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# **NETWORKS AND NODES**

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\* This paper has been carried out under my direction in the framework of IRES research activity

## THE TASK GIVEN TO THE WORK GROUP

*The President of the Emilia-Romagna Regional Board has asked the work group to assess the opportunities and the risks of a model known as the Information Society for the region's economic and social development. We were specifically asked to evaluate the role of networks, both of a logistic and a telematic kind. Actually, the approach laid down by the Regional Territorial Plan was deemed inadequate.*

*This task, however well outlined by the Regional Presidency and sketched out in a preliminary document, has proven to be an extremely hard one. As a matter of fact, the work group has had to re-examine, very critically, a whole series of commonplace notions of the current orthodoxy of economic and social thought in order to outline a framework of reference for the political action that should take account of this region's historical experience and the sweeping changes ongoing. A critical re-visitation of this kind has required a working methodology and a project development methodology that will subsequently be illustrated in detail. The starting point for our work can be summed up by a set of closely inter-related questions, as follows:*

- a) In the first place, it is a matter of evaluating whether it still makes any sense to talk of industrial policies developed by the Public Institutions (L. Pasinetti, 1997) and, should the answer be affirmative, in what way, i.e., with what tools and what role can such policies be developed for the Institutions, the Organisations and the collective bodies;*
- b) secondly, we have to ask ourselves if it still makes any sense to talk of policies for local development that are not just an adaptation to processes of globalisation, which are presumed to be processes of convergence (Ohmae, Kenichi, 1985; Womack, James P. Jones, Daniel T., Roos, Daniel, 1990) around a core of macro and micro economic 'recipes' - the new orthodoxy - and institutions, such as the minimum State, etc.; or whether, on the contrary, locations still matter (S. Sassen, 1991, 1994, 1996);*
- c) thirdly, we have to ascertain whether the networks' standpoint is or is not intrinsically opposed to the very idea of districts and the value attributed to the specific character of the local social, economic and cultural system and to its historical dynamics, seen as positive economic externalities (A. Amin, 1997; S. Brusco, 1997; L. Garcia, 1994, 1995, 1997; P. Bianchi, 1998); in other words, are we faced with a conflict between conservatives and modernisers?;*
- d) fourthly, we must ask ourselves whether among the competitive differentials that can add value to a local context, we should consider the value of Labour and Knowledge. Even more specifically, we should ask ourselves about the Information Society model (European Commission, Building the European information society for us all, 1997) in order to assess whether we are actually moving and whether we should be moving towards the replacement of human skills in the working process, and thus a devaluation of human labour which is not of a strategic-intellectual kind, or whether, on the contrary, the development*

*of the Information Society is essentially based on knowledge (R. B. Reich, 1992), not only technical-formal but also 'tacit', linked to doing and acting (B. A. Lundvall, 1995, 1996, 1997; F. Garibaldi, M. Bolognani, 1996);*

*e) fifthly, then, we have to ask ourselves what shape an innovation process should take on: a strong initiative from above (either the Regional Government system or the Regional 'governance'<sup>1</sup> system) or an initiative based on the creation of networks? (P. Bianchi, 1998); which Institutions and Organisations are a part of the 'governance' system? What are the respective roles of the technological supply and demand of the end-users (A. F. Bianchi, 1996)?*

*f) Lastly, what relationship is there between Community policies and local ones?*

*The task of the work group was to try to answer these questions.*

## THE METHODOLOGY ADOPTED

*We chose a methodology which possessed the following characteristics:*

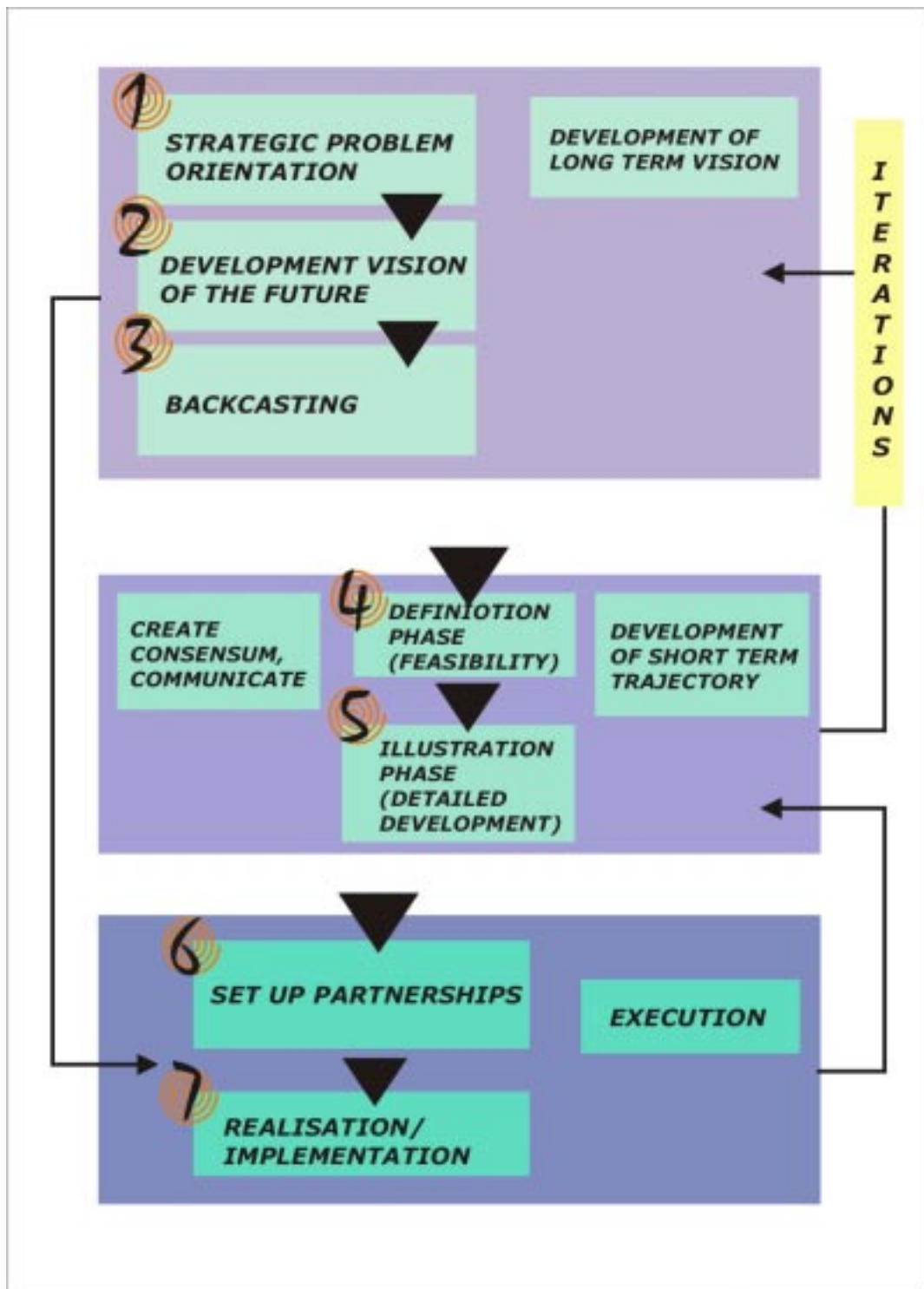
*a) it would allow for a creative, open work phase by the work group, which took place by way of a seminar based on the consensus conference method (F. Emery, 1989);*

