

From the industrial district to the innovative milieu: Contribution to an analysis of territorialised productive organisations

Denis MAILLAT
IRER, University of Neuchâtel

The two phenomena of structural adjustment and globalisation which industrial economies and societies have been undergoing for many years now have not failed to have an effect on the location and geographic distribution of activities and, more fundamentally, on the territorial development process. In fact, these two phenomena reveal the importance of territoriality in development processes.

This paper will consider the processes used to understand organisations work and development. In doing so, we shall refer to the concepts of industrial district, localised production system and innovative milieu.

1 Development processes of territorialised productive organisations

The interest shown in territorialised productive organisations does not simply account for a geographical phenomenon but above all highlights the territorial dimension of development and innovation processes. Seen from this viewpoint, territory is not a passive medium but is defined by “its ability to organise its development in an increasingly globalised economy” (Beauviala-Ripert *et al.* [1993], p. 2).

In the 1980s several authors addressed the issue of endogenous development combining territorial identity and collective production capacity (Friedman and Weaver [1979], Stöhr and Taylor [1981], Pecqueur [1989]) but it is without any doubt the work on the “Third Italy” that has lent this form of productive organisation the most credibility because the authors have demonstrated its efficiency (Bagnasco [1977], Becattini [1979], Garofoli [1981], Brusco [1982], Fuà [1983]). It was Becattini [1979] who pointed out that this type of territorial productive organisation, consisting of small and medium-sized companies whose operation and coherence depend on cooperation-competition mechanisms, was reminiscent of a concept already proposed by A. Marshall: that of the industrial district.

1.1 The industrial district as a specific example of a more general trend

The appearance, organisation and development of industrial districts must be interpreted in the context of the various transformations undergone by the productive system of developed economies since the 1950s. From the viewpoint of territorial development, two groups of explanations emerge from the literature on this phenomenon:

- Those which, in line with Piore and Sabel's analyses [1984], interpret the appearance of the industrial district as a flexible production system which has replaced the (Fordian) mass production system.
- Those which, from A. Marshall onwards, take an interest in the processes by which territorialised specific resources (know-how, scientific and technical skills) are created and mobilised by autonomous territorial dynamics.

1.1.1 The industrial district as a flexible production system offering an alternative to mass production

According to this school of thought, the large companies were behind the formation of industrial districts; during the 1970s they proceeded to outsource certain segments of productive functions (process of productive decentralisation). This outsourcing process, driven mainly by restructuring trends connected with economic recession, enabled the large firms to withdraw from less competitive activities and to bypass employment management inflexibilities (wage rigidities, lack of mobility, etc.). In the Italian context in particular this policy paved the way for the development of the informal economy and for the creation of many small local sub-contracting companies. Gradually the division of labour between the various small firms urged them to specialise in different phases of the production process and to become interdependent. Competition/cooperation mechanisms were put in place to ensure the coordination and coherence of the system. As the large companies discovered new outlets it gave rise to new production systems organised on a territorial basis and free of the large companies' influence. The main feature of these production systems is that coordination between the different production phases is not organised on the hierarchical model of the large company but is the result of a complex set of multi-directional and horizontal relations that ensure the coherence and flexibility of the whole.

These production systems appeared to be so efficient that some authors were tempted to regard them as the standard form of territorialised productive organisations. This was in particular the case of Piore and Sabel [1984], who

“suggested that rigidly-structured Fordian mass production was going to be replaced by a system based on flexible specialisation, the spatial form of which would be the district” (Benko and Lipietz [1992], p. 25).

Such an interpretation was obviously exaggerated. Starting from the successes of industrial districts and ending with a switch in the global production system (from Fordism to flexible production) amounted to forgetting the complexity of the interdependencies existing between the global and the territorial production systems and opting for an interpretation giving priority to an unequivocal development of the functional logic towards the territorial logic.

In their critique of this interpretation of the switch from one form of productive structure to another, Amin and Robins ([1992], p. 152) are justified in stressing that if new trends are emerging

“they are complex and contradictory and go beyond what flexible production designates. What is new is not marked by a total and fundamental break with what is old: the old order cannot simply vanish”.

