

GLOBAL SPACE VERSUS LOCAL SPACE. A SYSTEMIC PERSPECTIVE ON LOCAL DEVELOPMENT

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1. A NARRATIVE ABOUT COMPLEXITY

The profound changes in the world economy in the last few decades have brought 'new' economic geographies to the forefront: in the Third World, as a consequence of the displacement of considerable segments of production, as well as in the peripheries of North America and Western Europe. Alongside these significant shifts, the developed world has seen the emergence of numerous new industrial spaces, the expression of both the consolidation of high tech areas (such as Silicon Valley or Route 128), and the revitalisation of areas with a manufacturing tradition (Third Italy, Denmark, Baden-Württemberg). The rise of the 'world cities', around which intense interdisciplinary debate has developed, is part of this process.

These phenomena, accompanied by the weakening of the old industrial cores which had expressed and sustained the mass production system, cannot be isolated from a dual and dialectical process, which Ann Markusen defines as the paradox of "sticky places within slippery spaces" (Markusen, 1996): on the one hand, the hypermobility of financial capital and technology; on the other hand, the strength of the clustering (agglomeration) of industries and companies.

This is not the place to debate whether this is *not* a paradox but a real phenomenon. The duality between deterritorialising and territorialising forces is a question that the economic sciences and geography have examined at length: significant contributions have been made recently by geographers, and also by political economists, sociologists and international business scholars (Becattini and Rullani, 1993; Granovetter and Swedberg, 1992; Enright, 1998; Dunning, 1998; Storper, 1995; Veltz, 1996; Gilly and Torre, 2000; Hudson, 2001, to cite just a few).

The debate, as is well known, has seen two main contrasting discourses that deal with globalisation. According to the first, the processes in question are echoed in an increasingly placeless economy, where the economic development process "is passing from territorial institutions such as states to deterritorialised institutions such as intrafirm international hierarchies" that are said to be gaining on territorial barriers, specificity, and frictions (Storper, 1997, p. 19). In the second case, instead, the fact is stressed that economic development is combined with continuing specificity in development patterns. Accordingly, faced with the liberalisation of both internal and cross-border markets and of growing globalization of asset-exploiting activities of multinational enterprises, the further concentration of economic activities in dynamic agglomerative regions represents a fundamental feature of the new world economic map, against which regional authorities and practitioners must measure themselves (Dunning, 2000; Saxenian, 1994).

In the attempt to interpret these phenomena, the rigid dichotomy between deterritorialisation and territorialisation (i.e. between locational substitutability and locational constraints), as well as the reduction of the economic dynamic to global-local dualism, appear to be evident simplifications that do not embrace the intrinsic complexity of contemporary economic and social dynamics and the radical questioning of geographical scales of action and representation. There are other questions on the agenda: the quality and features of the process which, whatever its real (global) diffusion, is characterised by the formation of networks of economic power at the different spatial levels, in which one central aspect is the ability to co-ordinate industrial, financial, technological and information flows via corporate organisations.

It is no chance that one of the fundamental terms in contemporary economic and social research is *local development*, a synthetic concept that underlies a multitude of other terms around which there has been heated debate, such as industrial districts (Sabel, 1989; Pyke, Becattini and Sengenberger, 1990), industrial clusters (Porter, 1990), learning regions (Florida, 1995; Maskell et al., 1998), innovative milieu (Aydalot, 1986; Maillat and Perrin, 1992), local production systems (Abdelmalki and Courlet, 1996; Pecqueur, 2000), 'regional motors' and so on.

The concept of *local development* implies something that is both truly complex and at the same time fuzzy: against the background of growing awareness of the incapacity of the traditional models of analysis of regional development, the aim is to give meaning to the central role in contemporary

development processes of an *intermediate entity* between the actor (the company, in particular) and the system as a whole, with respect to which the local system expresses both a space for co-operation between actors and their embeddedness in a given territorial context, from which they draw specific competitive and not easily reproducible resources and solutions.

The arguments expressed here follow an explicitly systemic perspective, in particular that of *complex systems*, which will gradually be developed as we proceed¹.

One *condition of complexity* – and this needs to be recalled here, even if briefly – lies in the acknowledgement that reality cannot be reduced to the methods of simplification typical of orthodox modern economic and social science, where reality was broken down into *simple components*, easier to study and understand. With the theories of complexity, attention is now shifted to more complex mechanisms of interaction between elements. In particular, it is maintained that the unpredictability of the system stems from precisely the fact that the sub-systems interact with each other through different types of relations and that they cannot therefore be analysed separately.

An assumption of this kind carries with it an important consequence on the epistemological level. With the assertion of the idea of a multidimensional reality, i.e. made up of a plurality, if not an infinity, of relations and dimensions, this very reality cannot envisage complete explanation. It follows that the observer, not dissociated from its own culture and its cognitive - and political - project, thus comes back into the scientific discourse irremediably. If reality is multidimensional, every interpretation of it will therefore be a point of view in a single process of understanding phenomena which, to be understood, must be observed in their many facets.

Faced with a reasoning so pregnant with meaning, it will be necessary to find a common thread, to distinguish at least *four axes* around which the narrative will hinge, that correspond to four approaches in which the tale can be developed, different angles from which the subject of observation can be viewed. With the failure of the axiom of scientific truth and the breakdown of knowledge into separate fields, each narrative recognises languages that are not mutually exclusive, but are, in contrast, part of a single cognitive project.

The subject of the first is an interpretation of the processes of transformation of the contemporary economy, and refers to the processes of ‘adaptation’ of actors and places to the system’s ‘new’ organisational rationales (*praxeological level*). The key players in this are the actors and networks, both at the global and local level, in other words a language that enables the representation of a complex object made up of two fundamental primitives, elements and relations.

On a second level, a judgement will be given of the phenomena examined. Assuming the respective qualities of the systems observed, various categories of thought, both interpretative and descriptive, derived from the language of different disciplines and cognitive tools will be applied. This will make it possible to redefine some fundamental organisational logics of the contemporary economy through the differences from those that preceded it (*axiological level*), which are contextualised in relational systems and in the local dimension of development.

Thirdly, we will try to exclude the purely descriptive elements to bring to the forefront the dynamic properties of the single system, in both elements and connections (*epistemological level*). To do this, it will be necessary to refer to some heterodox frameworks (the evolutionary and the institutional perspectives), without which it would be difficult to inscribe the dynamic of a complex system in its historical and political dimension.

Finally, we will return to praxis, evaluating the implications of the reasoning made in terms of actions and governance of development policies and competitiveness, in other words the definition of policies and politics for local development (*nomothetic level*).

¹ It is obviously not possible here to take into consideration the paradigmatic shift towards a condition of complexity and the consequent condemnation of the ‘science of the simple’ typical of the Cartesian tradition. Without any claim to being comprehensive, we limit ourselves to recalling the fundamental works by Le Moigne (1992 and 1994), Mirowski (1988), Morin (1977), Simon (1981), Waldrop (1992), von Foerster (1982).

This division in four axes, which we have summarised here to put a minimum of order in the reasoning, does not deny the existence of relations and affinities between these four levels of the narrative, as is appropriate when faced with an object that possesses the features of complexity. Simply, we want to state that between them there is no rigorous implication: if a succession exists between the themes, the first does not cancel the autonomy of the one that precedes it nor does it constitute a decisive support to develop the one that follows.

2. A CHANGING CONTEXT FOR TERRITORIES

Perhaps the main drive to create a truly broad corpus of research starts from the consideration that classical Fordism no longer represents the dominant paradigm of socio-economic co-ordination, and reasons need to be found to explain emerging processes and configurations, i.e. the *new relevant unit of analysis* that serves as the basis to understand economic change in a world characterised by information flows, knowledge, competence and capabilities, and the community of practices. The rationale is the rediscovery of *external relations* (and thus of agglomeration) as a factor of co-operation and collective learning.

The analysis that follows necessarily owes a debt to a debate that has radically modified in recent years the interpretation of the world of the economy and production, making possible a different reading of the relations between territory and the economy. For this reason, it is necessary to introduce briefly a set of interpretations, identifying some major areas of reflection destined to have a profound impact on the paradigm of economic and social analysis: the relational turn, the cultural turn, the evolutionary turn and the institutional turn. This is a partial and subjective choice whose objective is certainly not to give a comprehensive explanation of the debate in course, but rather to identify the themes which we will refer to most frequently in the course of our reasoning.

2.1 The relational turn: changing worlds of production and consumption

Capitalism would thus appear to have entered a new age characterised by knowledge creation and continuous learning. This knowledge-intensive capitalism marks, in general, the clear-cut transition from the previous Fordist system or Tayloristic scientific management, in which manual work was the main source of value and productivity (see, for example, Miller, 1996).

This is certainly not the place to put together the pieces of a jigsaw already sufficiently well known (Gordon, 1988; Hirst and Thompson, 1996; Howells and Wood, 1993), but it is necessary to understand some fundamental features which, on both the conceptual and methodological levels, open up the road for our reasoning. We will limit ourselves to reviewing some essential traits.

- The main actor in the processes of transformation of the globalised contemporary economy is obviously the *corporation*, whose strategic behaviour shows significant changes with respect to the middle decades of last century. Phenomena such as the decentralisation of production, the vertical disintegration of production cycles, the establishment of a varied range of non-competitive agreements between different companies have been described not as contingent phenomena limited to single sectors or countries, but as profound and irreversible changes in contemporary industrial organisation. The operating context of companies (and especially large companies) has, thus, tended to identify itself increasingly with the world economy. This means that the frame of reference of economic behaviour is more and more a *varied* (in space) and *variable* (in time) set of resources, markets, and technological knowledge, less and less restricted by national and continental borders.