*b) the material would be organised according to a scheme that also matched the scheme of the possible operative development project; in order to realise this objective we chose the STD (Sustainable Technological Development scheme) elaborated by the International Research programme on STD at Delft University in 1997<sup>2</sup>*

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<sup>1</sup> We use this term in the sense as defined by M. Storper and B.Harrison (1992): "in other words every production system actually operating involves an input-output subset but it does so within precise power relations and definite decision structures which, from now on, we shall call *governance*" p.218.

<sup>2</sup> Vergragt, P. - The Importance of Future Visions and Stakeholder Collaboration. Some Lessons from the Dutch STD Programme - mimeo, final Conference COST A4 Copenhagen, 2-3 October 1997: the STD programme was set up in Denmark on the initiative of 5 Ministries.



Backcasting is defined as:

looking backwards from a desired future, analysing the steps to be taken today in order to achieve it; they are:

- ✓ *Evaluation of the obstacles;*
- ✓ *Definition of the directions where solutions can be sought;*
- ✓ *Incorporation of the interests of the actors;*
- ✓ *Incorporation of the users;*
- ✓ *Fostering of public-private co-operation.*

# STRATEGIC ORIENTATION AND DEVELOPMENT OF A FUTURE VISION

## PREMISE

It is worth clarifying, both from the methodological and the substantial points of view, the different roles of the work groups and the Regional Presidency in the development of this work. As a matter of fact, both subjects have measured themselves against the definition of a strategic orientation and the development of a vision of the future, but the evaluations of the Presidency, i.e. the tenderer, have for the work group amounted to an input, and the initial constraint, our analytic exercise, has re-visited this initial constraint with a view to reformulating it in such a way as to then allow for the development of the *backcasting* activity. The reformulation was then submitted to the tenderer in order to be vetted for its approval. This double deferment required the development of an argument which, by crossing different competencies and different disciplinary fields, took into account the experience and the national and international analyses of the last 15 years, so heavily influenced by the neoliberal hegemony; today neoliberalism has been seriously questioned beginning from the disciplinary field of economics (J. Michie, J. Grieve Smith, 1997; J. Grieve Smith. 1997). Moreover, the initial questions represent a checklist for the questions which that experience has put into question and that should thus be revisited. If we wish to avoid a purely optative /declamatory argument we not only need the backcasting exercise, but we also need to choose an analytic framework that deals with those nodes directly. For expository reasons we have chosen the discursive technique which will gradually proceed in the development of the argument, signalling the sources in the international scientific literature which account for the assumptions expressed each time. So it is clear that the work group's point of view is completely adverse to the Liberalism of the past years; our stance is confirmed in the growing malaise, if not in the complete breakdown, of large parts of the liberal circles themselves in regard to the assumptions of the past decade and a half (the name of Dahrendorf should suffice).

## WHICH STRATEGIC DIRECTIONS?

The Regional government has on several occasions reiterated that it believes that the question of physical and telematic networks is essential, not as an alternative to the districts but as a condition for their enhancement, development and innovation; it is a question of considering the networks as a cerebral cortex, able therefore to create connections, to enable functions of an order superior and more complex than the preceding, in plain terms, a new form of positive externalities. The directions are thus: a) the creation of a logistic platform congruent with an economic structure based on districts, small individual enterprises connected in networks of economic activities (S. Bologna, 1996); this kind of an elaboration involves such a radical re-thinking of the very concept of mobility supply as to pave the way to a new conception of people's very mobility; b) the creation of regional telematic "networks

of networks” not based on the mere distribution of information flows but structured according to bilateral communicative activities, so dense with active nodes as to reach that stage in which the network<sup>3</sup> becomes *morphogenic* (W. Buckley, 1967; G. M. Edelman, 1992), that is, it elaborates new structures and creates levels of relations that were not predefined by the initial parameters.

These two directions, however well they may be outlined, lead back to the problems posed in the initial questions as to their desirability, their degree of realism, their degree of discontinuity with the past and their innovative drive, as concerns who must carry them through and how; the time has come to deal with them.