1.1.2 The industrial district as a system of specific benefits and autonomous territorial dynamics

The Marshall-based school of thought does not aim to explain the changeover from one logic to another but to refocus attention on the influence of territorial logic in development processes. The work done by A. Marshall on the benefits offered by concentrations of specialised industries in certain localities indisputably enriched contemporary thinking, hence the success of his famous statement:

“Industry’s secrets are ceasing to be secrets: they are, as it were, in the air and children are unwittingly learning many of them. Work well done is immediately recognised and people discuss right away the merits of inventions and improvements made to machines, processes and the general organisation of industry: if somebody comes up with a new idea, it is at once taken over by others and combined with their own home-made suggestions; it thus becomes a source of other new ideas” (Marshall [1920], p. 271).

We shall refer to Becattini [1989] to translate the characteristics of industrial districts into contemporary terms: a singular co-existence of competition and solidarity between the district’s firms, which reduces the local market’s transaction costs, a plethora of innovations from the grass roots, fostered by the “industrial climate” prevailing in the district; great job mobility — both horizontal and vertical; emulation communicated by the district’s members to each other, both to achieve economic objectives and, sometimes, to improve and perfect the geographic and social environment of the district proper. He adds:

"All in all, the industrial district may be described as a large productive complex in which coordination of the different phases and control of the regularity with which they function are not subject to pre-established rules and hierarchical mechanisms [...], but, on the contrary, are subject both to the automatic forces of the market and to a system of social sanctions imposed by the community" (Becattini [1989] p. 263).

The industrial district thus appears to be a typical form of territorialised productive organisation in which the relations between firms are governed by a set of implicit or explicit standards combining market rules and a social code. The formation of these standards, which have generally become established in the course of time in the form of tacit agreements between the local partners, is a function of the production-specific requirements on which the local professional and technical culture work.

Thus what must be highlighted from this angle is not so much that the industrial district is a productive organisation offering an alternative to mass production but rather that a productive organisation that functions according to a territorial logic in which the principle of hierarchy is replaced by that of reciprocity which determines, between

"agents involved in exchanges, a relationship that has a duration of its own beyond the purely commercial transaction" (Courlet and Pecqueur [1992], p. 90).

1.2 The localised production system as a generalised form of territorialised productive organisation

1.2.1 Characteristics of the different approaches

In the wake of the work done on industrial districts, numerous studies have been conducted that have made it possible to identify similar or comparable forms of localised productive organisations. Economic literature has thus been enriched with many concepts intended to describe them and to interpret the way they function: territorial production system (Gilly [1987], Perrin [1983], Scott [1986], Crevoisier and Maillat [1989]), local industrial fabric (Thomas [1987]), localised industrial system (Raveyre and Saglio [1984], Colletis *et al.* [1990]), localised or local production system (Courlet and Soulage [1994]), localised ecosystem (Planque [1983]; Pecqueur [1987]), productive meso-system (Gilly [1990]), localised production and innovation system (Longhi and Quéré [1991]), technological district (Antonelli [1986], Storper [1992], Maillat *et al.* [1995]).

The appearance of these different terms obviously highlights the interest shown by regional studies in analysing these new forms of productive organisation, which all prompt one to wonder about the "per-

manence of territoriality as a variable acting on and influencing the rationality of the players in their proximity-based relations" (Pecqueur [1992]) and about the mechanisms of endogenous regional development (D'Arcy and Guissani [1996]; Bramanti and Maggioni [1996]). But it involves the risk of creating as many concepts as there are scenarios. Consequently it appears judicious to highlight the common characteristics of these different approaches (Pecqueur [1989], Courlet and Soulage [1994], OECD [1993], Maillat [1995]):