In the contemporary knowledge economy, in fact, what is crucial is not so much the speed of development and the dissemination of new scientific solutions as the *pluralistic and diffusive*

way (in many countries and research centres) the innovative process occurs. Companies are therefore forced to be present in many contexts, i.e. extending the range of locational choices. In other words, in general, no company is allowed to be self-sufficient, given the problem posed by complexity. On the contrary, each company must give itself a different and flexible organisation that allows it to turn to external resources, attempting to both strengthen its global position and its embeddedness in specific regional and national contexts. The consequence is the formation of networks of global linkages, from ownership to alliances, production partnerships and various other collaborative manoeuvres aimed at organising externality, i.e. the relations with other companies and different socio-economic environments, which can no longer be mastered through the usual form of expansion in size (Håkanson, 1989, Alvstam, 1995). In evident contrast to the orthodox economic explanation, the reference is no longer to the companies as organisations governing the economy, but to the *formative processes* of the companies themselves which derive from collective behaviour (network, in essence) expressed both inside and outside the market, through the emergence of 'untraded interdependencies' (Storper, 1995).

- A second framework concerns *market dynamics*. If numerous examples suggest that the trend towards globalisation can be understood in terms of standardisation of needs and the tendency to develop uniform products in the various segments of the market (as was found in the Fordist logic) (Donaghu and Barff, 1990), it is nonetheless evident that the development of global markets leads to a rise in the quality of needs, variety and variability of the products requested. In fact, the relations between production and consumption have gradually changed in recent decades: companies no longer design and manufacture their products independently of the outlet markets. Success in the market demands specialisation and adaptation (customisation, in a word) of production to the needs of different customers and different markets (Best, 1990).
- In these conditions, the problem of *competitiveness* assumes significantly new connotations, with a major effect on the territorial dimension. It is a well-known reality that many companies operating in high labour cost countries, have responded to growing ubiquity and the relative reduction in the cost of production factors, generating entrepreneurial revenues through the *creation of knowledge*. Above all in the industrialized countries with high production costs (especially labour), the problem of competitiveness depends increasingly on the capacity to create, accumulate and utilize knowledge more rapidly than competitors. This is the *creation of knowledge* (deliberate, strongly path-dependent on company and local practices and routines) and not knowledge itself (transferable in codified form) that represents the *great new location factor*, the source of competitive advantage in the contemporary globalized economy (Maskell, 1998).

This accompanies a reality which can disconcert traditional economic theory: the growing degree to which the different regions and countries manufacture different products, through processes and instruments that are themselves very different. It is a statistical fact that *international product specialization* has grown consistently in recent years (Fageberg, 1992), above all in the economies of the industrialized world. This means that the growing specialization of the national and regional economies is no longer dependent on economies of scale in production - and thus on competitiveness/price ratio - but on the nature of the products put on the market, on the know-how to make these products, on the type of needs that they satisfy, and on the capacity to make the products themselves evolve continuously while preserving their originality (Salais and Storper, 1993).

- What has been upheld so far has its own litmus test. Globalization (the formation of global company networks) weakens the economic sovereignty of the nation states and thus strengthens regional specialization in competitive activities.

For the region, the challenge is thus of an *organisational nature*, involving the actors and their rationale of action and communication. This is an aspect whose importance is on a par with that of the inability of traditional (and still dominant) economic theory to incorporate the actors' rationale of action, as this cannot be grasped by separating the economic dimension from other

dimensions, which are historically and territorially specific: if a solution exists, it has to be sought inside the region itself, in other words in the capacity for *co-ordination* between producers, consumers, institutions and other local actors. In their turn, the regions bind themselves to the global economy by promoting their own specialization. This explains the diffusion of political strategies and choices (often neo-mercantile) aimed at promoting and strengthening the systems - or *clusters* - present, i.e. the groups of actors and activities connected to each other and therefore generators of economic value².

2.2 The cultural turn: economy *and* culture

It is well known how the reasonings proposed hinge on the rediscovery of the Marshallian theses of the *industrial district*: in other words, a system whose formation depends on a long-term path based on a *process of collective learning* handed down from generation to generation, which is the origin of 'organisational quasi-rents', i.e. industrial atmosphere.

This part of Marshallian analysis had been forgotten for several decades. In the economic mainstream of most of the 20th century, in fact, the economic system was assigned the task of merely economising transaction costs, ignoring the *relational aspects* of an organisation. Its rediscovery in the seventies inaugurated substantial analysis aimed at identifying the resources and conditions external to the firm involved in creating competitive advantage. Strictly speaking, these resources are not necessarily found in the local context in which the company operates; however, just as Marshall stated, geographical proximity would make it possible to combine *economic externalities* (mercantile ones, to simplify) and *socio-cultural externalities* (or non mercantile, technological ones). The former, of an *intentional nature*, are expressed through the market (or juridical-legal system), and influence the *price* of factors; the latter, in that they are *non intentional*, are expressed through non-mercantile relations. As they have an impact on the *effectiveness* of the factors, the latter help to create, as de Vet (1993) argues, the institutional capacity to attract and animate competitive advantage, often by the promotion of cooperative practices among economic actors, that gives regions a strong conceptual and real identity.

Regional analysis and, in part, economic and business analysis in the last twenty years, although following different paths and using different languages, is, in effect, profoundly indebted to Marshall's intuitions, and is an explicit development of them. It is characterised by a fundamentally *plural* language and in this light the contribution in terms of method has turned out to be significant: the discourse on local development can not be expressed by referring exclusively to a particular scientific language, such as that of economics, linguistics, sociology or geography. While it is difficult to separate languages and multifaceted concepts that overlap each other in the various theoretical proposals, for our purpose it is necessary to pause briefly on each of them, which we can synthesise together thanks to their *shared attention for the cultural dimensions of economic processes*.

- With the recovery of the Marshallian position (Becattini, 1979 and 2000; Piore and Sabel, 1989), to which regulation theory and the new institutional sociology have added new blood (with the emphasis on embeddedness), a debate has opened up solidly based on the *social characteristics* of territorialised production systems, on *civicness* (interpreted as associative thickness of participation in local community political life) (Putnam, 1993) and on the idea of *social capital* (a stock of collective values and behaviour expressed by a given community) (Coleman, 1990; Bagnasco, 1999) as a fundamental ingredient of development and modernisation.

² As is well known, a cluster does not consist purely in interfirm links within a particular industry, but also with related industries, knowledge centres, innovation support agencies, educational facilities etc. embedded in a wide and deep network, which may share some 'economies of scope' and achieve, in this way, new market strategies.

Territorial *embeddedness* of the actors can foster competitiveness in the local system, embedding habits, conventions and norms of behaviour, through a phenomenon facilitated by geographical proximity (Granovetter, 1985; Grabher, 1993; Pecqueur, 2000) which, transcending the traditional customer/supplier relations, comprise formal and informal networks of collaboration, interactions through local labour markets, and shaped conventions and rules for developing relations and enterprise knowledge.

- A second significant area of research has extended the neo-Marshallian theses to the interpretation of the phenomena of territorialisation of innovative processes, also drawing inspiration from evolutionary economic theory and the Schumpeterian approach to innovation. The concept of *innovative milieu*, supposed to act as an incubator for innovation, is explicitly defined as the dynamic version of Marshallian external economies, where *collective learning* depends on networks of synergy-producing inter-relations in conditions of geographical proximity (Camagni, 1991; Crevoisier and Camagni, 2000; Maillat and Perrin, 1992; Ratti et al., 1997).

Within the milieu, innovation is facilitated by building trust relationships between local collaborators (thus recovering the theses of embeddedness), a *collective mechanism* for knowledge transmission and learning that should lead to the *uncertainty-reducing* typical of an innovative process³ (Keeble and Wilkinson, 1999, p. 298).

- The introduction of these sets of concepts would not, however, have been feasible without the specific recognition of the importance of *culture* in the economy (the basis, in its turn, of trust and collaboration), expressed in attitudes and behaviours and, as such, embodied in institutions and forms of mediating factors in the policy process (Berger, 1987; Rasmussen and Rauner, 1996). The extension of these arguments to the level of (local) social dynamics has enabled, as is well known, a more complete systematisation of the complex dialectic between competition and collaboration. The latter, identified as a key feature of a competitively advantaged cluster (Enright, 1996) implies 'close-knit' sociocultural links, in addition, obviously, to willingness to cooperate.
- In terms of sociological research, a non-negligible part of the recent debate has hinged around the concept of *community*, on which the neo-Marshallian theses on the industrial district have also drawn, in the attempt to free themselves of nostalgic and regressive visions. In contrast to the traditional idea, the territory – a collective entity that brings with it the legacy of its own history – is now interpreted in terms of a *voluntary* construction, the expression of the conscious action of the actors (Berdoulay and Enrikin, 1998): this constitutes, on the one hand, the presupposition of the co-existence of actors and, on the other, acquires, in the course of the action, its own autonomy and specificity (Bagnasco, 1999; Cox and Mair, 1991).

2.3 The evolutionary turn: evolution, systems, and innovation

The story is sufficiently well known: the proposal pivots round the seminal works of Nelson (1993), of an essentially empirical nature; of Lundvall (1992), more theoretically oriented; and of Carlsson (1995), who summarises both an institutional/organisational framework, and a cognitive/cultural approach.

The perspective is explicitly *evolutionary*. Acknowledging that the company does not operate in isolation, but interacts to varying degrees with other organisations, it follows that innovation and change are not determined only by the elements in the system, but also by the relations that are established between them. Consequently, in order to describe a system it is not enough to just enumerate its elements, but also to consider the relations between a complex of elements or components, which mutually work together, with some reasonably clearly defined overall functions.

³ This is achieved, in particular, through: a) gathering and selection through informal discussion between firms, b) transcoding of new information, c) managerial mobility and co-operative decision-making through local associations, d) informal co-ordination through interpersonal linkages, families, clubs and associations (Lawson, 1997).

It is evident that innovation is not a linear process but a *reticular* one :

Innovation by no means follows a 'linear' path from basic research to applied research and further to the development and implementation of new processes and new products. Instead, it is characterized by complicated feedback mechanisms and interactive relations involving science, technology, learning, production, policy, and demand.

Innovation processes occur over time and are influenced by many factors. Because of this complexity, firms almost never innovate in isolation. In the pursuit of innovation they interact with other organizations to gain, develop, and exchange various kinds of knowledge, information and other resources. These *organizations* may be other firms (suppliers, customers, competitors) but also universities, research institutes, investment banks, schools, government ministries etc. [...] therefore it does not make sense to regard innovating firms as isolated, individual decision-making units. (Edquist, 1997, pp. 1-2).