## THE EUROPEAN UNION, INSTITUTIONS AND INDUSTRIAL POLICY.

### *THE EUROPEAN UNION’S INDUSTRIAL POLICY*

In order to return to the discussion on public policies, beyond the ideological smokescreens of the last fifteen years, we have to start off from the concept of competitiveness: what is it that makes a nation, a region or a supranational reality like the European Union develop a positive long-term trend in economic and social growth, in an open and strongly internationalised economy? The European Union has been asking itself this question ever since the publication of the Bangemann report in 1990; the discussion has involved all the political centres and European academics, and a strategy has gradually taken shape. P. Bianchi has on several occasions (1995, 1998) summed up the discussion by outlining three substantive points that are relevant to us today:

- A) The very process of Europe’s international opening requires a “*structural policy* which allows for the realisation within each country of such *an adaptation in the organisation of production* as the opening up mechanism requires, so as to make the institutional change proposed with the opening *socially acceptable*”<sup>4</sup>. This not only requires the policies for the creation of the single market and for the liberalisation of the market, but also industrial policies and policies for social cohesion, which is impossible without a strong consensus between all the public and private institutions and organisations that form the different territorial realities of the Union, from nations to regions. It is no coincidence that among the priorities pointed out in the Delors White Book we find the fight against unemployment (A. Sen, 1997) by means of *structural policies* such as *learning and training*, in a shift towards a selection of the reasons for competitiveness based on knowledge and the re-assessment of Labour, and the *development of new sectors*

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<sup>3</sup> The fact of transforming the network i.e. an object or a socio-technical system into the subject of actions and/or properties is completely misleading; the systems do not possess other properties besides those of the social actors involved, so the systemic properties of the social systems derive from the nature of the social action rather than from the system itself (Bion, 1961; Giddens, 1982). In this sense the fundamental aspect of the active character of the network nodes and the relations the set up is underlined. So the nodes are both social actors as well as organisations and institutions.

<sup>4</sup> Bianchi P., LE POLITICHE INDUSTRIALI DELL’UNIONE EUROPEA (THE INDUSTRIAL POLICIES OF THE EUROPEAN UNION), Il Mulino, 1995, p.239-240

*of activities*, such as health, culture and the environment, thought to be capable of creating new employment, both in the quantitative and in the qualitative sense of the term. But Bianchi warns us that during the phase of Economic Union and not just customs union, the adjustment is not only within the countries but must occur transversally among the countries. From here there follow the two developmental directions singled out by the White Book: *the information technology networks and the trans-European communications networks*. This European vision of the process of structural readjustment reduces the weight of the old strategy of national champions both in favour of the processes of concentration at European level - the traditional French approach of the “champions”, transferred to European level - as well as by means of a *re-evaluation on the “territory”* (R. Dore, 1988; G. Beccattini, 1987; S. Brusco, 1989; F. Pyke et al., 1990), a classical German vision. The territory becomes a complex concept in that it integrates different functions that range from training to services; the territory is the primary site for European investment oriented towards the integration and development of the Economic Union. The re-evaluation of the role of the territory - and therefore of the regions - paves the way to *European federalism* as the only feasible institutional framework in a democratic Europe.

- B) Upon launching the European Union a transformation has occurred with regard to the preceding approach, a “French-derived top-down approach in which a central authority, with the capacity to coerce and command the lower hierarchical levels defines an action in the common name, with which individuals then bring themselves into line,”<sup>5</sup> and the new one, a German-inspired bottom-up kind, in which individuals may outline their own actions within a framework of common rules and opportunities. Then such an individual action “... in the course of interaction with others can lead to new common rules being defined.”<sup>6</sup> The instrument for developing this new policy is *networking* - that is, the creation of an opportunity for a restricted group of people to co-operate on a precisely identified problem., “... in the conviction that members of this group, in interacting with one another, will be able to define rules and procedures for integration, which can then be taken on as a standard of general applicability.”<sup>7</sup> This new policy of *full of risks*, risks that have already appeared clearly in the policy of the Union, if we shift the emphasis on the capacity to grasp the opportunities from the bottom, built at Union level, the risk is that the most successful ones will be “those who, already advantaged, find themselves with the best initial set of conditions, such that over time (this being a cumulative process) the *disparities* tend to *increase* and the leading role of the most active players is consolidated, leaving the weakest facing the alternative of either not participating in the game or of taking on a following role.”<sup>8</sup> A problem thus appears of *reference frameworks* for the collective action: a set of *principles and objectives, priorities and constraints*. A. Sen in his recent essay entitled *Employment: the reasons of a priority for economic policy*<sup>9</sup> argues out the non-economic reasons that make it possible for a problem to acquire the status of a priority because, if it is not resolved, it has the strength to break up the whole economic and social framework, making a series of wholly reasonable policies quite senseless. The frameworks of reference are the result of political decisions, and so we go back to a problem of *legitimacy* that re-opens the issue of the relationship between individual nations and the European Union, seeing that the only legitimisation existing today is at the level of national States. There is thus an

<sup>5</sup> *ibidem*, p.240

<sup>6</sup> *ibidem*, p.240

<sup>7</sup> *ibidem*, p.241

<sup>8</sup> *ibidem*, p.243

<sup>9</sup> in Ciocca P. L. (edited by) *LA DISOCCUPAZIONE DI FINE SECOLO* (End of Century Unemployment) - Bollati Boringhieri, Torino, 1997 pp.3-20

institutional problem in the construction of the European Union that *cannot be resolved inductively, on the basis of market forces* that would take it upon themselves, once freed, to create the necessary institutions. *The liberal hypothesis has ended up down a blind-alley*: the structural changes, without the institutional changes, which allow us to legitimately select some frameworks of reference or integration of the scattered initiatives, lead to the creation, or the increase, of the inequalities between countries and within the member countries of the Union, this determines the stopping or slowing down of the necessary structural changes determining regressive coalitions; that is, coalitions of interest based on resistance to change - to the European-wide reorganisation of the division of labour and the market - in order to protect their positions of power without being able to put forward new and alternative forms of division of labour and of market reorganisation. The responsibilities of such a vicious circle cannot be put down to the blindness or selfishness of the “different corporations” - as is customary today - but is the inevitable result of a democratic deficit, which does not allow for the integration of existing interests in a process of change. The non-integration of the interests existing in a process of change - i.e. the definition of a negotiated social compromise, as has been the case of social capitalism of the German market - with the correlated social tensions that spin off from it, thus leads the political circles to miss the declared objectives, or to an authoritarian drift, or perhaps at times the two things together: an oligarchic government that stutteringly goes ahead.