- All concepts selected refer to a territory exhibiting a certain degree of homogeneity and containing a production system generally specialising if not in a product then at least in a specific field of activity (mechanical engineering, screw-machining, clothing, footwear, aerospace, micro-technology). Moreover, related activities, especially services to companies, research or training, are often grafted onto the main activity, strengthening and supplementing the system.
- The products and technologies used are based on specific, non-material production factors (technical know-how and culture, entrepreneurship), which are historically constituted and territorially accumulated and are all "comparative advantages that generate positive externalities and favourable proximity effects" (OECD [1993], p. 20). This does not mean, however, that these systems operate exclusively in traditional areas (mechanical engineering, clothing, etc.). Observation actually shows that many of these systems base their development on a specialisation of production in advanced or modern technologies (biotechnology, aerospace, micro-electronics).
- The areas represented, the technologies used and the products manufactured are often compatible with the small size of the production units. However, although a great deal of space is devoted in the literature to the role of SMEs in this type of system, this does not mean that large companies have no place there. In view of this, what is important in territorialised productive organisations is not so much the size of the production units as the presence of horizontal-type logic.
- Close multi-directional and complex links of interdependence between local firms result in the formation of cooperation and exchange networks, regarding both production and innovation. As a result of specialisation by firms, an often far-reaching division of labour becomes manifest and both formal and commercial - as well as informal and non-commercial - collaboration and exchange relations are forged among competing firms, thereby facilitating the circulation of information and skills.

- Specific and flexible labour markets constantly ensure the acquisition of qualifications and mobility of skills and know-how among companies. In general, owing to the density of firms, genuine chains of mobility are formed which allow the individuals who so wish to change jobs within a given territory (Held and Maillat [1984]).
- These production systems allow firms to benefit from the agglomeration externalities. Such conglomeration savings result from the intense relations between local businesses. These relations amplify the division of labour that permits ever-greater productive specialisation, the introduction and integration of new technologies. Conglomeration savings thus stem from the relations the players maintain with each other. They do not result simply from conglomeration alone (Harrison [1992]).
- Putting in place collaboration arrangements and shared experiences gives rise to learning dynamics that allow the players to modify their behaviour patterns as a function of the changes of situation in their external environment and to find solutions suited to the new situations.
- This type of production system can function and develop as a system independently of each firm's fate as an individual entity. In other words, one or the other of the firms in the system may disappear without definitively compromising the operation of the whole.
- In this type of system there is a close dovetailing of economic relations with social and symbolic ties. An essential element on which interdependencies are based is the mutual trust between partners, which prevents or limits the impact of opportunist behaviour.
- The volume of these systems' production is great enough to cover a significant portion of output and national exports. The proportion exported is an important characteristic as it illustrates the outward openness of these systems and their involvement in international competition and trade.

1.2.2 The localised production system and the milieu as essential components of territorialised productive organisations

Now that the features common to the various concepts mentioned have been highlighted, these elements enable us to attempt a summary of the way in which these territorialised productive organisations work. To do so, we shall select two concepts: the localised production system and the milieu. The first is based on the work of the Grenoble IREPD team; the second on the work of the GREMI.

a) The concept of localised production system

The concept of localised production system has to account for the relationships of techno-productive interdependencies that link the firms within the same geographical area, taking into account the fact that the latter are not only material and commercial but also non-material and non-commercial (exchanges of information, knowledge, experience, etc.) and that proximity and interdependencies generate advantages in the form of specific resources and externalities.

The localised production system can be more easily understood by taking the same starting point as Storper and Harrison [1992]: the notion of input-output is understood as a set of activities, grouped together at a single location and leading to the production of a marketable good, the production being characterised by a variable number of interdependent production units functioning according to its own specific division of labour and technical coherence.

The localised production system is thus conceived as a set of interdependent activities that are technically and economically organised and territorially conglomerated. The players of a localised production system, when faced with a shared technico-economic reality, collectively develop and share (scientific, technical, industrial and sales-related) information on external constraints, the problems to be solved and the modalities of possible solutions (Gilly [1990]; Peyrache-Gadeau [1995]). A localised production system is thus also characterised by the presence of specific resources, skills and externalities developed by the collective action of the various local agents and pooled for production. Furthermore the localised production system forms part of a set of relationships with the outside world which determines the framework with which it interacts. In fact, a localised production system is not a closed world. It is constantly interacting with its technological and market environment. Finally, it is fundamental to note that a localised production system is actuated by a territorial logic (the milieu) which makes it an organisation situated between the market and the hierarchy and which, contrary to the functional logic, needs territory to function.

b) The milieu concept

The milieu concept corresponds to an outwardly open territorialised complex, that is, to the technological and market environment, which incorporates and masters know-how, rules, standards, values and relational capital. It is attached to a localised production system, that is, to a set of players and to human and material resources (Aydalot [1986]; Maillat, Quévit and Senn [1993], Maillat [1994], Camagni [1995]).

