995) showed that the authors, most of whom were either industrial economists interested in spatial questions, or spatial economists interested in industrial issues, all proved to be passionate about the topic of productive relations, and their development at the level of territories, and had a particular interest in approaches to innovation. These authors inherited analyses carried out from a territorial perspective, on questions pertaining to localized production systems, and more particularly of industrial districts and innovative milieus. They were the followers of a relatively heterodox tradition, and rejected both the idea that the economy is only dependent on market relations and that of a separation of the productive dimensions mostly studied by economists from the more spatial dimensions, which are generally examined by geographers. Thus, the approach is meant to be multi-disciplinary, even though it emerged from economic analyses.

The group also inherited a great deal from the works conducted, in industrial economics, on value chains and industry groups, or on the micro economics of imperfect competition and firms' strategies. But it was also already largely indebted and linked with evolutionist and institutionalist approaches. The role of institutions is always emphasized, and industrial relations are presented as forces driving the processes of change and of transformation of economies, which mostly rest on innovations and technological changes. Similarly, the research on proximity moves, from the start, beyond methodological individualism by repositioning the individual or the firm within a network of social or economic relations. The firm is never considered as an isolated entity, but is always regarded as being part of groups of actions, local systems or long distance networks.

On the basis of these principles, a large series of applied studies were conducted by French researchers, focusing primarily on industrial firms and their relations, or on technological interactions; and these applied studies have rested on a proximity based approach (Kirat, Lung, 1999; Dupuy & Gilly, 1999; Carrincazeaux et al., 2001; Galliano et al., 2001; Rallet & Torre, 2001). They have mostly examined the case of France, and have focused essentially on productive systems such as the Toulouse, Grenoble or Marseille technopoles or on organizational structures such as innovation networks or cooperatives for instance. They reveal that the formation of relations between firms located in the same areas is not exclusively related to their geographical proximity. Social ties, inter-firm relations, trust, networks of actors, friendships, successful collaborations all contribute to forming a web locally; a web which matters at least as much as co-location. In light of this network, one

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clearly understands the factors of what can be called the firms' ties to their territory. Each tie is fragile and must be nurtured and stands as a veritable resource for firms, which hesitate all the more to move to different locations as the web they have woven with other local actors is strong.

With the development of research on the subject and the growing popularity of proximity analyses, two types of extension have been introduced: the first, largely confined to France, and thematic in nature; the second is geographic and marks the internationalization of the research and its increasing success in the spatial approach school.

As a result of the emergence of new societal concerns and of the arrival in the French group of sociologists, geographers and regional planning experts, there has been an extension of the topics and themes addressed (Bouba-Olga et al., 2008). This extension has taken several directions consisting, for example, in taking into account issues related to the environment, land planning, transport, urban or rural planning, or the importance of new Information and Communication Technologies in the relations between firms located in proximity to or far from one another. It has also sounded the knell of the eulogistic way of looking at proximity. The negative dimensions of the various types of proximity were firstly not really highlighted, particularly those of geographical proximity, which appears not only to generate land use conflicts in situations where space is scarce (Torre & Zuindeau, 2009), but also to be conducive to problems in terms of relations between innovative firms for example.

More interesting for our discussion is the extension of the research at international level, particularly in Europe. It initially extended to the Netherlands, with studies dealing with questions related to innovation and to the integration of firms into networks (Boschma, 2005; Weterings & Boschma, 2009; Boschma et al., 2009; Asheim et al., 2011; Frenken, 2010) and then extended further and now concerns a large number of researchers from different backgrounds, as evidenced by the papers in this volume.

The themes explored generally pertain to issues of production organization, of technological innovation, networks of stakeholders and of their impact on competitiveness and on the development of regions or localized systems of production and innovation. The questions concern the advantages of co-location but also increasingly the negative aspects of geographical proximity. The different dimensions of the non-geographic types of proximity are also discussed and analysed at length so as to gain an understanding of the respective role and importance of the different types of interpersonal or inter-organizational relations in the processes of production and innovation of contemporary firms and clusters.

Many applied research studies have been conducted, particularly in European countries, on the basis of the proximity based approaches, and often by using field data and the econometric tools. They often start with the analysis of one particular sector software or aeronautics for example with a marked interest in knowledge-intensive industries or technological innovation sectors. They seek to test the importance of the different types of proximity in firms' performance, and often confirm that geographical proximity cannot alone ensure high performance, nor does it in itself facilitate the exchange or interactive creation of knowledge. A classic finding is that geographical proximity facilitates industrial espionage and therefore the unwanted appropriation of knowledge by firms' rivals, and also that production systems

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that give priority to internal relations at the expense of external relationships may find themselves in negative development trajectories. Thus, it is the non-spatial dimensions of proximity that now have the place of honour, and more particularly their role in the creation of networks of economic actors, located either in proximity to or far from one another: Indeed, these networks rest mostly on different dimensions social, relational, cognitive ... which do, indeed, correspond to the different components of proximity (Boschma & Frenken, 2010). In the continuation of these studies inspired by the evolutionary tradition, a number of authors have put forward the concept of regional resilience to help them reflect on how the evolving combination of the different forms of proximity helps account for the regional dynamics and trajectories, and to explain why some regions manage to maintain a satisfactory level of development or growth, including at the price of important activity changes (MacKinnon et al., 2009; Pike et al., 2010; Simmie et al., 2010).