- C) The market is a social construct: “For this reason Smith, the ideologist of the market society, offers a broad justification for the role of the state in developing those public goods which serve to identify the sense of community, and thus to identify the rights of citizens, such as defence, justice and order, as well as schooling and health-care. If the market is based on the recognition of individual property rights, collective actions which enables the development of social efficiency requires the *affirmation of collective rights, allowing the individual to develop his or her own capabilities*, in a context of trust among the different members of the community.”<sup>10</sup> The opening of the market and the creation of the Union have led to an extension of the market that makes different communities come into direct contact with different individual rights and different common public goods; they must therefore reciprocally acknowledge, and thus redefine, both individual rights as well as those common public goods that establish the rights to citizenship. To the extent of what has been said above, such a re-discussion/re-definition is not possible by only pausing to reflect on the formal rights but must also touch upon effective rights, what is needed in other words is a framework of reference that *convinces* each community and, I might add, the interest groups of the fact that the process of readjustment, dynamically but with a politically appreciable timing, makes efficiency and fairness, change and stability live together; this is the process that Dahrendorf calls the transformation of the *entitlements* into *capabilities*. From here the rediscovery, as a core of the Union’s policy of local levels - districts, systems of small and medium enterprises as clusters and networks - and: “The emphasis on real local situations, which becomes necessary in a federalist-inspired transformation, involves not just the definition of a means for stimulating private initiative, but also of ways of guaranteeing public action in a context characterised by complementary historical experiences, which in going ahead with the process of integration must be capable of complementing each other, in order to avoid a return to a position of closure.”<sup>11</sup>

Conclusively, the European lesson delivered to us by P. Bianchi tells us that European competitiveness does not simply spin off from the liberalisation and opening of the market

<sup>10</sup> Bianchi p. op. cit., p.246

<sup>11</sup> ibidem. p.247



but from a complex process of institutional, social and economic adjustment, that requires a development of democracy and social cohesion. This is impossible without the direct involvement, with resources and powers, of local communities and interests at play. This sort of approach, I should add but I shall be returning to this point later, already lays a claim on the contents of these policies because it is clearly unthinkable to let all the dimensions coexist if not with the prospect of a selection of the reasons for competitiveness based on the utmost exploitation of the resources of knowledge and skills of the European Union. Industrial policy, which at last reappears as one of the actions of the European Union, belongs to this context. I would also like to add that in this perspective, and I shall also be returning to this point, industrial policy is not just a way of dealing with market failures, and thus with also the problems that the market alone is not able to deal with - a classical example is the basic infrastructuring of a territory - but rather a way to select, on the basis of public discussion, a development pathway among all the possible ones. So it not only has a status of being complementary to public action but is the construction modality of a framework of reference, a set of unifying values and policies, that is, a guiding public action that creates *a new class* of public goods (F. Garibaldi, 1995).

## *BETWEEN THE MARKET AND CENTRAL PLANNING*

As L. Pasinetti correctly remarks, there is no empirical evidence supporting the two extreme standpoints: the theoreticians of *central planning* convinced that a path of development planned by a legitimate authority, endowed with a cogent power, will come about, and those convinced that “there is only one, general institution, that of the *free market*, which - by configuring a whole series of functions of demand and supply - can resolve all the problems of an excellent allocation of the resources, including that of labour (...) every deviation (...) is put down to market ‘imperfections’. From here we have the concentration on the analysis of the various ‘imperfections’ (which should account for the persistence of unemployment), and the implicit deduction that they ought to be eliminated, returning the labour market to conditions of total freedom of the individuals and total flexibility of prices and quantities which in theory characterise the ‘perfect’ markets.”<sup>12</sup> In both cases the world is seen as something determined by a set of variables that can be defined and manipulated in such a way as to produce the expected results. In the former case, the degree of determination is sustained by the political authority; in the latter, by a super institution, external to politics and to social relations. The collapse of centrally-planned countries, on the one hand, and the manifest breathlessness of the international economic situation, on the other, bear out the split between theory and practice. Every notion of complexity in the modern sense of the world is lost, it is no accident that society’s institutional framework is drastically simplified, and more and more often we need to utilise the idea of sudden external shocks to undermine the rules that would otherwise be valid. In actual fact, all the modern social sciences (economics, political sciences and sociology) tend to make a reappraisal of the complexity of social relations and their procedural, dynamic aspect, the outcome of a social construction (regulatory, normative and cognitive) that puts forward identities and subjectivities. The Institutionalist school (W. R. Scott, 1995) re-defines the concept of Institution, broadening its dimensions and highlighting the determinants of institutional change compatibly with this level of complexity of the problem. In the specific case of the analysis of development: the theorisation of the *national*

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<sup>12</sup> Pasinetti L., - STAGES OF DEVELOPMENT AND UNEMPLOYMENT: THE ROLE OF THE INSTITUTIONS, in Ciocca, P. L. op. cit. p.95

*innovation systems*<sup>13</sup> (B.-A. Lundvall, 1992) and of the *local innovation systems*<sup>14</sup> (G. Becattini, 1987; G. Becattini and E. Rullani, 1997) and of the role of interdependence between economic agents, the systems supporting economic activity, an active associative life, solidarity and civic culture (S. Brusco, 1989,1992; R.D. Putnam, 1993) bear out this reassessment of the complexity. The analysis performed on the development of the Institutions, their achievement of a stage of maturity and their possible decline and transformation taken forward by the French school of regulation through the analysis of *modes of regulation*<sup>15</sup> (R. Boyer, 1988) leads in the same direction. Conclusively, this passage by D. C. North clarifies this crucial point for our analysis:

“The most important moral that can be drawn from this chapter is that the institutional order has a fundamental importance in regard to the performance of an economic system (...) however, as I have tried to show, some institutional constraints increase the transaction costs.<sup>16</sup> So the market is in any case a blend of different institutions, some of which increase its efficiency, others decrease it. If, however, we compare the institutional picture of countries like the United States, the United Kingdom, France, Germany and Japan, with those of underdeveloped Third World countries, or with the historical experiences of the advanced industrial countries, it is clear that the institutional order is the key to interpreting the relative success of the economic systems, both in geographic as well as historic terms”<sup>17</sup> As can easily be seen, we are very far from the ‘hydraulic’ theorisation of globalisation, i.e. those based on only one dimension, the costs, and only one mechanism, supply/demand, and a process of convergence that works in the same way as the law of communicating vessels.