The approach is therefore *holistic* and innovation appears, in turn, as a cumulative and path-dependent process: small events are, in fact, reinforced and become crucially important through positive feedback. This leads us to deduce the fundamental feature of the framework proposed: an innovative system is understood in terms of *process*, and therefore of learning or, more correctly, of *interactive learning* (Nelson, 1995; Nelson and Winter, 1977).

The turning point is the distinction between information and knowledge. Information, on the one hand, can be easily codified and has a singular meaning and interpretation. Knowledge, particularly new knowledge, on the other hand, is often vague, difficult to codify, depending largely on the presence of factors that facilitate interpersonal contacts between actors, i.e. components (as explained earlier) such as trust, personal acquaintanceship, sharing of values and skills. Attentive readers will recall that the presence and development of these factors are 'geographically sensitive', in the sense that they depend very much on the regularity and constancy of relations that are developed more easily on the local scale (Becattini and Rullani, 1993; Magnaghi, 2000).

The learning dynamics, in which tacit knowledge and codified knowledge are combined, possesses a local dimension not only because the local system transforms the codified knowledge generated outside its borders into knowledge that can be used for local production, but also because it transforms contextual (or tacit) knowledge into codified knowledge, i.e. transforming local factors into competitive advantage⁴. At the same time, in local networks, tacit knowledge becomes collective through a process of *socialisation*, through forms of collective learning that increase personal capacities through interpersonal relations (Salais and Storper, 1993).

On these bases, over recent years, much has been written on the *ideal scale* for the identification of a technological system, from the national one (Freeman, 1995; Lundvall, 1992; Nelson, 1993) to the regional and local one (Saxenian, 1994; Braczyk, Cooke and Heidenreich, 1998; de la Mothe and Paquet, 1998; Asheim and Dunford, 1997; Simmie, 2001), without managing to resolve the problem of the scale of reference. Let's see what Carlsson and Stankiewicz say on this:

the nation-state constitutes a natural boundary of many technological systems. Sometimes, however, it may make sense to talk about a regional or local technological system ... In yet other cases, the technological systems are international, even global. Where the boundaries are drawn depends on the circumstances, e.g., the technological and market requirements, the capabilities of various agents, the degree of interdependence among agents, etc. (Carlsson and Stankiewicz, 1995, quoted by Edquist, 1997).

¹⁰ The largely tacit nature of much of the knowledge underlying a regional capability, which makes imitation difficult. This point has been clearly enunciated by Maskell and Malmberg (1999), for example, who observe that in the current context, where the rapid diffusion of new information technologies has eased the world-wide transfer of codified knowledge, tacit knowledge, which is difficult to transfer in the absence of face-to-face contacts, arguably becomes a more important source of regional or local competitive advantage (See, for example, Foss, 1996).

It is no surprise, therefore, how problematic it can seem to identify the boundaries of a single model of system of innovation (Lundvall, 1992, p. 13). In line with the theoretical perspective briefly illustrated, there is neither consensus nor certainty about the many systemic dimensions, both as far as the elements are concerned, and for the relations between the system's elements.

In this light, the approach in evolutionary terms possesses an essentially (and quite fertile) methodological value, presenting itself as a conceptual framework characterised by a rather uninhibited formulation of conjectures and *not* as a formal theory. From this, it is possible to draw at least two considerations on method, in themselves quite simple and related to each other, which are worth restating in conclusion:

- a) The first concerns the assumption according to which it is not possible to identify a single system of innovation, but that each one is, on the contrary, distinctive and *essentially sui generis*;
- b) Secondly, an ethics is introduced into economic thinking according to which it is not possible to achieve full representation of the reality observed. This implies, in practice, the assumption of a *condition of complexity*, in other words the impossibility, when faced with an object made of many elements and relations, to reach a complete interpretation of the system observed.

2.4 The institutional turn: on economic institutionalism

The proposal of evolutionary economics integrates and, at the same time, is *not* separable from the institutionalist perspective, which also opposes oversimplification of orthodox economics, assuming an evolutive vision in which relations are not organised according to the universal principles of marginalist and neo-classical economics.

The conceptual framework is, indeed, vague. Despite the fact that growing attention has been paid in recent years to institutions in the functioning and change of economic systems, the various authors do not attribute the same meaning to the terms institutions. To illustrate the ambiguity of the concept, the following quotation is extremely explicit:

For several authors, an organisation is an institution [...] or an institutional arrangement [...], while for others its contractual nature is such that it is nothing but another form of market activity [...] Reciprocally, markets have been considered as specific organizational forms [...] as well as institutions [...], and a market economy defined as 'one large organisation'. (Ménard, 1990, quoted by Edquist and Johnson, 1997, p. 41)

In practice, institutional economists (in reality a vast movement that only by simplifying could be called institutionalism) usually adopt a 'sociological' meaning of institutions, including in it routines, morals, shared expectations etc., in addition, naturally, to the market and companies (Nelson and Winter, 1982; Hodgson, 1993 and 1999).

It is important, therefore, to unravel the conceptual ambiguity (which will later reveal itself to be of fundamental importance), distinguishing between:

- a) *organisations*, i.e. formal structures of co-ordination between agents (*organisms*) and roles for production purposes which, as argue Kirat and Lung, "define the frame of a particular structure, binding agents participating in a finalised activity" (Kirat and Lung, 1994, p. 211). From this point of view, the organisation (in addition to organisational innovation) is an important source of the system's productivity and competitiveness; and
- b) *institutions*, i.e. 'things that pattern behaviour', such as norms, rules and laws that facilitate co-ordination but do *not* influence it directly. More in general, they provide the rules of the social game to guide the behaviour of individual agents in a given context. They are expressed,

therefore, in varied forms, from legal rules to moral standards, from social conventions to cultural tradition.

Institutions are therefore *different* from organisations, in that they act *upstream* from co-ordination. In other words, they represent “a common space of representation, rules of action and models of thought and action” which the agents accept (Bellet et al., 1998, p. 7). It follows that one obtains

an understanding of the economy as something more than a collection of atomised firms and markets driven by rational preferences and a standard set of rules. Instead the economy emerges as a composition of collective influences which shapes individual action and as a diversified and path-dependent entity moulded by inherited cultural and socio-institutional influences. (Amin, 1999, pp. 367-368).

In other terms, the institutions are the way of organising relations around which there is a social consensus and whose value does not finish with the single relation but offer the basis for later organising other relations. Institutions can, moreover, assume many forms and contents. First of all, they can be either formal (for example, a contract) or informal (for example, habits and customs). Other institutions can be both formal and informal. Think of business ethics. The imperative that “business must be conducted ethically” is undoubtedly an institution, in that it contains a statement that regulates the organisation of economic relations. It can also take on a formal status (through the definition of legal norms that regulate competition and even through the creation of a body responsible for this) just as it can be informal through the social condemnation of the entrepreneur that acts improperly (Johannisson et al., 1994).

2. “LIKELY” STORIES : NODES AND NETWORKS

In the light of this picture, it would seem there are no longer doubts about the fact that in the contemporary economy *competitiveness* goes beyond the limited frame of the single company and affects a set of *relations*, both inside the single company, and above all between different agents. It follows that the relations that determine competitiveness are increasingly external instead of being managed inside the company. This corresponds to an *effective increase in the complexity of the economy and production*. If this is true – and it is true – competitive advantage stems from the organisation of these relations largely transcending individual actions and behaviour.

The means for representing this set of relations, echoed in a more closely connected, more segmented and polycentric economy is, as is well known, the *network*, of which much has been said in recent years, even reaching the point of proposing – and not always coherently – an unlikely new paradigm (Castells, 1996; Cooke and Morgan, 1993; Simmie, 2001; Storper and Harrison, 1991).

Reasoning in terms of networks does effectively have significant implications. In the ordered representations of traditional science, the economic system was conceived as an ‘organic totality’, a single system whose operating rules are valid in all places and at all times. The dynamics of development were thus identified by applying mechanical and linear categories (such as the heuristic one of core-periphery) which simplified and distorted reality. The world of economic orthodoxy and that of core-periphery and dominance-dependency gradients could in fact be represented ontologically in terms of areas (or fields, in the neo-Walrasian language), and thus of extension, delimitation and contiguity (i.e. a continuous space of a Euclidean type).

The ‘design’ of the network - or, perhaps better, a way of viewing a world of intrinsic complexity (Potts, 2000) – divided into nodes and connecting segments breaks away from the idea of the spatial continuity of phenomena and of the existence of a single order that regulates the organisation of *economic space*, to offer a more complex and realistic territorial organisation and ‘order’, which assumes the economic system as the sum of different systems.

It is exactly to render this complexity intelligible, as well as to describe and represent the relationships between the whole and the parts, that the concept of network has been resolutely affirmed. The network is assumed here as the representation of *social interactions between actors*, which by their nature can *not* be measurable or quantifiable, taking on a *metaphoric meaning* quite different from the conventional one in marginalist and neopositivistic frameworks.

This is a key methodological point: as the categories of simplicity (such as of ‘core’ and ‘periphery’) have faded away, the economic dynamic can thus be interpreted, synthetically, as a complex relation between the global and the local, understood as inseparable levels of a single process of territorialisation. These two geo-metaphorical expressions are now worth introducing briefly in order to avoid possible misunderstandings.

A series of generalisations already sufficiently well known can help us in the definition of the problem (Conti and Giaccaria, 1998). To this end, we assume as an initial approximation the *two possible levels* into which the system can be broken down.

- a) The concept of *global networks*, firstly, intends to represent agents that can no longer be interpreted as self-sufficient islands. A *globalisation* strategy is characterised by reciprocal exchanges within a polycentric system, in which each centre (or node) contributes *specific resources* constituted by production competencies or skills developed locally through learning processes. By combining the co-ordination of learning processes (representing in all senses a *capability*, in the sense widely discussed by Teece et al., 1997), thus becomes an important source of competitive advantage.
- b) The concept of *local networks* represents, consequently, a series of relations between agents self-contained in a given ‘place’, where by local we mean the *geographical scale* that enables the interactions typical of physical proximity (such as face-to-face relations, ones of reciprocity, trust etc.). However, this network can be explained not just in terms of mere geographical proximity, but thanks to embeddedness in a specific economic, social and cultural context. In this sense, embeddedness goes beyond the mere location of plants and assumes a complex set of relations specific to the place in which the activity is physically located.