Finally, the most recent development, dating from the second half of the 2000s (Torre, 2008; Bathelt & Schuldt, 2008), has been the publication of research studies on the temporary dimensions of proximity and particularly of geographical proximity. They are based on three findings. The first has to do with the increasing number of fairs, trade shows and conventions, which bring together, in given places and for very short periods of time, people located varying distances away from one another but who nevertheless are able to communicate through ICT (Ramirez-Pasillas, 2010). The second finding is related to the increasing mobility of individuals, mobility which concerns private persons but also engineers or business owners or managers. The third and last finding is linked to the analysis of the relations developed by firms that form clusters in specific fields such as that of biotechnologies for example : though they reap financial and real estate related advantages from being located in the same areas as other firms that belong to the same sectors of activity, they often prefer to form relationships with outside firms so as to prevent problems related to the leaking or loss of intellectual property between themselves and rival companies (Torre, 2011). In the wake of this research, further analyses of the different types of proximity be it of spatial or non spatial proximity have been performed.

With the rising popularity of the research on proximity, new, non-French-speaking researchers have, since the 2000s, joined the debate and have contributed new directions and taken into account new concerns. One of the most remarkable contributions has resulted in an increase in the number of proximity categories, which the founding fathers had preferred to limit for the sake of analytical coherence, but which has exploded in order to take into account the different facets of proximity and reveal their extraordinary malleability as tools of reflection.

b) Today, following these research works, three main families of studies can be found. They are not formally in opposition and they all agree on the central distinction between spatial and non spatial proximities, but they envisage differently the broad categories of proximity and their articulation.

The best known of these families is probably that inspired by Boschma's 2005 work and refers to five categories of proximity. We find, first of all, four types of proximity, which refer to the non-geographic dimensions of the relations between organizations and individuals. Cognitive proximity, clearly a concept of evolutionary inspiration, is based on the sharing of knowledge bases and competencies; this sharing promotes innovation when these bases are not identical,

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which leads to reduce the diversity of innovation trajectories. Organizational proximity, neo-institutionalist in nature, refers to an arrangement constructed within an organization or between different organizations, with the market on one side and the integrated firm on the other; the most satisfactory solution for the network organization.

Social proximity refers to the embeddedness approaches and to the fact that any economic relation is embedded and rooted in a social context, as a result in particular of relations of friendship, of family ties and experience; here again, too much proximity harms proximity; and this is a constant in this approach. Finally, institutional proximity has to do with one's adherence to a set of rules applied at macro level, such as laws and political decisions, or religious or cultural values. Besides these non-spatial proximities, geographical proximity plays a particular but ambiguous role; indeed, it must be distinguished, from an analytical viewpoint, from other, non-geographic types of proximity, but it can be substituted by the latter. It is generally viewed as favourable to action, because it fosters trust and facilitates learning, but it can also lead to localized lock-in phenomena or cause systems or regions to get confined into rigid trajectories or spurious relations.

The French school's approach, for its part, generally distinguishes between two or three depending on the authors' broad categories of proximity.

The division into two main categories (Torre & Rallet, 2005), is based on a simple distinction, with internal refinements, between Geographical and Organized Proximity. Geographical proximity, on the one hand, is above all about distance. In its simplest definition, it is the number of meters or kilometres that separate two entities. But it is also relative in terms of the morphological characteristics of the spaces in which activities take place, of the availability of transport infrastructure and of the financial resources of the individuals who use these transports infrastructures. Geographical proximity is neutral in essence but it can be activated or mobilized by the actions of economic and social actors, such as firms, labs or institutions. Temporary Geographical Proximity is a sub-form that enables actors to temporarily interact face-to-face with one another, whether these actors are individuals or organizations such as firms or laboratories for example. It corresponds to the possibility of satisfying needs for face-to-face contact between actors, by travelling to different locations. The second form is Organized Proximity, which refers to the different ways of being close to other actors, the qualifier organized referring to the arranged nature of human activities (and not to the fact that one may belong to any organization in particular). It rests on two main logics. The logic of belonging refers to the fact that two or several actors belong to the same relationship graph or even to the same social network whether their relation is direct or intermediated. It can be measured in terms of degrees of connectivity, reflecting more or less high degrees of organized proximity and therefore a more or less great potential of interaction or common action. The logic of similarity corresponds to a mental adherence to common categories; it manifests itself in small cognitive distances between some individuals. They can be people who are connected to one another through common projects, or share the same cultural, religious (etc.) values or symbols. Social norms, common languages partake of this organized proximity. It can also, however, correspond to a bond that sometimes emerges between individuals without them having had to talk in order to get to know one another.