Know-how is regarded as an ability to master the production process in the broad sense of the term (Crevoisier *et al.* [1996]). This know-

how may be technical, sales-related, organisational and relational. It is crucial to coping with technological change, to responding to market developments and even to integrating new agents or equipment into the production process. The standards, rules and values are modalities that govern the players' behaviour as well as the relationships they maintain with each other. These relationships are specific to the space in question in that they help to generate a definite work ethics and principles of trust and reciprocity, solidarity and mutual assistance. They are particularly important in that they participate in the creation of a common working area (common rationality, common time frames, common objectives). The relational capital is formed by the knowledge that each player has of the other players in the milieu. This knowledge is built from a habit of working together and is accompanied by formal and informal, commercial and non-commercial relationships. The density of the relational capital results from the trust the partners have in each other. It acts like a safety net capable of preventing opportunistic behaviour. Openness towards the outside world covers knowledge of the market environment and technology.

The milieu is attached to a localised production system comprising in particular companies, research and training centres, financing institutes, socio-professional associations or public administrations enjoying strategic decision-making independence. The existence of a milieu provides a measure of trust and convergence of viewpoints which counts for much in what could be called the "chemistry" of cooperation, that is, the factors that prompt firms to transcend the usual barriers of competition to discuss common technological problems, to learn from each other and, possibly, to seek collective solutions.

The milieu is thus not a special category of localised production systems but a cognitive set on which the functioning of this system depends. It is the organisation through which the autonomy of action and initiative of localised production systems are expressed. It is, as it were, their brain in that it constitutes a conglomeration of the action capabilities and cognitive abilities of the various players. The existence of a milieu is the prerequisite of endogenous regional development. It is the milieu that implements the territoriality of the players as a variable that acts on and influences their rationality in their proximity-based relationships.

In view of this, the question is to identify which logic influences the way a localised production system works: the milieu-actuated territorial logic or the functional one, which corresponds to industrial organisation of a hierarchical nature. Unlike the milieu, industrial organisation does not need territory to take shape. It is based on integrating, within an organisation, the various functions of production: technology, pro-

duction, markets. The companies that obey the functional logic often maintain asymmetric relationships with the territory in which they are located and do not play the game of local integration. On the other hand, in the case of territorial logic firms organise exchange and cooperation networks in the space in which they are located. The functional logic develops by creating relationships between compartmentalised spaces; it uses spaces as passive media. The territorial logic develops thanks to proximity between players and to the role of the milieu. It generates active spaces.

2 The role of innovative milieux and the evolution of localised production systems

To characterise the circumstances under which localised production systems appear and function is not sufficient. We now have to look at their evolution, the way in which they reproduce themselves, change and innovate. In order to describe these innovative forms of behaviour within localised production systems, we will apply the concept of innovative milieu (Maillat, Quévit and Senn [1993], Maillat [1994]). To the extent that the milieu is what actuates the localised production system, the milieu is also involved in its evolution (or non-evolution). Many papers show how the milieu steers the evolution and transformation of the localised production systems to which it is attached and how it actuates, triggers and conducts innovation processes (Maillat, Quévit and Senn [1993], Camagni and Quévit [1992], Crevoisier [1993], Peyrache-Gadeau [1995]).

2.1 Characteristics and mode of action of the innovative milieu

Of course, not all milieux are or become innovative. Some are actually inhibiting. Thus membership in a strongly solidarity-based, self-enclosed milieu merely reinforces some convictions or some prejudices due to the convergence of viewpoints. In this case the reluctance of a few people quickly becomes everybody's opinion. In fact, innovation is never accepted without difficulty by the circles attached to smoothly running localised production systems exploiting a situation-related income (brand awareness of a product, mastery of a form of know-how). The same holds true when the milieu loses its cohesion because individual interests gain the upper hand over those of the community, when opportunistic behaviour causes defiance or again when outward openness remains inadequate to ensuring enlargement of the new cooperation relationships or the replacement of technologies.