We also assume that the concept of *global* does not have a dimensional character. It must not be thought of as ‘extended’ or ‘general’, but in relation to entities which distribute and interact with each other. The global system is therefore understood in a *relational sense* where its extension is not definable a priori, depending on the system of the relationships that occur between lower level (or local) systems. The global, in other words, is composed of characteristics of the systems it connects, modelling upon their specific configurations.

It follows that the *local*, in turn, is not a mere segment into which the world can be subdivided, but a ‘complex totality’, capable of autonomous behaviour. It is a world in itself, endowed with its own identity which distinguishes it from the environment and from other systems.

Within a framework of this type, the scales of description are neither separable nor can they be put into a hierarchy. It would not be possible, for example, to order them starting from the global or vice versa. On the contrary, these are part of a single system which includes, at various levels, a *dynamic of actors* operating both at a global level (for example, a global system of production units distributed in a worldwide space) and at a local level (each of these units is, in fact, also localised in one place or local system).

Seen in this light, the system evolves and expresses itself by way of a relational dynamic involving multiple *actors which act collectively, as well as individually*. This means that a local actor finds itself interacting globally, not only as a single and distinguishable economic unit, but in as much as it is an expression of a whole of territorialised relationships which involve multiple actors.

The local system is seen, essentially, as an aggregate of actors that in given circumstances can behave as a *collective actor*. The territory, in this sense, never creates networks directly, but favours the constitution of *relations between actors* which are socially closed. At the same time, the

networks of local relations interact with other territorial levels (and networks) *by way of the intermediation* of the actors belonging simultaneously to a local network and a supralocal (or, by definition, global) network. The local/global dialectic is thus represented in the *node/network form* (Conti and Giaccaria, 2001).

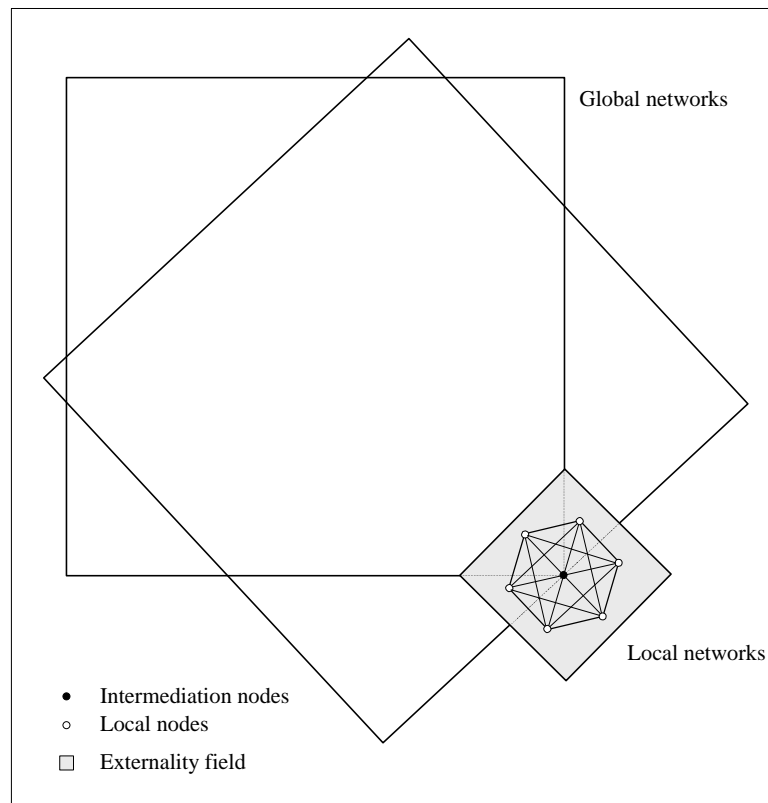


Figure 1 – Praxeology of local development

This representation of economic and social phenomenology is of a highly abstract level. It is however fundamental in order to give meaning to an idea of development no longer based on the assumption of one possible transformation process, but on the plurality and autonomy of different levels of action and organisation.

In terms of method, this illustrates a *state of complexity* which occurs, as has been recalled, when a situation can not be generalised using a priori theories but integrating the different dimensions of reality together. In this way, sense is given to the idea of the ‘multiplicity’ of possible development paths, which consequently do not represent the adaptation to the eternal laws of capitalism.

At the same time, the idea is assumed that resources external to the firm are increasingly involved in creating competitive advantage. This represents an explicit evolution of the idea according to which competencies and capabilities are firm-specific resources. They must instead incorporate several entities with which they *co-evolve*: other firms, networks, territories, of which the actors adopt certain aspects and share common characteristics (Conti, 1997; Grabher, 1993).

4. SEARCHING FOR THE LOCAL

What we have reached is a simplified, highly stylised representation. Nevertheless, it explains the transformations of the real world, in addition to going beyond simple and certain (and in the end,

deterministic) visions and representations. Let's say that, in a certain sense, a sort of *non orthodox geometry* of economic space has been outlined.

The mosaic of the contemporary economic world is a graph of nodes and relations, a network in other words, in which each node is a local context that in turn contains a network of actors (themselves co-evolutive nodes) which thanks to a set of relations contained in an *externality field* acquire a competitive economic advantage.

The problem is that these externalities have *not* been identified, nor has their scale and dynamic process of change been defined. We can thus conclude that we have assumed the complexity of the system, without having provided sufficient intelligibility. It is therefore necessary to set the idea of externalities into its foundations, defining what they actually mean, that is to find some criteria of identification.

For this reason, it is not possible to ignore the *non economic* components of actors' actions, as traditional thinking has done for decades⁵. In orthodox thinking, in fact, the economic system, as Coase (1937) noted, is assumed as co-ordinated exclusively by the price mechanism, as well as being characterised by the generalised insistence "on the deductive mode of explanation, including the unsustainable commitment to the 'whenever this then that' structure of 'laws'" (Lawson, 1997, p. 282).

4.1 Development in the plural

At this point, it is legitimate to provide two synthetic considerations. First of all, the idea is asserted according to which economic development is a *complex, socialised phenomenon of a long term nature*. Secondly, it is assumed that the external relations on which the competitiveness of companies increasingly depends are, generally, *spatially contained*. To establish collaboration between a company and a research centre, to exchange information between customer's and supplier's technicians, or to win high quality contracts, the relationship needs to have characteristics once neglected by economic analysis: trust, continuity, shared values, skills and languages etc. These characteristics may obviously depend on the location of the actors in the same territory. This is not a question of the importance of mere physical proximity which allows transaction costs to be reduced. Geographical proximity is significant if it constitutes a vital condition for the creation of a 'community' of economic and social actors based on local customs and values, on the continuity of personal relations, on acquaintanceship and trust. In this sense, competitiveness cannot be separated from *embeddedness* in a given territory (Gertler, 1993 and 1996)⁶.

These relations are not, in fact, immediately classifiable in the two traditional categories of *hierarchy and market*, but are characterised by being *heterarchical*, thus expressing the condition in which the network of actors is based on reputation, reciprocity, openness to learning (Cooke, 1995), transcending the strictly mercantile condition. Not developing in a vacuum, but in a historical, social and institutional *milieu* (Berque, 1990; Governa, 1997), they would give meaning to dimensions of economic action hidden in the years dominated by Fordism, contextualising the global evolution of the contemporary economy. In this way, it is possible to specify a set of theoretical and methodological instruments which have a more general value, and are thus applicable to the many diverse forms of the contemporary economy, from districts of small companies to the old centres of mass Ford-Tayloristic production.

⁵ Even recently, the so-called *geographical economics* has effectively given back centrality to many traditional components. Accordingly, the drastic reduction in transport costs, instead of encouraging the dispersion of production plants, means that the other factors of agglomeration are free to act (economies of scale and market externalities, the indivisibility of some 'public assets' such as infrastructures, services etc.) (Krugman, 1991 and 1995. See also Helpman and Krugman, 1985).

⁶ The consequence, as Amin and Thrift argue, is that "attention in the literature on industrial agglomerations has increasingly turned from 'economic' reasons for the growth of new industrial organisations, such as product specialisation and vertical disintegration of the division of labour, to 'social' and 'cultural' reasons such as intense levels of inter-firms collaboration; a strong sense of common industrial purpose; social consensus; extensive institutional support for local business; and structures encouraging innovation, skill formation, and the circulation of ideas" (Amin and Thrift, 1994, p. 12).

The use of the network metaphor leads us to complete our reasoning, making it possible to represent characteristics of local relations that could not be grasped otherwise, enabling the explanation of the territorial embeddedness of economic activities. The relations that we have talked of here do not, in fact, always and only materialise in market transactions or in the transmission of orders from one level to another of the hierarchy

This metaphor is fundamental precisely because it makes it possible to express the different dimensions of the local system identifying the *same organisational principle* (precisely that of the network). In the figure, the various dimensions of the system are represented through:

- a) *intermediation*, or supralocal, relations, which interpret the networks of actors which maintain relations both outside and inside the system, adapting the local resources to the external dynamic and vice versa (Emanuel, 1999). The strategic role of these actors is evident: they are responsible for the opening of the system towards the outside, through inputs (flows of capital, products and technologies) and reciprocal outputs.
- b) *heterarchical* relations, which, as we have seen above, express the properties of the system in its collaborative dimensions. These are established both between 'pure' local actors, i.e. those actors which devote their operations to the 'exclusive' reproduction of the local system, and to those between local intermediation actors;
- c) finally, *vertical* relations, interpreted by both the actors mentioned and specific to a milieu in which they are physically located, to which they turn both to feed on and to deposit the contents of production and trade. This implies that territorial resources are not only those given, but also those produced in the framework of the interactive processes between local and intermediation actors, but in any case belonging to the same local system.