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A variant school of thought that considers that the political and institutional dimensions play such a central part that it is necessary to posit the existence of a third category: institutional proximity. The latter is defined as the actors' adherence to a space that is defined by common rules of action, representations, thought patterns (Kirat & Lung, 1999). The authors of this school reckon that the political dimension, the importance of the legal component, of the rules that govern the social and economic relations justify the creation of this category; all the more so as organized proximity is thought to be essentially cognitive in nature.

In line with the neo-institutional economics school (North, Williamson) and above all the old institutionalist (Commons, Veblen) or even regulationist approaches (Aglietta, Boyer), these studies highlight institutions as playing a limiting as well as stimulating role on coordination, through their twofold dimensions: they are, at once, constrained by the regulatory framework they impose; they have a facilitating role in that they provide common reference points, which helps reduce uncertainty and even conflict. The diversity and forms of articulation between institutions that contribute to coordination (including the distinction between formal and informal institutions) facilitate the construction of configurations, differentiated per sector of activity and territory, thus pointing to situations of more or less great institutional proximity. These explorations also deal with the issues of institutional dynamics, expressed through the analysis of the modes, of the causes and effects of the processes of institutional innovation on the coordination between actors and the dynamics of local development. Let us note that other analyses, focusing on the very definition of proximity, see in the latter a profoundly institutional phenomenon (Kechidi & Talbot, 2010)

Nevertheless, the development of the research on proximity, which continues to give rise to collective publications that provide provisional assessments of the analysis and of its progress (see for example, Pecqueur & Zimmermann, 2004; Carrincazeaux et al., 2008, Rychen & Zimmermann, 2008), has quickly led to an in-depth debate on the different forms of proximity. The research performed in the framework of these three analytical families reveals a number of common themes of study as well as the close exploration of some specific fields of analysis. Thus, there is a strong trend toward studying the role and place of the various types of proximity in local figures and local coordination processes. Similarly, these approaches always rest on a more or less dynamic combination of the different types of proximities.

c) The research on the dynamics of proximity contributes to the understanding of socio-economic dynamics, and is a valuable tool in six key areas of study, as listed below:

- One of the main contributions concerns the study of cooperation mechanisms, especially in the context of productive processes. The research conducted in this framework highlights the importance of the actors' location and therefore of geographical proximity (Frigant & Lung, 2002), but also of some of the components of organized proximity, particularly those that pertain to trust and reputation (Dupuy & Torre, 2005) to being part of a network, to the sharing of a common culture or rules (Gilly et al., 2011; Perrat, 2010), all positive aspects for cooperation and for reducing coordination costs. More generally, the combination of the different forms of proximity helps bring to light the importance of the various stakeholders' relation to the territory - conceived as a social construction

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and to the latter's trajectory (Pecqueur et al., 2008), and first and foremost to give analytical content to the concept of cluster or local system, viewed as a successful combination of geographical and non-geographical proximity.

- Following on from the previous works, the field of analysis that most uses the concepts of proximity at international level is undoubtedly that related to innovation processes. In this field, different types of study combine to account for the needs for interaction and for the location choices associated with innovation processes: analysis of the differentiated sectoral dynamics in terms of innovation (including according to the size of the firms within the sector) (Galliano & Roux, 2008; Massard & Mehier, 2009), examination of the processes of knowledge dissemination (Vicente & Suire, 2007; Suire & Vicente, 2009), the role of geographical proximity and other forms of proximity in innovation processes (Boschma, 2005; Frenken, 2010; Torre, 2008), dynamics of regional innovation systems (Cooke 2007; Carrincazeaux & Gaschet, 2010; Capello, 2009), etc.
- The questions of actors' coordination associated with the embeddedness of economic interactions in social networks represent another major proximity related theme. They constitute useful questions for integrating the sociological reflections that make it possible to account for the impact of interpersonal relationships and of belonging to groups on coordination mechanisms (Grossetti, 2008; Bouba-Olga, 2005; Ferru, 2010), and of the taking into account of global or interpersonal trust relationships (Dupuy & Torre, 2005). They open up the way to studies that deal with the modelling of the structures of neighbourhood interaction (Zimmermann & Rychen, 2008; Zimmermann et al., 2006), in terms of small worlds or the game theory.
- The role of infrastructure (Aguilera et al., 2012a), including the use of ICT (Aguilera et al., 2012b; Tranos, 2011), particularly in coordination, at the various scales in which they are used. Correlatively, these works address the questions of stakeholders' mobility, and therefore focus on issues of permanent and temporary geographical proximity (Torre & Rallet, 2005).
- Issues related to (re)location, in connection with the studies performed in the field of international economics. Proximity based approaches suggest an original interpretation of globalization process by analysing the new forms of organization of production processes, characterized by geographical dispersion indicating a relaxation of the constraint of geographical proximity (Coris, 2008) though non exclusive of strategies of regional rooting, which help firms take advantage of the presence in such or such regions, of certain resources (Colletis & Pecqueur, 2005).
- The more environmental issues, whether they pertain to the conditions of access and coordination to and in relation with natural resources, or more broadly to issues related to the sustainable development of regions (Torre & Zuindeau, 2009). These works have led to reflections on the negative dimensions of proximity, including the conflicts related to competition over land or environmental amenities (Darly & Torre, 2013). These reflections on the limitations of proximity were then

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developed further by the authors dealing with innovation dynamics. These environmental issues are also central to proximity related studies that deal with governance issues, particularly through examining the ways in which conflict processes are anticipated and managed (Torre & Beuret, 2012).