Thus, the recovery, in the analysis of social and economic development, of complexity as an analytic dimension leads us to consider, irrespective of disciplinary fields and according to different theoretical approaches shared in the different disciplinary fields (e.g. Institutionalism), the variety and the meaning of *contexts*. The term *context* is too generic for the use we have to make of it and thus requires some specification. Indeed, in the literature of the last two decades, the channelling together of different approaches and disciplines has allowed us to isolate some concepts that, generated within the scope of specific disciplines, have been extended to other disciplinary fields. We are not referring to the metaphorical use<sup>18</sup> of specific concepts, generally of little use, but to a full-blown work of ‘translation’ of specific concepts into equally specific concepts; these concepts benefit, as information technologists might say, from a certain degree of ‘portability’, and are precious because they allow for multi-disciplinary analyses of complex arguments. The concepts we are referring to

<sup>13</sup> in short, the set of public and private institutions that by interacting help the creation and the diffusion of innovation.

<sup>14</sup> “(...) that node of institutions, values and knowledge which, firmly anchored to a community, a history, a territory, still manages to dialogue and trade with a system of codified knowledge, with the most advanced conquests of the world’s scientific and technical community.” Brusco, S. - Global systems and local systems - in Cossentino, F. and others (edited by) - LE RISPOSTE LOCALI E REGIONALI ALLA PRESSIONE GLOBALE: IL CASO DELL’ITALIA E DEI SUOI DISTRETTI INDUSTRIALI (The local and regional responses to global pressures: the case of Italy and its industrial districts) - Il Mulino, Bologna, 1997. p.219

<sup>15</sup> one method of regulation is based on all the institutional forms that guarantee the dynamic compatibility of decentralised economic decisions, without requiring the economic actors to internalise the exact principles of adjustment of the whole system.

<sup>16</sup> The term transaction costs comes from the economists Oliver Williamson (1985) and Douglas North (1990) and serves to distinguish the costs associated to the exchange process from the ones associated to that transformation, broadly speaking they indicate all the information costs linked to the economic activities.

<sup>17</sup> North D.C.- ISTITUZIONI, CAMBIAMENTO ISTITUZIONALE, EVOLUZIONE DELL’ECONOMIA (INSTITUTIONS, INSTITUTIONAL CHANGE, EVOLUTION OF THE ECONOMY) - Il Mulino, Bologna, 1994, p.108.

<sup>18</sup> The most recent interpretations of the metaphorical language assign it a heuristic role and not just a rhetorical one, see in this regard Cacciari, C. - WHY DO WE SPEAK METAPHORICALLY? - In (in press) Katz, A. (ed.) - FIGURATIVE LANGUAGE AND FIGURATIVE THOUGHT - Oxford, Oxford University press.

in this case are those of the transactional and contextual environment<sup>19</sup>. The transactional environment of an organisation is the one with which it interacts in carrying on its primary task; however, there is also a broader ambient, beyond the ambient relating to the task, which can be called ‘contextual ambient’ Now, whereas there is larger consensus as to the relationship between business organisation and transactional ambient, the relationship with the broader ambient is seen indiscriminately as background and, at most, the place of possible constraints on the business activity. In the past few years, there have been contributions coming from the most diverse disciplinary fields - ecology, economics and sociology with an Institutional orientation, the Italian tradition of analysis of districts, etc. - a reassessment of the salience of the contextual ambient which appears to be anything but undifferentiated and with a much more strategic role than that of setting constraints. Beccattini and Rullani remark: “In actual fact, production is an intrinsically *situated* process. Each location mobilises in production its own natural conformation, its own history, its own culture, its own social organisation: all resources and circumstances that, taken in their combination, are different from the ones that can be mobilised from any other place. (...) The specificity of the local systems regards the way in which the economics of the enterprise system is integrated into (and is nourished by) its environmental backdrop. In fact, it is the local *milieu*, the arrival point of a natural and human history, which supplies the productive organisation with some essential inputs, such as labour, entrepreneurship, the material and immaterial infrastructures, the social culture and the institutional organisation (...), producing does not just mean transforming a set of inputs (data) into an output (end-product) according to given technical processes in a given time-span, but also means *reproducing* the material and human premises from which the process itself starts off. The production of the *goods* includes the social reproduction of the *productive organism*: a really ‘complete’ productive process should co-produce, together with the goods, the values, the know-how, the institutions and the natural ambient that serve to perpetuate it.”<sup>20</sup> In fact, it is at this level - which some people call meso level - that the selection is determined between the different sets of strategic variables, all theoretically equiprobable, in terms of the system of industrial relations, the labour market, the training opportunities, the public policies. In our case, all these factors play a very relevant role, if we think to:

- ✓ the extent of the availability of a traditional specialised labour force;
- ✓ the opportunities for scholastic training in the new professional skills;
- ✓ the presence or absence of a stable, virtuous circuit between working conditions and company performances; the reproducibility of that circuit on a wide scale on the territory, the role of the system of industrial relations;
- ✓ public policies sustaining change, the infrastructuring of the territory, e.g. the presence of adequate telecommunications and innovation networks - e.g. by means of agencies supporting innovation;
- ✓ legislative policies and credit policies,

etc..

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<sup>19</sup> See, Trist, E. - A CONCEPT OF ORGANISATION ECOLOGY - Management and Behavioural Science Centre, The Wharton School, University of Pennsylvania, 1976 and Van Beinum, H. - THE KALEIDOSCOPE OF WORKPLACE REFORM in Naschold, F. et al. - CONSTRUCTING THE NEW INDUSTRIAL SOCIETY - Assen / Maastricht, Van Gorcum, 1993.