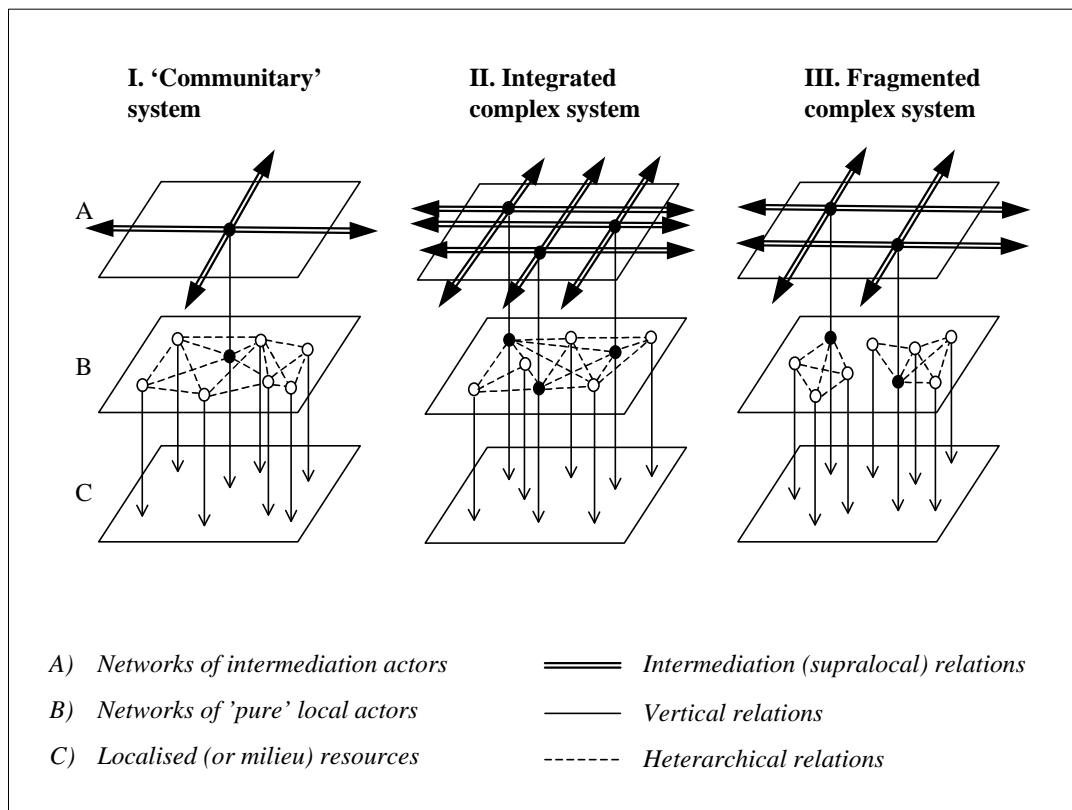


Figure 2 – Axiology of local development

This form of representation again excludes the view that the territorial specificities can be assumed as an ‘anomaly’ or ‘deviance’. Figure 2 assumes three abstract forms of organisation of the network system, the expression of different paths of development and the underlying *multiplicity of ‘locals’*. The first, defined as ‘communitary’, aims at idealising the traditional production district; the second is the possible representation of the organisational principle of a complex system, well integrated internally (through, for example, accentuated production specialisation), but at the same time dialoguing with a number of global levels; the third, finally, complex and pluralistic, is broken down internally (multi-specialisation) and consequently open in a multiple sense in its relations with the external environment.

4.2 Consistencies and uncertainties

The identification of the *relevant unit of analysis* as the basis for understanding and nurturing a process of development and change is not without its critics, and criticisms are getting louder.

- a) One first element of weakness refers to the incapacity to fully bring out the openness of the system, in other words the complex forms of relations between local dynamics and global dynamics. The ‘driver’ of (local) development is thus traced back to a process of collective learning largely within the system itself: of an essentially *community* type, as in the case of the widespread industrialisation of industrial districts, in terms of *knowledge generation* mechanisms, as in the model of the milieu innovateur. It follows that the system would end up erecting a ‘barrier to entry’ or, in contrast, a ‘barrier to exit’ for insiders (Varaldo and Ferrucci, 1996; Keeble and Wilkinson, 1999). Put in other terms, it would be problematic to fully explain in this way the problem of the *temporal evolution* of systems when faced with knowledge and/or turbulence arriving from the outside.
- b) The *inclusionary* dynamic that binds actors to the system is a simplification that leads us to disregard the more general processes of uneven development that still characterise capitalist development (Hudson, 1999), and therefore the *exclusionary* forces (see, for instance, the destabilising action of corporations). It follows that the new ‘ideal’ geography of the contemporary economic world appears as a *generalisation* of processes and phenomena that have involved certain situations which are perceived as success stories and then erected as ‘consolidated’ development models (Bianchi, 1998, Taylor, 2001).
- c) This leads to the exclusion from our reasoning of the complex dialectic between different *scales* of action and representation, in which the complex play of the dynamic of the economy and society, its organisation and institutions develops. The local level is not always, in fact, sufficient in itself to explain the fundamentals of development processes, just as the territorial embedding of economic activities is not always the most efficient way of co-ordinating the relations between the actors involved.
- d) Assuming the (local) territory as an actor in development, accepting it effectively as a production organisation, thus leads us to talk about the *competitiveness of territories* instead of just competitiveness of individual companies (by no chance, terms like ‘regional competition’ and ‘urban marketing’ have spread in urban and regional planning; see, for example, Cheshire and Gordon, 1995).

In reality, referring the concept of competitiveness to a place brings with it some inescapable *ambiguities*. Unsurprisingly, many discourses on local competitiveness have been accused of being a zero sum game, in that attention is not focused on creating new wealth but simply attracting the inflow of existing capital to the detriment of other areas (Hudson, 1999). Talking about the competition of places also implies attributing an explicit economic purpose to a social entity, a territory. This is undoubtedly a *dangerous metaphor*, as the importance of the external

relations of companies, as we have seen, brings into play the entire fabric of social and cultural relations of a place (Peet, 1999).

For this reason it is necessary to tackle broader questions of a theoretical and epistemological nature. The differentiation and specification of the territorial patterns of development and competitiveness pivots around the concept of *identity*, a term through which it will be possible to attribute to the local system an autonomy from the abstract laws of the economy.

5. METAPHORS AND HOMOLOGIES

5.1 On development: specification and irreversibility

We will briefly summarise the terms of the question. The evolutionary interpretation of economic development suggests that at the origin of economic change there lies a (dynamic) learning *process*. This is interactive and relational, is not predictable and is subject, therefore, to possible bifurcations, although it is also characterised by a certain degree of inertia. In its complexity, it is *specific* and distinctive, and therefore ontologically not reproducible. The fact that it is collective means that ideas, knowledge and technical practices are closely interwoven in a certain cognitive pattern, a 'red model' (Ziman, 1991) where knowledge is not stored in separate heads, but in the relationships that develop among the different layers of the process.

It follows that the *organisation of the system* is the base of the pattern of nodes (*organisms*) and connections that compose the learning engine, conferring on it a particular configuration – a *structure*, in the language of contemporary systems theory. In this light, the organisation co-ordinates tangible and intangible assets which, evolving, can produce knowledge, routines and growing *organisational proximity* between the nodes of the system (i.e. the sharing of technical, organisational and economic knowledge), making the assets available at a lower cost than the one generated by market transactions. It is clear that the organisational process confers *specificity* on the system, the capacity for permanent learning and therefore *irreversibility* (the process of specification generated by the organisational dynamic recalls in fact what authors of the evolutionist school define as irreversibility. See, for example, Metcalfe, 1998). However, this is not enough to say that territoriality is a condition required to explain the origins of the economic dynamic (Rallet, 2000). The organisation can refer, in fact, to a company network with ramifications on the global scale or to a circumscribed district system.

The *institutions*, as we have seen, are positioned upstream of the organisation and refer to *latent factors*, that cannot be contextualised directly in the co-ordination process. In other words, they contribute substantial 'inertia' to the organisation, i.e. a stability over long periods, and a structural resistance to changes. In other terms, they confer *reflexivity* on the system (Cooke, 1995; Gibbons et al., 1994) which can thus reproduce itself and react, without breaking up, to any shocks from the outside. As has already been discussed elsewhere (Conti and Giaccaria, 2001), reflexivity refers to the capacity of the system to *represent itself*, so that the actors that compose it are aware of belonging to a larger whole that possesses given common characteristics. In operational terms, as Stiglitz (1987) argues, reflexivity gives the system the capacity of *learning by learning*, differentiating it from other systems.

Institutional proximity, i.e. a common space of representation and roles accepted by the agents (Bellet et al., 1988), creates and reproduces, specifying, *latent factors and resources* that adapt to the new production configurations. However, even institutional proximity is not *at first sight* necessarily territorialised, although we can assume, as a start, that shared languages, norms, values, rules are more easily contextualised at the territorial level, conferring inertia and reflexivity on the system.

Given these premises, it is now possible to state that the capability of a local system might be defined as what a (territorial) organisation is able to do better than others, including the ability to renew, augment and adapt its 'core competencies' over time. *Spatial proximity* is not therefore a sufficient condition, given that competitiveness is attributed to those territorial contexts that contain specific production factors, i.e. not available or more expensive if they go through the market. This does not mean denying the importance of co-ordination through the market, but rather that the territory, in given circumstances, is an entity that combines *organisational proximity* and *institutional proximity*.

Territorial competitiveness – and the very differentiation of geographical space – can in this way be traced back to the supply of assets or specific resources that, because they are latent, are unlikely to compete directly in the market.

To understand better it is necessary to pause on a simple conceptual duality, which introduces us to the reasoning that follows.

The distinction between *generic resources* and *specific resources* is rather elementary: the former (such as raw materials, services, manpower etc.) can be used in an undifferentiated way, so the search for them can produce easily reversible location behaviour. From this point of view, the locational behaviour of economic actors could easily be explained in terms of the search for cost differentials, in addition to the availability or lack of these resources. The locational problem would thus appear as one aspect, among many, that go together to define the actor's strategic behaviour.