The emphasis historically placed on the analysis of large industrial groups, their location strategies and their relations to local industrial fabrics, or on innovation processes and cooperative relationships with research laboratories, at first led researchers to neglect the other forms of economic organizations, although some studies explicitly addressed the specific question of the cooperatives' organizational model, especially in the field of agribusiness (Filippi & Torre, 2003). This has caused a drop of interest in SME, and in the sectors of activity that are not at the heart of proximity-based studies (aeronautics, automobile, ICT, agribusiness), particularly the service activities. This insufficiency is detrimental to development analysis, in that the growth of many regions or geographical areas is primarily based on SMEs' dynamism. Similarly, few significant advances have been made in the fields of social and solidarity economy, or of associations. Yet this vast topic deserves more attention, given the increasing weight of residential and presential economy in regional development strategies, strategies which exploit the regions' cultural and sports potential, or the future challenges around issues related to health and ageing. Similar remarks can be made about employment issues (Perrat, 2010), or about the processes of financialization (Corpataux & Crevoisier, 2005) of the economy and their impact in terms of dependency of the different regions' development pathways, and of vulnerability to stock market fluctuations and crises, which remain left out of the analysis.

II.2. Relations with regional or local development

This brief overview of proximity based approaches and their relation to regional development issues and policies shows that these analyses do not purport to be a homogeneous and independent corpus capable of competing with the theories of regional development, but on the contrary that they occupy a special place thanks to which they can respond to a double necessity:

- To complement the local and regional development approaches with an analytical substrate that will help to highlight the significance of organizational and institutional processes and to give them their rightful place in approaches to space and development;
- To contribute to theoretical insights into the contemporary factors, which cannot be satisfactorily explained by the traditional approaches to space, such as the formation and success of local systems of production and innovation, the growing importance of long-distance relationships through ICT or the serious questions associated with the multiples uses and increasing scarcity of land³

³ We shall not discuss here the multidisciplinary dimension of these approaches which can sometimes make it possible to flirt with some disciplines such as psychology, sociology or geography, for example, without truly integrating them.

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a) It is important at this stage to specify the domain of validity or interest of proximity-based approaches and their relationship with the theories and practices of regional development. They are strongly related to the neo-institutionalist analyses, research on embeddedness or the game theory in that they have one thing in common with these lines of research: it is their capacity to explain non-market relations and the institutional or cultural context in which these interactions take place, at the expense of the more traditional market relations. This is not to say that proximity based approaches are unable to address market relations, but rather that their explanatory power is no stronger than that of the standard approaches to space, and in particular of the studies of the new economic geography (see the example of Table 1, about the scope of Proximity and New Economic Geography analyses), and that they do not offer more relevant or elaborate explanations than the analyses performed in this framework do⁴. To use the tools provided by these approaches to conduct this type of study is, at best, equivalent to attributing new terms to effects that have already been identified in the standard literature.

	New Economic Geography	Proximity analysis
Mainly Market relations	X	
Mainly Non market interactions		X

Table 1: The respective ranges of validity of the proximity and NEG approaches

Based on different assumptions, and addressing very distinct phenomena, each of these two approaches provides unifying frameworks which, far from competing with each other, are actually complementary in explaining reality⁵ and in terms of recommendations on development policies. A good illustration of this is provided by the analysis of polarization or co-location processes, in which they provide complementary arguments and do so on different terrains. The New Economic Geography does a very good job of highlighting the advantages of being located in the same area in the case of firms in a situation of monopolistic competition, which can then benefit from the local labour markets and the concentration of consumers in polarized areas; however, it has trouble explaining what determines the formation of localized production systems other than through the existence of non-market externalities. The proximity approach, however, provides explanations for the need for face-to-face relationships between producers and/or innovators, and for the establishment of horizontal cooperative or trust relationships within clusters, but does not generally provide

4 This is true even for the new short channel market organization in relation to which the approach in terms of geographical proximity is particularly interesting for understanding the complex interplay of transport structures or concepts of foodmiles on the one hand, and the construction of trust or cooperative relations with consumers, since it is then a calling into question of the spot markets in favor of more complex forms in which non-market interactions eventually play a central role (see Kebir & Torre, 2012).

5 We do not mean here, that the theoretical frameworks are necessarily compatible and that one can use a syncretic approach. Indeed the initial assumptions of the analyses are different and not reconcilable from an analytical point of view.

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insight on firms' access to local or external markets, especially to labour markets or end consumers. It also provides a good response to the strong assumptions of economic geography in terms of labour and capital mobility.