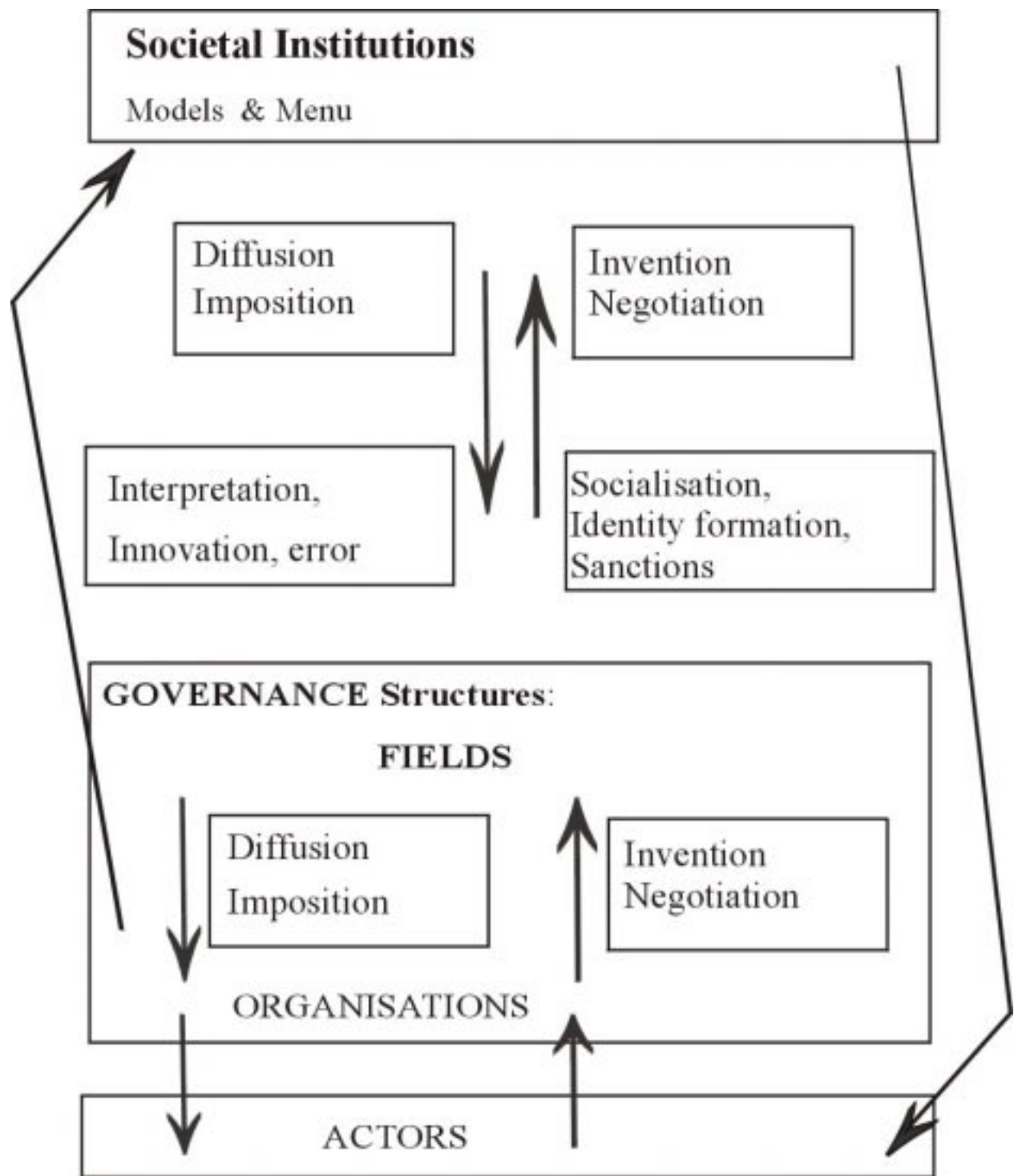
<sup>20</sup> Beccattini, G.; Rullani, E. - LOCAL SYSTEM AND GLOBAL MARKET - in Cossentino, F., Pyke, F., Sengenberger, W. -op. cit., p.230-233.

But how do change and innovation take place, then? Faced with an external pressure how does a given system change? Let's look at two different lines of interpretation:

- a) a formalised explicative model, which comes from the Institutional school, which poses the classical problem of whether, in the creation of new institutions and in the diffusion of the existing ones, the top-down process counts more, i.e. deriving from already existing external models and thus from forces external to that institutional set-up - in our case from the importation of cultures, structures, routines<sup>21</sup> the elements that convey the institutions - or bottom-up, i.e. on the initiative of the participants.
- b) The standpoint of the debate on the planning of organisations or complex organisational behaviours. If the process must be evolutionary - thus a continuing improvement in time - it is evident - and this is a generally shared point - that the organisations that decide to follow this path must be open to profound processes of reorganisation and change of the cultures hitherto shared and accepted by different groups and interests present on the inside. Can these processes of reorganisation and transformation, otherwise known as the entire end system, be specified *ex ante*? - e.g. can a functional quality system be described before its implementation? And again, is there a stable end system that can be pre-defined upon starting the process? In short, we find ourselves dealing with the conceptual pairs: from the top - from the bottom, pre-defined - open. This is an elegant initial description of the problem:

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<sup>21</sup> "Institutions consist of cognitive , normative and regulative structure and activities that provide stability and meaning to social behaviour. Institutions are transported by various carriers - culture, structures and routines - and they operate at multiple levels of jurisdiction." In Scott, W.R. - INSTITUTIONS AND ORGANIZIONS - Sage, USA, 1995, p.33.



This figure describes a double movement between different institutional levels: the *societal level*, whose institutions supply the context within which specific fields as well as specific institutional forms are modelled (shaped); the *intermediate level* in which the organisational fields<sup>22</sup> supply specific institutional structures within which the specific organisations operate. Lastly, the organisations provide the institutional context inside which specific actors operate. The *general knowledge* that Marx spoke of, i.e. the convictions - the *habitus* of P. Bourdieu (1970)<sup>23</sup> -, the norms, the operative menus, the scripts<sup>24</sup>, that is, the guidelines for the choice of actions that are meaningful for the actors, flowing downwards through the various levels, conveyed by processes of socialisation, social construction and sanctioning powers. These models, which are transported and reproduced, are also modified and reconstructed through the interpretations and the inventions of the actors that are in the lower levels: the individuals, the organisations and the organisational fields.

A second formalisation comes from the socio-technical reflection on the organisations: we had asked ourselves: can these processes of reorganisation and transformation be specified *ex ante*?