All in all, the milieu is more or less conservative or more or less innovative depending on whether the players' behaviour is geared to defending individual interests and seeking short-term profit, or whether it gives priority to collective actions that help to mobilise resources on long-term development projects. Thus, in Perrin's view [1991], the industrial culture that predominates in the district may become that of a conservative milieu more concerned with seeking short-term profitability and quantitative production optimisation than with seeking long-term profitability and qualitative optimisation of its expansion. This evolution is reflected in a general trend towards routinising activity and replacing flexible organisation with standardised forms of production.

Hence it is considered that the milieu is innovative when it is capable of opening up to the outside world and gathering there the specific information and resources needed by the localised production system attached to it to innovate, or when it generates processes capable of rendering the resources of the localised production system usable for new techno-productive combinations (Maillat, Quévit and Senn [1993]). Perrin ([1988], p. 5) is clear on this subject:

"It is innovative milieux which invent and implement new technological paradigms and which effect correlative reorganisations of the industrial system, especially new modes of specialisation-reconstitution of productive processes and of techno-capitalistic promotion of the ordinary functioning of the organisations."

Therefore innovation does not result solely from endogenous logics in the milieu but also appears as the result of its interactions with the outside world. In fact, the innovative milieu is the seat of permanent processes of adjustment, transformation and evolution. These processes are activated by an interaction logic on the one hand and by a collective learning dynamics on the other. To the extent that the innovative milieu is capable, through both logics, of creating new resources tailored to the production system and of stimulating its transformation, it may be regarded as playing its driving role.

The interaction logic is determined by the players' ability to cooperate and interact, particularly within the framework of innovation networks. This interaction logic is naturally heavily dependent on the relational capital that has been built up in the course of time.

The learning dynamics reflects the players' ability to modify their behaviour as a function of the changes in their technological and market environment so as to devise new projects, implement new solutions and create new resources. Thanks to this learning dynamics, new know-how and technologies are created and developed, the balance between cooperation and competition relationships alters, the changes that have

occurred in the environment are captured and assimilated and the relationships between the various partners are renewed (Maillat [1995]).

2.2 The innovative milieu and the creation of specific resources

One of the characteristics of the innovative milieu is its ability to stimulate autonomous development of know-how corresponding to the requirements of the localised production system and enabling it to specialise in a rare, non-material resource.

Successful localised production systems always have specific features or master one or several particular technologies (integrated circuits, micromechanical engineering, plastics injection-moulding) or design capabilities for specific products (footwear, watches, clothing, spectacles). Relatively to what exists in other spaces, these resources - autonomously created on a territorial basis - become competitive advantages. In fact, the forms of know-how are non-material resources, be it advanced proficiency in a technical field, special manual skills or knowledge related to an industrial or tertiary field, the constitution and implementation of which create differences between the localised production systems.

The existence of these "territorial specificities" is based on "non-reproducible forms of knowledge", that is, knowledge not likely to exist or to be duplicated elsewhere. Such forms of knowledge are thus unique and are partially shielded from competition through the marketplace. This knowledge or these specific resources, created by interactive cognitive processes within a territory and "indefectibly anchored" therein, then contribute to durably differentiating it in terms of its "virtual" development capabilities. Moreover, thanks to its specific features the "territory creates irreversibilities"; irreversibilities that generate a cost for the players who leave it, either deliberately or by constraint (Colletis and Pecqueur [1992]).

But the mere existence of such specific and non-material resources is not sufficient to dynamise the production system. Of the localised production systems that have had problems in recent years, many possessed, for example, some important know-how. However, their milieux proved incapable of promoting or using it due to social or organisational barriers, attitudes of rejection or simply a lack of imagination.

In fact, when the milieu is innovative, it is capable of identifying and devising new projects, mobilising or renewing know-how or, more generally, its specific resources, in relation to the opportunities appearing in the technological and market environment (Maillat [1995]).