These particularities point to an important characteristic that orients the study of the contribution of the proximity approach towards the analyses of development: since these approaches primarily deal with social or organizational non-market processes, they are more suitable for addressing issues of a local or regional nature, due to 1) their interest in the specificities of micro-economic relations and the organizational and cognitive dimensions that characterise production and innovation relations, particularly in terms of learning and revalidating the strong and weak ties, 2) to the fact that they aim to take into account the cultural dimensions and institutional peculiarities. This is why the approach to territorial development and its dynamics will be the preferred one. At this level, its explanatory power is important, and it can lead to recommendations for action that may differ from traditional policies. Indeed, the micro dimension makes it possible to precisely examine the local and extra-local behaviours of the agents, which in turn helps make recommendations for public action, particularly in the field of territorial governance. It makes it possible to take into account and analyse stakeholders other than policy makers only, and their taking part in the process of decision making about the paths to regional development.

Another advantage of the proximity-based approaches lies in their contribution to the convergence of the theories that constitute regional sciences, a convergence highlighted by various authors (Capello, 2007; Capello & Nijkamp, 2009). The history of regional sciences is, indeed, marked by a succession of pendulum swings between approaches devoted to location vs. development questions, regional vs. territorial dynamics, model-based quantitative approaches vs. qualitative monographs, which over time have contributed to gain a better understanding of the phenomena, thus making up for the limitations of previous approaches. In line with the qualitative and territorial district and milieu approaches, the research studies that use the notion of proximity strive to provide a unified analytical framework; this initially conceptual construction now strives to explore more quantitative fields, through the use of tools such as the game theory, simulation models, and econometric approaches, whose goal is to develop ways of measuring proximities.

b) The explanatory nature of proximity-based approaches also concerns the field of public action and regional policies at two levels: the microfoundations of macroeconomic policies and issues of territorial governance. Here again we find the respective dimensions of regional (for microfoundations) and territorial, or even local (for governance) development. As regards the question of territorial governance (Torre & Traversac, 2011), proximity approaches help understand how local actors connect with one another and can thus coordinate themselves and work together, by exploiting the potentials offered by organized proximity, within a specific area. They also reveal how conflict relations emerge and develop (see Torre's article in this volume) and how, in conflicts, opposition groups are formed, and are founded on the logic of belonging and similarity of organized proximity, by supporting or opposing territorial innovations. Finally, they show how it is sometimes possible to overcome these oppositions and initiate negotiation or consultation processes through which new pathways to territorial development can be opened up. It is through the interaction between organized and geographical proximities that this dynamic and complex process is initiated, a process which

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conditions the development of territories. Again, taking into account a wider range of local stakeholders is at the heart of the observed dynamics, which are limited neither to economic actors, nor to policy makers, but extends to a large number of actors and citizens in the territories.

Regarding the microfoundations of macroeconomic policies, proximity approaches help examine more closely certain economic and social dimensions that serve to elaborate these policies. Among these dimensions, there are the local specificities, or situations due to characteristics related to such or such a sector of production. More importantly, these analyses make it possible to identify generic situations such as the balance between firms' local and long distance relations, or the network effects within local systems and can lead to recognizing the importance of some recurrent and essential phenomena and even contribute to the aggregation of economic and social behaviours for the purpose of developing territorial and regional policies. Indeed, they make it possible to take into consideration the micro-economic (and micro social) dimensions, which, through aggregation or the recognition of the importance of certain phenomena, can lead to policies implemented at regional level. We refer here, for example (Boschma & Martin, 2010), to the identification of factors that explain a regional development based on the existence of local clusters or systems, with characteristics that must be promoted or reinforced, or the taking into account, during the process of elaboration of the public policies, of a series of important "local realities".

c) Finally, proximity based approaches devote relatively little attention to the question of policies and public action. For the most part, these contributions come in the form of recommendations on the definition of economic action and the promotion of innovation in the territories, or of questions addressed to the public authorities in charge of regional and territorial development. Some studies have sought to offer recommendations about territorial governance, especially to account for the changes at work in rural areas (Torre & Beuret, 2012). Others have examined the role of proximity in accounting for dynamic interactions between territorial governance mechanisms and public policies, thus offering an analysis of the process of institutional innovation in the territories (Gilly & Wallet, 2005). Generally speaking, the results remain relatively limited and do not provide a solid enough foundation for recommendations, nor do they constitute a sufficient basis for establishing a normative approach in terms of public policy for promoting the development of the territories. And they point to a clear tropism of the cognitive dimensions of organized proximity at the expense of taking into account the more political aspects (Talbot, 2010).

However, it should be noted that, given the persistence and even reinforcement of infra and interregional imbalances, the need to rethink the regional development policies was based on the assumption that current approaches could not to really take into account the diversity of territorial situations and resulted in a misallocation of public resources. The definition of an integrated development strategy based on smart, sustainable and inclusive growth provides the pattern of European intervention in the field of cohesion policy for the period ahead.