If the answer is, largely<sup>25</sup>, affirmative then it is a matter of a ‘normal’ planning process: there is a problem, some people with the specific competencies to resolve it, a solution, an outcome, and, perhaps, some final touches in order to take into account unexpected or little known events, that may have been poorly documented at the beginning. If the answer is negative or only partially<sup>26</sup> positive, then the classical planning methodology is no longer valid, a new one is needed. A methodology that must allow us to keep together two opposite demands: on the one hand, allowing us to define a ‘project’, that is a coherent set of objectives, some of which have a high degree of technical specification; on the other, enabling an open transformation process, i.e. not pre-defined, thus able to allow people and organisations involved in testing and learning, during the unfolding of the transformation process, methods coherent with the final goal but not pre-defined. This way of reasoning is normally connoted with applying the adjective *Learning* before various organisations or institutions; we thus speak of *Learning Region*, *Learning Organisation*, etc.. As nearly always happens when we use pre-packaged formulae we run the risk a being trite or superficial and for this reason we prefer to describe the nature of the process at the cost of being repetitive or boring. The fatal risk we run when we address these open approaches is that of superimposing pure ideological figures over real problems and a rigorous delimitation of the concepts becomes necessary. One of the fashionable ideological figures is that of spontaneity/democracy as opposed to organisation/authoritarianism. According to this reading, a process for being democratic, effective, ‘good’, etc. must be completely open<sup>27</sup>. All of this discussion is completely devoid of any empirical control; all the studies performed<sup>28</sup>

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<sup>22</sup> On the basis of Institutional-oriented studies there is growing interest in intermediate systems that mediate between the structures of society and the individual organisations. These intermediate structures are called *organisational fields*.

<sup>23</sup> Bourdieu, P; Passeron, J.C. - LA REPRODUCTION - Les editions de Minuit - Paris, 1970. The habitus is the mental structure by which the human beings move within and comprehend the social ambient. It is transmitted by the family and the school and is what supplies cohesion to society because the individuals have in this way internalised it and reproduce it every day.

<sup>24</sup> A concept introduced by Schank, R.C. and Abelson, R.P. -SCRIPTS, PLANS, GOALS, AND UNDERSTANDING - Hillsdale, NJ: Lawrence Erlbaum, 1977, the script indicates models and sequences of behaviour activated by specific roles or situations.

<sup>25</sup> concretely speaking, it refers to the critical variables of that specific system.

<sup>26</sup> That is, unable to specify a set of critical variables.

<sup>27</sup> See in this regard Gustavsen, B. - DIALOGUE AND DEVELOPMENT - Van Gorcum, Assen/Maastricht, 1992.

<sup>28</sup> see in this regard Naschold, F. et al. - CONSTRUCTING THE INDUSTRIAL SOCIETY - Van Gorcum, Assen/Maastricht, 1993.

highlight that an effective process of change, able to let everyone have their say, must have some well defined objectives, a clear and well-known structure of rights, roles and responsibilities, etc.. The level of democracy of the process, if any, comes after having satisfied these requisites.

Symmetrically, it is stated that the processes of change directed from above, i.e. with a complete description of the process before its implementation, are more efficient, rapid and reassuring. Indeed, the leadership takes on all the responsibilities and is always in time to adjust the process subsequently; intense formative moments will then help a process of adaptation, some problems and a small amount of suffering during the work are a modest toll for the chance “to ferry us from one shore to the other” in the shortest possible time. The rhetorical expression of the crossing from one shore to the other clearly conveys the idea that lies behind this attitude: the search for stability. We move from a condition of stability to another through a totally pre-defined and controlled process. Even in this case the empirical<sup>29</sup> observation demonstrates that even in strictly managed organisations there is a structural discrepancy between the intentions of the planners and the organisational patterns, and actually the stricter the control is the more depressed is the organisation’s capacity to mobilise a potential useful towards transformation; in short there is no ‘normal’ way to control a process of transformation once it has got started, or to command its creation when it doesn’t yet exist.

So how can we escape from the adventure of a process with no control or the risk of the loss of the capacity to mobilise a potential for innovation?

The concept the *minimum set of critical specifications*<sup>30</sup> is useful. It comes from the organisational theories born within the socio-technical school and starts off from three fundamental premises: a) the systems that can learn and that can adapt to environmental changes require: *an internal variability* to allow alternative response profiles, the testing of the different profiles and an evaluation of the results, the selection of the most congruous response - *dishomogeneity of the company cultures and the existence of different systems of expectations, interests and ends as the wealth of the set* - ; b) the variability and thus making mistakes is not in itself a negative fact, on the contrary the systems must have a sufficient and truly utilisable potential of *internal variability*, as well as specific mechanisms for the *self-correction* of the errors in such a way as to be able to adapt to a variable environment - *redundancy of the functions*<sup>31</sup> as a criterion for strategic management-; c) countless studies have demonstrated that many different types of labour organisation can correspond to a given technological system - *technological non-determinism* - and independence from the different variables (social, cultural, technical, etc.).

We can thus define the principle of planning based on the minimum critical specification as that principle which identifies the minimum set of conditions necessary to create minimum organisational units able to adapt. The optimum condition is for the interested unit not to require external activities of supervision and control and that therefore the managerial function has a role of mediation between each unit and the whole. In line with what has been said so far it is clear that as it is a question of dealing with independent variables there will always be the possibility of more than one minimum set of critical conditions. In conclusion, the new technique consists of overcoming the detailed

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<sup>29</sup> ibidem

<sup>30</sup> Herbst, D.P.G. - SOCIO-TECHNICAL DESIGN: STRATEGIES IN MULTI-DISCIPLINARY RESEARCH - Tavistock Publications, London 1974.

<sup>31</sup> the redundancy of the parts and that of the functions is distinguished between, see Emery, F.E. - THE NEXT THIRTY YEARS: CONCEPTS, METHODS AND ANTICIPATIONS - Human relations, 20:199 - 237, 1967.

specification - *ex ante* - of all the variables and instead in trying to identify a minimum set of variables, which must be specified, leaving the others free. The initial set of selected variables must be specified and thus become fixed and structural parameters. They structure the process of change avoiding its being crushed between the two risks described before - the absence of control, the absence of innovative potential.