This phenomenon has been studied by Crevoisier [1993], who shows that in an innovative milieu the innovation process takes place in two stages. Firstly, idea-forming, during which one or several players consider their own resources and those they can mobilise in their vicinity. These perceived resources are then implemented with the opportunities that emerge in the environment. For example, small machine-tool manufacturers, considering their know-how and equipment and perceiving the development of electronics and information technology, will perhaps devise a project that will use these new technologies in such a way as to make better use of, or to develop, their own resources. Secondly, the execution phase, which consists of developing the know-how necessary to execute the project and subsequently or simultaneously, transforming the material and organisational reality. However, this second phase places the players concerned in a new situation. They have developed new forms of know-how and new resources and have built new production capacities. This opens up new opportunities for innovative projects since it is true that most innovative projects give rise to others involving more or less the same players. Thus thanks to innovative milieux autonomous sequences of innovative processes are created based on the specific resources that they mobilise or that they help collectively to create or renew.

2.3 The innovative milieu and innovation networks

In localised production systems actuated by innovative milieux, innovation is rarely due to only one player. Innovation is a collective process that implies a set of formal and informal relations. In actual fact, the players have to form innovation networks to manage the complexity of the innovation process and the constraints they face in their innovation process.

An innovation network is defined as a coordinated set of heterogeneous but professional players (public laboratories, technical research centres, companies, etc.) who participate collectively in the design, development, production and dissemination of production processes, goods and services, some of which give rise to a commercial transaction. It presupposes the existence of direct and non-hierarchical links between all elements that make it up (Maillat, Quévit and Senn [1993]). These networks are thus set up between players who individually do not have the resources necessary for innovation. This cooperation strategy, which is often organised durably, allows for both an improvement in creativity and a reduction in the risks and costs inherent to the innovation process (Maillat, Crevoisier and Lecoq [1994]).

Innovation networks thus defined differ from those widely studied in industrial economics and which relate to the strategic agreements

that are generally made by large multinational companies. The aim of these collaboration agreements is to solve a particular problem that is clearly identified at the outset. The company knows what it expects of this collaboration and consequently the partners' services can be checked up on. Planque [1991] talks of monofunctional networks. Here we refer to other types of innovation networks whose purpose is not as clearly defined and which involve more uncertainty. The latter can relate to technical feasibility, manufacturing methods, product marketing... or to several of these factors. In these cases the partners commit themselves to a multifunctional process, the costs and benefits of which cannot be evaluated a priori for each of them. The partners undertake to develop together a product or a technology without being sure of success. These multifunctional networks proceed by trial and error and successive realignment of the project. It is therefore crucial to be able to commit oneself with partners one trusts who will do their best to produce results.

These innovation networks, whose characteristic is that they rely on a set of pre-existing professional and personal relationships (relational capital), need a special framework to be formed. The innovative milieu is actually the appropriate context for their formation, development and vitality because the similarity of representational systems not only permits better communication between the players but facilitates a similar approach to the problems. By facilitating identification of the partners, the innovative milieu fosters the formation of innovation networks by providing additional skills and resources and by forming an implicit contractual framework. It acts as an intermediation instrument that enables the players to conceive of and devise their joint projects (Maillat, Quévit and Senn [1993]).

2.4 The innovative milieu and evolution trajectories of localised production systems

When addressing the role played by the innovative milieu in the creation of specific resources or in the emergence of innovation networks capable of dynamising the localised production system, it is accepted that the latter's techno-productive organisation is continuously transformed in order to remain competitive.

Two cases are generally mentioned: that of local systems in which the predominant innovations are based on acquisition of outside technologies by purchasing machinery, patents or licenses, which enables them to valorise their technical know-how and that of local systems having an innovation capability based on the development of specific technologies and which have enriched the technical know-how accumulated locally with new skills (Peyrache-Gadeau [1995]).

But in the long term it cannot be safely assumed that this ability to change will be maintained on a durable basis. At a given point in their history, localised production systems face adaptational difficulties that compel them to change or disappear. Indeed, when attention is focused on crucial moments in the history of localised production systems, marked by the appearance of disagreements or breaks in their internal organisation (or of a mismatch with their technological or market environment), the problem arises of the conditions for their conversion to another status of organisation. In view of this, how should the problem of structural changes of localised production systems be addressed?

In general, structural change is expressed by the transition from one techno-productive organisation to another. This transition is interpreted by referring to two principal theories: the evolutionist theory and the technological creation theory. The first offers interpretations of the evolution trajectories of localised production systems; the second concerns itself with the processes by which technology is formed. One places the emphasis on the transition from one organisational paradigm to another (from Fordian to flexible production, for example), the other on the origin of innovation processes.