Approaches in terms of place-based policies (Barca, 2009) entail a precise knowledge of territorial situations in a context of growing competition between territories, requiring that the latter strive towards an effective combination of interactions based on geographical proximity and long distance interactions, in order to foster cognitive spillovers. Emphasis is also placed

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on the limitations of over-applying macro approaches to the territories, and on the inverse necessity to promote bottom-up approaches, starting from local configurations. For their promoters, these approaches should stimulate the construction of projects and the search for common goals by actors who are geographically close to one another, mobilized within territorialized communities with a common fate. This requires reinforcing the mobilization of and the empowerment capacities of the stakeholders and more generally of the citizens in the context of cooperation mechanisms based on the opportunities fostered by the sense of belonging and similarities shared by the actors. Thus, place-based approaches contribute to validating the ideas developed through the research on the dynamics of proximity. This is done by highlighting the combinations of geographical and organized proximity at local level and more importantly the processes of exploitation of the potentials offered by geographical proximity through the activation of the organized proximity relations between the actors present on the territory.

These approaches must also be interpreted in light of the success of smart development concept (Foray et al., 2009) and the reflections it opens up about the evolution of regional and territorial innovation strategies. Given the limitations of the territories' principles of competition for attracting investments into the most dynamic sectors and mastery of highly advanced technology, it is necessary to consider forms of complementarities between territories and/or between regions with different innovation profiles. This strategy of specialised diversification requires identifying complementarities between regions in terms of innovation and leads to distinguishing two main types of regions, according to whether they have the capacity to develop general purpose technologies or rather to concentrate on more specialized areas of innovation or knowledge. On the basis of a core-periphery analysis, smart development models advocate finding ways to achieve a related variety and complementarities between activities, and more importantly with the activities that already exist in the area; in so doing these models highlight the fundamental role of organized proximities between the already established sectors and emerging fields of activity.

Smart development strategies incorporate a territorial approach taking into account the great diversity of situations and the socio-economic history of the regions concerned. It is therefore necessary to precisely identify the local conditions that can potentially generate spillovers in order to initiate structural changes and path development transitions. This is all the more important as the diffusion of innovation dynamics, far from being homogeneous across the regions, rest on capacities of mobilisation and adaptation that strongly vary from one territory to another, as well as on different methods for capturing innovations: we think for example of alliances between organizations based on their geographical and organized proximities in a given territory. Places do matter and their characteristics emphasise the importance of informal knowledge and coordination in explaining the sources of innovation. In relation to these issues, the quality of the territorial and regional governance mechanisms appears to be an essential dimension of the considered strategies. It calls, among other things, for a more detailed knowledge of local situations, knowledge necessary for building the microfoundations of regional policies; in so doing it raises the question of the mechanisms of monitoring and evaluation of territorial dynamics. It also requires the implementation of incentive schemes to support collaborative interactions, and reflections on the combination of territorial strategies at regional and interregional levels. The dimension of institutional

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proximity is clearly apparent here; it must foster future developments in territorial governance and public action.

III. Presentation of the volume

The texts presented in this volume are intended to open a debate on the place and role of proximity-based analyses in regional and territorial development approaches, as well as on research proposals made by this school of thought on territorial development. We have divided them, according to their affinities and issues addressed, in four main groups, which either directly address the question of the relation between proximity-based relationships and regional or territorial development processes, or explore via themes that are commonly explored in the research on proximity.

III.1. Proximity and regional development: main debates and conceptual perspectives

The first section is devoted to the role and place of proximity relations in development approaches, and comprises both analytical contributions and recommendations in terms of development public policies.

In his impressive reviewing work entitled "Proximity and endogenous regional development", Robert Stimson provides an overview of the literature that implicitly or explicitly uses the notion of proximity to explain endogenous regional development processes. On the basis of the founding works of the location theory and the approaches in terms of agglomeration economies, he shows how the proximity has been considered as an essential part of the explanations of endogenous development, particularly regarding the processes of knowledge and innovation transfer. He emphasizes that the introduction of ICT in productive processes, far from leading to a "death of geography", maintains the need for face-to-face interactions. It is precisely the various forms of this relational proximity such as they are described in the regional science literature, which are at the heart of the approach developed. He then shows how this notion is used in the works which consider cognitive spillovers and innovation as being central to endogenous development. The role of institutional factors in the structuring of proximity relations is also emphasized, and the author concludes his work with a discussion on the implications in terms of public policy.

André Torre proposes to extend the use of the analytical grids provided by proximity-based studies so as to better understand their contribution to regional and territorial development theories. Entitled "Proximity relations at the heart of territorial development processes. From cluster spatial conflicts and temporary geographical proximity to territorial governance ", his contribution follows on from the works of Schumpeter who distinguished innovations in production processes from those relative to organizational and institutional changes to explain development dynamics. According to Torre, the proximity-based approach can allow for progress in these two areas, through the relevance of the heuristic grid proposed to address the question of the processes of innovation and knowledge diffusion, and a better understanding of the processes of governance in the territories. After a brief review of the tools provided by the proximity-based approach, these two thematic lines are discussed, starting with productive processes, followed by relationships that arise in the context of development of territorial and land planning projects, which, among other things, helps highlight the negative effects of

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geographical proximity and the conflicts it is likely to generate. An examination of how the different types of proximity interact in local governance processes finally provides an analytical grid to understand the models of territorial development and the relations that foster harmonious development, prevent exit, and hindering conflicts.