The argument is obviously overturned by assuming the concept of *specific resources*, i.e. "attached to a given production process consisting of learning and technical complementarities" (Colletis-Wahl and Pecqueur, 2001 p. 454), which make the territorial system a strategic resource in the development process. In reality, it is the complex interplay between organisation and institutions that discriminates between a set of specific resources and generic ones. In contrast to the latter, specific resources are explicitly *localised*. It is unthinkable, in fact, to imagine that, being produced by a given context through the historical evolution of relation between actors, they could be reproduced in a different geographical area to their original one. As the depository of specific local resources, a given context differs from others and defines an environment of, again specific, economic evolution.

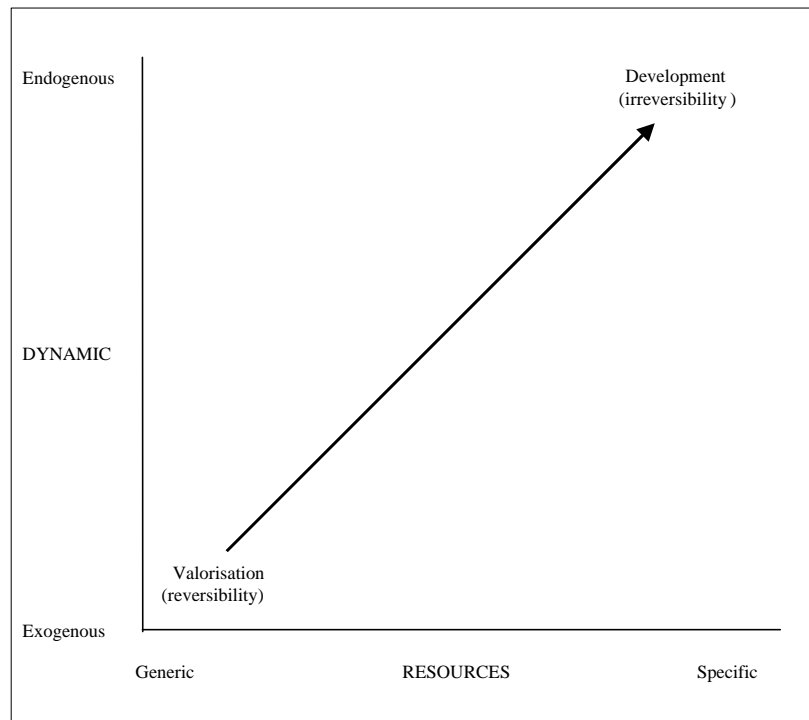
The duality between specific resources and generic resources is not separable from another pair of concepts, (territorial) *development* and *valorisation*. The distinction is not just nominal, but useful from the methodological point of view, in that it separates two conceptions of regional development that traditional theory kept, instead, intimately united.

In the case of valorisation, the regional (local) system is understood as a passive support for more or less pervasive general forces and processes. Territorial valorisation can, in fact, stem from variations in the distribution of comparative advantages. This means that the decisive actors in the transformation of the regional economy and society are in general (although not only) of external origin and find in the region the territorial conditions (production factors, externalities in the broad sense) essential to the pursuit of their own economic objectives. It follows that valorisation is a *reversible process*, which can be interrupted and cancelled if the conditions that generated it disappear (such as, for example, the discovery of factors at lower cost in other places, changes in legal, economic, geopolitical conditions etc.)

In the case of local or regional development there is instead the direct activation and involvement of territorially embedded forces, which react to the uniforming trends of external origin through their own organisation, capable of modifying forces and 'disturbances' of exogenous derivation on the organisational and institutional conditions produced and reproduced by the system.

The distinction between mere valorisation and local development also helps us to understand why an increasingly international and global economy not only has a corresponding territorial uniformity, but also the contrary trend towards a diversification which cannot be traced back to the simple mechanism of the division of labour as a response to the expansion of the market. (Dematteis, 1994, pp. 17-18)

The territorialisation of the economic dynamic can therefore be represented by intersecting the two dimensions just illustrated.



We have thus reached an important thesis: the fundamental factors that define a process of territorialisation (and therefore of the differentiation of space) derive from the presence of *assets* and *specific resources* that enhance the efficiency of the local actors and transcend (although without denying) co-ordination only through the market.

5.2 Identity and autonomy

The question of identity can be solved by using some of the instruments of systemic analysis, and in particular to the elimination of the duality between closed systems and open systems, with the introduction of the concept of *active open systems*. Defined in the biological sciences, it can be assumed here by *homology* to give meaning to the behaviour of territorial systems. The framework of complexity envisages the similarity of laws between systems of different kinds which, precisely because they are systems, possess *similar general features*, homologous ones⁷.

The reference here is to the mechanism of *autopoiesis*, through which it is possible to characterise the *organisation* and *identity* of a system. These are two inseparable concepts that were largely unexpressed in traditional system theory.

The starting point is the clear distinction between *heteronomous* and *autonomous* systems: while the former are characterised by an evolution according to the structure of the external world, autonomous systems are, instead, endowed with organisational closure, where the external world acts purely as a factor of disturbance. They thus appear *independent* of the forms of the outside world, with the exception of the flows that assume importance for the *self-reproduction* and survival of the system. In a system characterised by organisational closure, network interconnection

⁷ As a conceptual model, *homology*, allowing isomorphism between systems of different kinds, is opposed to the determinism typical of *analogy*, in which the transferability of concepts between the sciences radicalises the separation between different disciplines, setting itself in contrast with contemporary systemic thought.

between its components is the basis of the fundamental property of autonomy, which defines the closure and cohesion of the system with respect to the environment⁸.

The *theory of autopoiesis* introduces the possibility of defining the systems in terms of organisation, of identity. The local system will thus be distinguished on the basis of its own rules of operation which, instead of being dictated from the outside, represent invariants through which the system reproduces its own autonomy in its constant openness to the environment. These rules are dictated by the way in which the network of its constituent relations is *represented internally*, by a rather complex structuring of economic, political, cultural, social etc, relations.

The key concepts are *organisation* and *structure*. Although both concepts are of a relational nature, the sense is profoundly different. The organisation is, in fact, given by the ensemble of relations between the elements of the system that makes the system what it is and not something else. The structure is, instead, given by the material and historic qualities of these relations. It is the structure that modifies itself more rapidly, following stimuli from outside and inside the system. The organisation maintains, instead, a greater degree of rigidity, in that a radical modification of the relations that compose it can lead to the disintegration of the system. Obviously, organisations evolve over time, according to its laws (it is in this sense that the system is autonomous and autopoietic).

For our purposes, we can say that the organisation represents the identity of the system, represented in Figure 3 by the vertical axis, where the term vertical relations express the complexity of the relations of the different actors with their physical and social environment. This identity does not have a binary character meaning that it either exists or it does not, however, but is placed on a continuous axis that goes from a minimum, below which the system does not exist, to a maximum. In this continuum there are various values that identify:

- a) a *high level of identity*, as the expression of a climate of trust and cohesion (institutional assets, in other words), which is expressed at the same time in marked reflexivity;
- b) a *low level of identity*, the expression, in contrast, of low organisational capacity, which makes the system susceptible to destructuring.

Vice versa, the horizontal axis indicates the structure of the system, given by its configuration and organisation, from the higher or lower articulation of its relations with the outside. With the term horizontal relations we represent, in fact, the intensity and the quality of connections between economic actors (local and supralocal) which, as we have seen, cannot be created independently of the former.

It follows that the two dimensions described do not exclude each other reciprocally, but indicate a broad (not to say unlimited) set of possible attributes (or typologies of local systems), included between the two extremes of development and dependency. A high level of reflexivity of the system, together with high intensity of relations between the system and the outside hypothesises a condition of *development*, in which the local actors (and the system) express a high level of *autonomy*, moving successfully into global networks of research, innovation, markets etc. and thus improving the local perception and interpretation of horizontal relations.

The condition of dependency, in contrast, expresses the condition in which the dialogue of the system with global forces and processes is *dependent* and not complementary, although there may be forms of territorial valorisation. As is well-known, this condition, or typology of local systems, responds to the search for conditions of simple externality (labour inputs, semi-products, political

⁸ The theory of autonomous systems, already suggested in the post-war period by N. Wiener (1956) and later reformulated by H. Atlan (1972) and H. von Foerster (1982), owes its most mature structuring to H. Maturana and F. Varela (1980 and 1987), with the introduction of the concept of *autopoiesis*. It indicates the capacity of the system to plan and reproduce itself through the reproduction of its components. Having begun life as a biological theory, the theory of autopoiesis is metatheoretically applicable to social systems to the extent to which they are self-organised systems. In reality, a human and a social system (cities, companies, regions etc.) has characteristics *epistemologically analogous* (homologous) to those of other living systems: in other words, it is capable of reproducing and adapting itself, conserving itself either passively or actively. A social system possesses, in other terms, autonomy.

and legal conditions etc.) that can translate into easily reversible processes if the system lacks autonomy.

In this perspective, the object of enquiry is not the universal laws that originate territorial patterns of development, but the specific vertical and horizontal relations. They represent the identity of the local system, the nucleus of essential local relations with which a ‘community’ keeps itself distinct from others, thus opening up the idea of the multiplicity of development paths.

It is therefore explicit that the emergence of local institutions must be a mainly internal process, the outcome of the interaction between the actors that make up the system (what, by homology, we defined as the organisation of the system). Only in a second phase does the system face the external world and adapt its own structure to the stimuli from it, maintaining its own organisation. It is, in fact, clear that the local system must engage in dialogue with the external environment (the global scale) creating relations of exchange (not necessarily mercantile) with it.