In fact, there are a plurality of expressions of structural transformations and therefore a plurality of evolution trajectories of localised production systems, which depend mainly on the way in which their internal relationships and their relationships with the outside world are organised. But the origin of structural change is difficult to identify. In some territorial contexts, change expresses the ability of the local system to respond to a crisis situation that radically calls into question previous coherences. Whereas in other territorial contexts, change corresponds to an evolutive process that can be characterised as a complexification of the local system (Peyrache-Gadeau [1995]).

On the other hand, what can be stressed is the role of the interaction logic and the learning dynamics of the innovative milieu during the process of transformation of the techno-productive mode of organisation. The role of the interaction logic, based on the mobilisation of the relational capital during the process of change, is to re-create a new cohesion centred on the techno-productive organisation. The whole question is to know whether the milieu succeeds in mobilising the players behind the transformations so that they establish new forms of cooperation and solidarity. The way in which leading players are appreciated is determinant in re-creating new collective dynamics and new forms of internal and external coordination (partnerships) (Maillat *et al.* [1995]).

As for the learning dynamics, it helps to steer the various sequences of change by processes of incubation, capture and dissemination of the new resources necessary for structural change. Its role is to combine the

endogenous and the exogenous (that is, internal and external impulses) and to make the accumulated virtual resources operational or to identify them in the environment.

Essentially, the role of the innovative milieu is to use the tensions that are manifested during the process of change to guide the localised production system attached to it towards a new state in which the territorial logic continues to manifest itself. If it is not successful, the localised production system disappears or territorial logic gives way to functional logic.

3 Conclusion

Contemporary analysis has identified concepts that we think are relevant for interpreting and understanding the functioning and, to a certain extent, the evolution and transformations of territorialised productive organisations. If it is accepted that production is a situated phenomenon, then we need analytical concepts and instruments that are capable of explaining it. We feel that the concepts of localised production system, milieu and innovative milieu are adequate. The concept of localised production system, based on the techno-productive interdependencies linking the companies in a geographical zone, enables us to grasp the organisation and explain the nature of the externalities generated by proximity. The concept of milieu (attached to the localised production system) enables us to differentiate the territorial logic from the functional logic and to rehabilitate it. The milieu is regarded as the pilot of the localised production system since it sets the rules and standards governing the behaviour of the system's players. The concept of innovative milieu emphasises both phenomena (interaction logic and learning dynamics), the presence and action of which are essential for implementing territorialised innovation processes that enable the production system to evolve or to transform itself to cope with the changes and demands made by the technological and market environment.

In the course of time localised production systems, milieux or innovative milieux obviously evolve, change or even disappear. They are subject to continual tensions originating both in their external environment (markets, technology) and in internal changes (role of leader agents, adoption of new technologies, discovery of new markets, emergence of new institutions) or changes in techno-organisational paradigms. This certainly does not mean that localised production systems evolve according to a life cycle "during which the local system would face, successively, periods of development, maturity or even ageing that may lead to its demise", but rather that they are subject to alternating phases of crisis and conversion (Peyrache-Gadeau [1995]).

The way in which they adapt by maintaining a territorial logic is connected with the milieu's ability to become innovative. Thus an approach in terms of innovative milieu enables one to detect the mechanisms that can help to get localised production systems out of a crisis situation and to regain a new cohesion (Saxenian [1994], D'Arcy and Guissani [1996], Maillat [1997]). Of course, several evolution and transformation trajectories are possible. The approach in terms of innovative milieu is by no means deterministic. But it is obvious that localised production systems (organised according to a territorial logic) survive only if the milieu attached to them is capable of conducting the change and formulating new projects. The aim therefore is that processes of territorial innovation may be implemented by an internal dynamics, by capture outside the territory or by a combination of both. Now innovative milieux are not stable systems or systems endowed with constant dynamics. They must renew their innovation capacities. They succeed if in the course of time they have managed to maintain interaction logic and learning dynamics. These two mechanisms offer the guarantee that innovation will spread in the system (and will not be initiated or captured by an isolated agent) and that the territorial logic can be sustained.

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