The aims of Philip Cooke' paper "Relatedness and transversality in spatial paradigms and regimes" is to highlight how the combinations of the various types of proximity can explain the emergence of industrial innovation patterns in some places, and how relative variety can foster path dependence phenomena ensuring the maintenance and evolution of these models. It brings to the fore the importance of proximity relations and their variety in the resilience processes of production systems, particularly in connection with the phenomenon of spatial lock-in. It first requires assessing the role of the varieties of Proximity in the formation of spatial distinctiveness. Secondly, an investigation is conducted of the appropriateness or the notions of path dependence for understanding spatial evolution. This leads to insights about relatedness in the interaction of path dependences, or more accurately path interdependence in evolving spatial processes, notably interactions between regional innovation paradigms and regimes in explaining regional variety. It allows eventual conjecture regarding the evidence for a diluted version of regional varieties of capitalism In the paper this is termed regional regime variety as a fundamental process that blocks regional homogenization under forces like globalisation and digital culture that are purported to be corrosive of regional distinctiveness. Strong empirical evidence is adduced for co-evolutionary and multi-level spatial distinctiveness in paradigms and regimes that condition contemporary innovation knowledge flows.

III.2. The role of proximity in spatial innovation processes

The second part of this volume is dedicated to a theme dear to the authors interested in proximity; it is that of innovation; placed at the heart of growth dynamics and considered an essential driver of development.

Proximity matters, says Roberta Capello in the introduction to her chapter: "Proximity and Regional Innovation process: is there space for new reflections?" Tracing the evolution, over time, of the use of the concept of proximity in the literature, from the pioneering studies on the role of spatial proximity and agglomeration processes to the recent advances on the negative effects of proximity, she emphasizes that this knowledge can provide a basis for reflection on the different role of each form of proximity in the dynamic processes of knowledge creation. These preliminary reflections serve as the foundation for a discussion on the diversity of territorial innovation models based on two main elements: the disentanglement of innovation processes, so as to clearly define the content of the different phases, and the identification of the specificities of the various territories (contextual conditions) underlying each of these phases. Thus, each territorial pattern of innovation is characterized by the combination of the different roles of the regions in the innovation process, which highlights the diversity of regional innovation profiles. Three main models are then investigated: an endogenous innovation pattern in a scientific network, a creative application pattern, an imitative innovation pattern. This reveals that cognitive proximity between regions allows for a complementarity of knowledge and thereby the sharing of competencies between regions. Placing emphasis on territorial responsiveness and creativity

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this analysis leads to the idea that the diversity of regional profiles calls for differentiated regional innovation policies, that is to say, policies that are not mere clones of those developed for the best-performing regions.

In the chapter intitled "When local interaction Does not suffice: Sources of firm innovation in urban Norway" Rune Dahl Fitjar and Andres Rodriguez-Pose question the widely accepted notion that local interactions constitute the main driver of innovation processes. The studies they have conducted on five regions of Norway actually bring to the fore the positive influence of firms' being part of organizational "pipelines", open to other regions, and even other countries, as a motor of radical as well as incremental innovations. According to their analysis, proximity relations tend to generate obstacles to innovation, insofar as frequent interactions in these relatively homogeneous contexts do not do much to promote the emergence and dissemination of new ideas and confine relations to a barren vacuum. The study then highlights the positive impact, in terms of development, of a combination of factors related to firms (size, sector, share of foreign ownership) and cultural factors (the managers' level of open-mindedness).

Olivier Bouba-Olga, Michel Grossetti and Marie Ferru also discuss the role of the different forms of proximity in the geography of innovation processes. In their article, "How I met my partner. Reconsidering proximities", they point to dimensions they consider to be insufficiently investigated in the proximity analyses: the distinction between how various stakeholders enter into relations and how their relations develop, the essential role of the market in the development of these relations, and the need to better distinguish the different levels of action, including by identifying what pertains to individual relationships and what is related to relationships between organizations. Like other authors in this book, they emphasize the necessity to consider the role of the different forms of proximity in a dynamic perspective and thus to envisage that their combinations evolve in the coordination processes. Focusing their analysis on the initiation of the relations, they consider that the latter's configuration can have a decisive impact on the geography of the relations between organizations. Three empirical studies used lead one to the conclusion that relational proximity between individuals plays a central role in explaining the geography of innovation processes, while showing that the ways in which stakeholders enter into relations are too diverse to conclude to the existence of one unique model of coordination activation.

III.3. Networks and proximity

The third section consists of contributions concerned with the issue of networks and the importance of proximity in this context. The authors here adhere to the idea that the networking of individuals or businesses is key to the success of territorial development process, whether the actors are involved in purely local networks or, on the contrary, in more international dynamics.