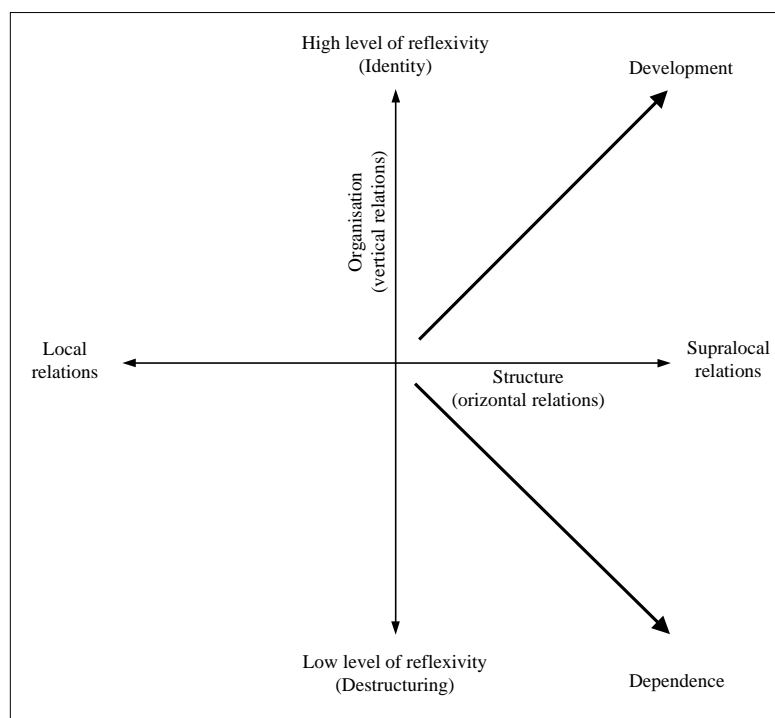


Figure 3 – Epistemology of local development

Represented in this way, the picture may appear fundamentally static, although it is legitimate to assume that in the space between the extremes (development and dependency) and in the four sectors of Figure 3 there can be room for a multitude of possible local identities – and forms of competitiveness – whose position changes with changes in the dialect between organisation and structure. Further reasoning is therefore needed which explain, even if in extremely generalised terms, the evolutionary dynamic, i.e. the different possible trajectories.

The identity of the system, as we have seen, derives from its organisation, and its structuring is the outcome – both dynamic and evolutionary – of collective action. In this light, territoriality and competitiveness are both the expression of a *temporal process* of self-organisation achieved by actors within a network and therefore expressing an evolutionary effect.

5.3 Evolutions and discontinuities

But how does a territorial system evolve? We have seen that the internal organisation dictates the rules of interaction with other systems, i.e. the structure's evolutionary path. But, for this to happen, the system needs to be able to create, starting from its own organisation, new and superior states of complexity. In this case, the system can develop. If this is not the case, it could initiate more or less rapid processes of destructuring and disintegration.

In the first case, the system uses the flows from outside; it can therefore modify its own structure (for example, shifting from one manufacturing specialisation to another), diversifying itself qualitatively and quantitatively, making itself more complex. Thus, some major manufacturing regions have experienced, in different historical periods, processes of degradation of the old structures in order to endow themselves with new ones (a process that recalls the 'creative destruction' of Schumpeterian memory). In the second case, on the contrary, systems can destructure, setting in motion a spiral of dependency.

As will be remembered, institutional proximity endows the system's actors with a *common space of representation*, roles and models of learning and action, collectively internalised by the actors themselves and for this reason guides their behaviour. This process of identification - maintained already by Aires (1953) and Hirschman (1958) - represents to a certain degree the system's 'memory', which in turn allows more or less effective development trajectories through the reproduction of knowledge.

This memory, or capacity to learn on the basis of the knowledge accumulated (and not dispersed or forgotten), obviously transcends the individual sphere and constitutes a specific and local latent resource (in contrast with other institutional components that are usually codified on the national or supranational level). Self-representing itself, the system is thus able to select the disturbances to which it is subject, adapting them to its own organisation.

Let us assume the self-representation of the system in terms of a *cognitive domain*, a concept which indicates the possible responses that the system can give to external stimuli. This leads us to define the relations between the system and the environment (with other active systems) in terms of *structural coupling*. This is achieved when the system, because it is closed from the organisational point of view, selects the disturbances from the outside, continuously modifying its own structure, thus bringing out the potential already inscribed in the organisation's code.

Graphic representation is again the most useful instrument for explaining the possible evolutionary trajectories, identified in the framework of a plane defined by the two co-ordinates of identity and openness.

To do this, it is necessary to consider the *space of the phases* in which the trajectories are represented virtually, considering their respective positions at times t_1 , t_2 , ... t_n , in correspondence with which discontinuities, or *catastasis*⁹ occur in the evolution of the system (Figure 4). They can originate through disturbances or shocks from the outside, such as, for example, location decisions that disrupt the socio-economic equilibrium, unexpected geopolitical events etc.¹⁰.

Despite the generalisation, this way of proceeding has at least two rigorous and closely related implications:

- a) the first gives further force to territorialised phenomena. In fact, while the capabilities of an individual actor can be transferred with more or less difficulty to others, even if located in other places, this is not true for regional (local) capabilities, based on specific patterns of relations between companies and interpersonal links (Lawson and Lorenz, 1999, p. 310).

⁹ The change in the parameters of the function f (Time, Openness, Identity) is often identified as 'catastrophic'. In reality, in the framework of the theory of complex systems, these phases of discontinuity can be interpreted not so much in terms of a 'catastrophe', but of *catastasis*, in other words of a sudden disruption in the system's trajectory (De Freitas and Woolmington, 1980).

¹⁰ Assuming exclusively disturbances of exogenous origin is a deliberate simplification here, given that phenomena of *catastasis*, as we shall see, can also originate inside the system. The case of institutional blockages may also occur, where the absence of dissenting voices may delay strategic creativity, on the one hand, and on the other inhibit its potential for dialogue with the outside (see, for example, Varaldo and Ferrucci, 1996).

b) secondly, it enables us to overcome one of the main simplifications of the orthodox social sciences, i.e. the definition of fixed periods. A local system, in effect, cannot be framed in the usual periodisations, given that it evolves in time while maintaining substantial continuity with its past and tradition. In fact, various forms of organisation of production and social life co-exist and interact, giving rise to an individual path. This is different for each local system, which is thus freed from the general laws of the great economic periods.

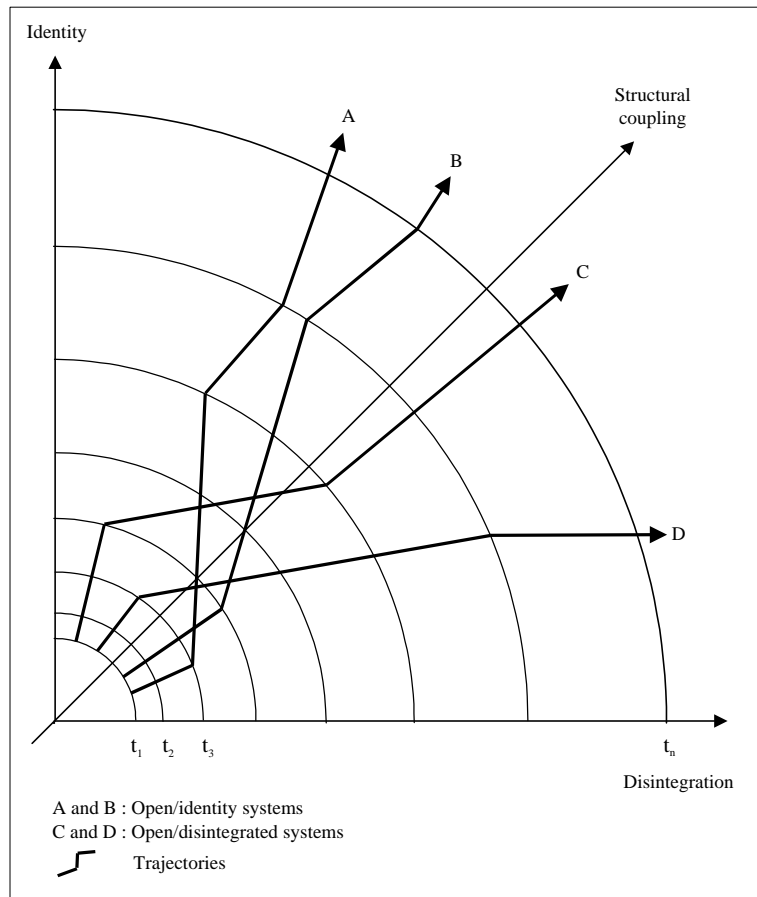


Figure 4 – Systemic evolutions and discontinuities

The assumption is that at time t_1 each system is characterised by a condition of self-containment, i.e. substantially closed to the outside. The identification of possible evolutionary trajectories is again a form of abstraction whose purpose is purely to fix some possible discriminating factors in a framework that might appear excessively deterministic at first sight.

The evolutionary trajectory leads the system to adapt its own structure, i.e. to give specific (local) responses to general (global) stimuli. The flows established with the outside are therefore compatible with its operational closure. For example, the modification of production specialisations are nothing but *contingent modes* in which this self-reproducing function appears in the realm of economic relations.

In reality, the evolutionary trajectory responds to the complex game that is played out between organisation and structure, determining processes that, as we have said, can in time induce the differentiation of the various systems. For the sake of simplicity, the figure shows two possible evolutionary forms, each of a different intensity and nature, which underlie a rather broader scenario of possible transformations of the system's identity.

- a) The first (*open/identity systems*) represents the condition in which, with the variation in the state of one or more components of the system, the networks of relations reproduce, shifting from one equilibrium to another. By adapting its own organisation, the system extends the field of possible environmental interactions (or local/global dialogue) which, in turn, produce further complexity of the structure. The assumption of two possible trajectories included in this form of evolution has the sole purpose of envisaging a number of possible scenarios. The first (*case A*) can interpret, for the sake of simplicity, an industrial district that reproduces its classical form: institutional blockage does not question the identity of the system, but can delay strategic creativity and consequently inhibit the potential for dialogue with the environment (global). This does not occur (or in any case occurs only to a lesser degree) in the second case (*B*), in which the changes in the structure (usually of an incremental type) respond to a learning process that is more compatible with the organisation and lead to an extension of the capacity for dialogue with the outside (for example, a ‘mature’ industrial district or an advanced technological system can respond to the characteristics described).
- b) The second (*open/disintegrated systems*) express, in contrast, the condition in which disturbances of environmental origin affect the system’s memory, making the adaptation of the system problematic, while significant changes in the structure occur at the same time. Again in this case, the range of possible paths of evolution is fairly broad and only through a trivial simplification is it possible to prefigure the pattern of an old manufacturing region (*case C*), in which radical changes in the structure are found in harmony with the organisation, or that (*case D*) in which shocks from the environment, having an impact on the organisation, trigger a gradual loss of identity for the system.