In their text "The Formation of Economic Networks: A Proximity Approach", Ron Boschma, Pierre-Alexandre Balland and Mathijs de Vaan approach the question of proximity from the angle of its heuristic potential in the field of network structuring. The proposed analysis rests on the grid developed by Boschma (2005), distinguishing five forms of proximity: cognitive, geographic, organizational, institutional and social proximities. The discussion concerns the

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relative influence of each of these forms on the formation of economic networks based on collaboration between firms in the video game industry. The stochastic model developed helps establish the positive impact of the different dimensions of proximity with the exception of institutional proximity on the structuring of networks in this creative industry. In keeping with the Roberta Capello's conclusions, the authors stress the different roles played by the various forms of proximity in the course of the sectors' evolution and of innovation processes.

Though it was initially thought that the development of the use of ICT would lead to a negation of space, the studies devoted to this question have shown, in recent years, that the impact of these technologies is much more complex and contrasted. Emmanouil Tranos and Peter Nijkamp's contribution, "Digital infrastructure and physical proximity" is in line with that notion. Indeed, they question the geography of the Internet, highlighting the urban hierarchy generated by the spatialisation of the networks that structure this technology. They then raise the question of the impact of distance and proximity in the development of the Internet and cyber-places. The interest of this particular chapter is in empirically testing the hypotheses proposed by using data in the framework of complex network analysis and gravity models. They conclude to the positive impact of physical proximity but also of institutional proximity on the geographical structure of the Internet, strongly curved by agglomeration forces, although some forces help the less-connected regions to not be totally excluded from the development processes taking place within contemporary economies.

In their chapter "Proximity relations and global knowledge flows: specialization and diffusion processes across capitalist varieties," Rachael Gibson and Harald Bathelt emphasize the role of cognitive proximity as a result of organizational constructions between firms wishing to reduce uncertainty. In keeping with the studies on the concept of temporary geographical proximity, they analyse the role of international trade fairs in the diffusion of innovations. These authors consider fairs as deliberative institutions; they are a component of national models of interaction described in the varieties of capitalism approaches. Thus, their contribution fits in with the research that aims to establish a more dynamic analysis of the variety of capitalist models. They make the strong hypothesis that proximity based approaches can help with this undertaking. Thus, they reveal a "paradox of globalization", combining ubiquity and contextualization of innovations. As a vehicle for the dissemination of knowledge these fairs establish a link between the level of interactions between agents and the evolution of the structures at a more global level.

III.V. Place based strategies and proximity relations

The fourth and final section is devoted to reflecting on the question of public policies and their contents or possible recommendations concerning proximity relations. Part of the debate focuses on the subject of place-based policies - advocated by the European Union which take into account the importance of the relationships and networks between local actors and their role in the face of policies that tend to be more centered on sectors and based on a consideration of the specific characteristics of individuals, which also raises the question of the optimal size of regions and cities in terms of competitiveness.

This is what Roberto Camagni discusses in his chapter "The regional policy debate: a territorial proximity and place-based approach", in which he reflects on the usefulness of a

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regional policy, the role of the different levels of authority and the necessary direction change of these interventions towards better taking into account the territory and proximity, in light of the current discussions on the evolution of the European Union's cohesion policy. Given the current challenges facing the European project, the development rationale based on a territorial approach is highlighted as the necessary foundation of a strategy for the future. The current priority is therefore to promote a place-based policy across the territories of the European Union, and to think public intervention for R & D from a "smart specialization" angle. Behind these general concepts, lies the necessity to activate them. The main contribution of the discussion in this chapter lies in its proposing to further the goal of territorial cohesion, by using the concept of territorial capital. Thus, territorial cohesion could be based on three main components: territorial efficiency, territorial quality and territorial identity.

In their article "Economic development, place-based development strategies and the conceptualization of proximity in European urban regions" Teodora Dogaru, Frank van Oort and Mark Thissen aim to contribute to the recent policy discussion on place-based versus place-neutral development strategies in the European Union, and to reflect on agglomeration and proximity conceptualisations that are needed for a proper interpretation of localized and network externalities. The debate is rooted in the context of place-based development strategists claim that the polycentric nature of a set of smaller- and medium-sized cities in Europe, each with their own peculiar characteristics and specialising in the activities to which they are best suited, creates fruitful urban variety, which enhances optimal economic development. The contribution tests the relationship between productivity growth and employment growth in distinctive large, medium-sized and small urban regions in Europe, controlling for other important factors, and conclude on the place-based policy implications suggested in the recent discourse. The authors hypothesize that while employment growth is related to the opening up of new markets and product innovation in a diverse economy, productivity growth links to process improvements in existing markets in economies that are specialized in the production of certain goods and services. To test this hypothesis, they conduct an empirical analysis on growth differentials over 235 European regions between 2000 and 2010, focusing on different urban sizes, and claim that besides agglomeration impacts determined by physical proximity, those caused by other forms of proximity (institutional, social or technological proximity) are important as well in the setting of place based approaches.

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