6. POLITICS AND POLICIES

6.1 The lesson of history

The definition of territorial system in terms of autonomy is a fundamental methodological discriminant. It does *not* follow that any possible portion of the earth’s surface can be understood in terms of a system, as this term refers *purely* to those contexts that possess an *identity* that distinguishes it from the environment and from other systems.

However, it would be naive to imagine having reached in this way a representation that can go deep below the surface of reality. A claim like this would be senseless in the light of the dramatic turn in scientific thinking that, with the introduction of the notion of complex systems, has moved towards the denunciation of the claim to scientific certainty. This means that what we have achieved so far is nothing other than a *plausible* interpretation of a decidedly complex reality. We still need to tackle the ambivalent relationship that local development has with the themes of politics and policies.

Emerging literature looks at regions as an important base for co-ordination at the meso-level and the introduction of the cluster concept as the instrument to give impetus to local economies in an increasingly globalised world (Acs, 2000; Cooke, 1995; Cooke and Morgan, 1998; Enright, 1996; Nooteboom, 2000). At the same time, recent years have seen countries and regions adopt actions seeking to enhance their competitive potential through supporting clusters of interrelated industries (Amin, 1999; Blakely, 1994; Braczyk et al., 1998)¹¹.

In reality, these cases differ greatly from each other, and this would be enough to support the thesis of how unjustified it would be in our complex world to put forward a unitary “model” to be

¹¹ In both cases, these claims have been clearly supported by observing the success stories that have to a certain degree thrown into disarray the map of our industrial world. Limiting observation to the experience of areas with a long manufacturing tradition, it can be seen that, in effect, numerous regions (in Europe, for instance, Wales, the Ruhr, Westphalia, Baden Württemberg, the Lyon area and Catalonia, to note the most well known) have renovated their production structures in recent years successfully.

transferred elsewhere. It is, however, legitimate to assume, without any claim to completeness, some *generic reasons* for their success on which there is now sufficient consensus.

First of all, the regeneration of the economy of the region did not occur through the random promotion of activities, but by pursuing (and this is the significant aspect) the use and 'regeneration' of technological resources historically embedded in the region's economy, promoting both *specialization* and *functional differentiation* (Rehfeld, 1995). Secondly, it is also undoubtedly true that in these 'winning' cases, *network strategies* of financial and technological assistance aimed at encouraging interaction between actors have been pursued and implemented. The creation of so-called *social capital* expresses, in particular, forms of intervention to support the formation of entrepreneurship and the preparation for conditions of *learning*, characterized by collaboration and interaction at the regional level between enterprises and the science base, whether public or private. In summary, if a lesson can be drawn from all of this, it is that economic regeneration has not been reduced, on the one hand, to a set of restricted economic factors (which are, in any case, essential), but by major involvement of institutional, cultural and social factors. On the other hand, it has to transcend any hypothesis of 'generic' industrial policy in order to give priority to, in contrast, selective strategic solutions. If for decades policy was directed more at curing the symptoms of regional problems (such as unemployment) rather than the causes (such as low innovation potential), more recent strategies have tended to provide a practical expression of network logics. These are aimed at fighting *institutional inertia* (Dunford, 1994; Laville, 1997; Morgan, 1997) in order to pursue the strengthening of inter-industrial co-operation in a system of actors (clusters, in the broad sense) which together possess capacities to spend on the international level, drawing advantage (together again) from existing or produceable environmental conditions.

These rapid references to a well-known situation are part of a local development perspective characterised by two shifts: a) *from government to governance*, and b) *from politics to policies*.

As is known, while the concept of government refers to a form of management of the public sector entirely entrusted to local and national political administrations, the idea underlying governance is based on a radically different perspective. When we talk of governance, attention is focused on a form of local government and management that is based on the interaction of many actors on the local scale (Bagnasco and Le Galès, 1997): local and transnational companies, associations, labour unions, universities and research centres, in addition, obviously, to local and national institutions.

This transformation is also the origin of the shift from politics to policies. The centre of attention is no longer the political discussion – or conflict – between actors representing alternative projects for constructing social structures. The interest is rather in the construction of concrete policies to encourage the development of local communities.

6.2 The self-representation of local policies

Taken together, these argumentations are brought out in the conceptual framework that we have constructed so far: if reality is complex and multidimensional, every interpretation of it will be a point of view in a single process of understanding phenomena which, to be comprehended, must be observed in their many facets. It follows that knowledge is no longer conceived as predetermined, but can be developed only through the interaction between the subject-observer and the object of knowledge. Starting from these assumptions, that reasoning on the systemic precepts has now clarified sufficiently (Dupuy, 1982; Le Moigne, 1992), the proposal by Dematteis seems rigorous enough to be assumed here as a decisive methodological key.

It will be remembered that by the idea of *self-representation of the system* the question was posed explicitly of the *point of view*, i.e. the position from which one describes the system. A point of view *external* to the system leads to representing and interpreting the relationship of the system itself and its environment in linear terms, following an input-output model. In this way, the

territorial (local) system is seen as a mere sub-system of the global system, depriving it of its own conceptual autonomy. The concept of self-representation introduces instead the possibility of characterising the system in terms of organisation, of identity, inducing one to adopt a point of view *internal* to the system itself (Dematteis, 1990).

Once again, the combination of these two conditions leads to an interpretative thesis aimed at explaining an intimately complex object.

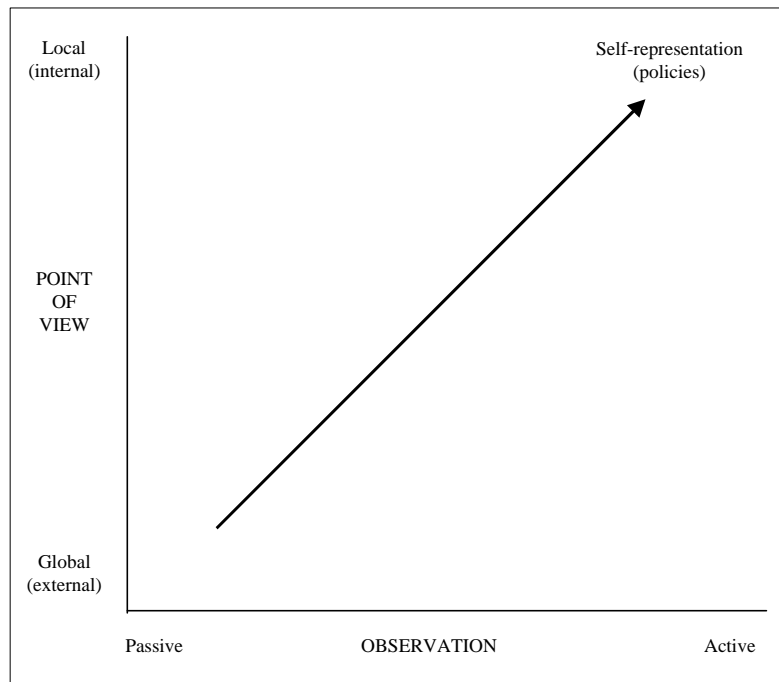


Figure 5: *Nomotetics of local development*
(reworked after Dematteis, 1990)

Local policy as the mere expression of a development ethic that accepts the laws and dynamics of contemporary capitalism produces nothing other than a simple – local – specification of standardising processes and forces. In this case, although turning attention to places modifies our vision of development process, it can not change the concept of development itself. To state that places (whether they are defined as clusters, industrial districts, milieu innovateur, or with yet other metaphors) play a fundamental role in the contemporary economy does not yet mean stating their centrality.

The thesis that now emerges is fundamentally different. The systemic perspective is the bearer of the idea of a place that reproduces its own identity, given by the organisation of those social, cultural and economic relations that make that place ‘unique’. In this case, if the arbiter of development is no longer the market, but the local system, it follows that the benefits of local development are evaluated in terms of the maintenance of the system’s identity. It follows that the political solutions possible are those compatible with the identity of the local systems, i.e. with their capacity for self-reproduction. Otherwise, as we have seen, there would be a shift from a logic of local development to one of mere valorisation, and thus of possible destruction of the system.

This means that there will be a multitude of development paths which depend on the multiplicity of local institutional assets, and therefore on the *perception* and *judgements* that the actors have of the network of relations in which they are included and of the consequent evolutionary trajectories. In this sense, the concept of territorialisation assumes full and unambiguous meaning. It is in the field

of political choices that the local perspective becomes intelligible in terms of a system that includes different actors belonging to different institutional contexts, to networks that express different perceptions, objectives and strategies. The system, in other words, depends on the networks of institutions, which co-create a policy through dialogue between 'equals', based on a process of reciprocal interactive learning (Wikstrom and Normann, 1994).

In conclusion, the relationship between the local scale and possible development paths and policies appears fundamentally dialectic. A development path is not valid on all scales, nor does there exist a temporal succession of hegemonic models of development, each of which dominates a given historical period. On the contrary, they co-exist at the same time and in the same place. This *depends on the position one takes in order to decide*, i.e. on specific institutional assets. It is these, in fact, that define the way local actors organise socio-economic relations internally, the exploitation of local resources and the relationship with other scales.

In conclusion, this means upholding that a local system is not a Pandora's box that encompasses all possible relations, projecting itself outwards as a monolithic entity. In this sense, *institutional biodiversity* (i.e. a vast range of different institutions) represents a fundamental condition for ensuring the availability to the local system of the greatest possible number of development paths. Institutional biodiversity implies a process of selection of the institutions that could be considered as a process of learning, remembering and forgetting.

If it is true that learning implies the capacity to forget, then it is equally true that the process of forgetting institutions and traditions that appear obsolete can threaten institutional biodiversity. Forgetting in fact means reducing the variety and wealth of local institutions: in a situation where the future is uncertain, this cancellation can prejudice the capacity of the local system to find alternative development paths.

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