As can easily be imagined, if we correlate the two orientations we can consider the *minimum set of critical specifications* as the fruit of the *general knowledge*, available on international scale as the result of scientific and technological research but also of the *good practices* that the practical experience of the individuals and social actors creates. This scientific/practical knowledge and what flows downwards. But it does not have the characteristics of a closed and normative knowledge - even when it regards technico-operative aspects - but a 'point of agglomeration' of re-interpretative processes, 'metabolising' so to speak, that re-open an innovative process on a local scale. All this does not exclude crisis as a possibility, as indeed the theoreticians of regulations have underlined more than once, precisely the stratified character of the regulatory models - in the school language: *regimes of accumulation* and *methods of regulation* that together constitute a *development method* - allows us to conceptually integrate the concept of crisis by distinguishing the *cyclical crises* from the *structural* ones. The structural ones regard the contradictions internal to the method of development and thus either a crisis of the regulatory mode - which is the set of the regulatory institutions - or the crisis of the regime of accumulation. The crisis of the regulatory model is born from the presence of new economic factors that cannot be faced within the framework of the existing institutions; this may depend on social and political factors - for example, the request for a different distribution of income - or on a stiffening/decline in the regulatory mode as such; in summary, it may derive from internal as well as external factors.<sup>32</sup> The crisis of the regime of accumulation instead calls into play the development mode as such, for example the American crisis of the 1980s, and this leads to the search for new institutional forms.

Thus, following this long conceptual analysis we can sum up several essential points for our work:

- 1) there is no simplification of the social systems that is of any help when we decide to carry out policies aimed at a specific set of objectives;
- 2) the complexity of the social systems consists, first of all, in the impossibility, both analytically and operatively, to separate the individual - for example, the single enterprise - from the context; as a consequence, the unit of analysis and the unit of organisation change is not the organisation of the company as such, but the company in its environment and with its environment (H. Van Beinum, 1993); this also means that the individual initiative cannot alone deal with the system's level of complexity;
- 3) the complexity of a social system is made of multiple dimensions and there are influential approaches in different disciplines, which take into account such complexity. The different systems of conceptualisation help us to understand how the different dimensions and the set of the variables interact but do not allow for the construction of predictive deterministic models; technically, we speak of *open systems*;

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<sup>32</sup> An analogous concept, even if very much influenced by a deterministic idea of technology, is that of *mismatch* between the existing socio-institutional framework and the potential of a new techno-economic paradigm; this concept was introduced in 1988 in the study by Freeman and Perez on the long runs of economic activity: Freeman, C, and Perez, C - *Structural Crises of Adjustment: Business Cycles and Investment Behaviour* - in Dosi, G et al (eds.) - *Technical Change and Economic Theory* -, Oxford, Basil Blackwell, 1988.



- 4) the open character of the social systems rests on the active and creative role of the meanings of the human actors; from this derives the fact that the only ways to determine a course of action is to include all the legitimate interests in its planning and management;
- 5) the openness of the social systems does not imply their total indeterminacy; i.e. every course of action that can be hypothesised is not possible; there are the constraints of *social and practical coherence* - for example, the wilfulness or lack of wilfulness of the social actors to agree on incomes policies; or the possibility to have great flexibility in the management of the labour resource cohabit with the need to create a knowledge-based society; or the lack of a set of resources for a part of the members - that limit the courses of action possible in terms of *coherence frameworks*. A *coherence framework* is a concept for *describing a set of strategic choices, either individual or collective, whose component parts interact dynamically according to a virtuous circuit*. This does not mean that a *coherence framework* represents a systemic relation, free from contradictions or conflicts, but a dynamic development solution; a *coherence framework* often represents the practical management of a theoretical dilemma. the opening of a system thus means that there are countless possible courses of action. However, they are not a patchwork of disconnected micro-actions, but a set of complex multi-dimensional courses of action. Every course of action has a substantial degree of 'closedness', that is, it does not allow, within itself, all the actions that the system ideally allows for. There is therefore a *strategic* dimension of the policies that can be evaluated as such, both in respect to the choice of reference values, and in respect to its internal coherence, and the consequences deriving from the 'nature' of the *coherence framework*;
- 6) The complex nature of the social systems and the complex interactions between 'opening' and 'closing', determinacy and indeterminacy, can be dealt with on the level of the policies with the help of a set of conceptual tools: an articulation of the policies among the different levels of the action: the *company* - the micro level - , the *local system* - the meso level - , the *national system* - , the *European Union* - the macro levels - and their dual relations: *top-down* and *bottom-up*; the *preservation/reproduction* dynamic versus *change* through the extension of the concept of *institution*, the analysis of the change as process and the concept of *minimum set of critical specifications*, and lastly, the idea of a *system of governance* at the level of local systems.

## *THE GOVERNANCE SYSTEM*

Another perspective for dealing with the topic of the preceding chapter - if there exists another road between the old concept of planning and that of the market as supreme regulator -is that offered by the concept of *governance*. The meaning of *governance* - a concept that was born out of the studies of comparative industrial economics - is "a method or system of government or leadership"<sup>33</sup>. In this context it stands for a system of government based on the presence of many different powers operating autonomously but within the framework of a system of rules and institutions that enables all the actors - taken as a whole - to define, step by step by way of negotiated conflicts, a dynamic equilibrium of the powers at play. Naturally, this is only possible when and if some general values are shared and a certain degree of reciprocal trust can be set up. We can for example speak of the governance system in the car sectors of different countries and/or regions, taking into account the system

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<sup>33</sup> Webster's new universal unabridged dictionary - Barnes 6 Noble books, New York, 1992

of laws and regulations as well as the system of industrial relations, both the formalised one as well as the non-formalised one. We can thus distinguish between different historical periods in a given system - such as a sector, a region, etc. - that vary from a situation of stability - changes that dynamically readjust the equilibrium - to situations of structural disequilibrium among the forces at play. In these cases we have the crisis of the old paradigm in a way that is analogous to the one described by the theoreticians of the regulatory school. if we turn our attention to Emilia-Romagna it is evident that today the situation is a situation of crisis and not of pure adjustment. To put it another way, there is no convergence between the strategies of the different actors at all levels i.e. macro, meso and micro. Contrariwise, when there is such a convergence this depends largely on a set of *intermediate institutions* and rules artificially created to allow the system to reach a virtuous condition. this set of intermediate institutions and rules are what I call *a new class of public goods*. This does not mean that there is an omniscient 'Big Brother' that defines the actions allowed and the prohibited ones, but that a cross-fertilisation is determined between positive experiences, the institutionalisation of the cognitive elements and practical knowledge that derive from it, and those forms of positive thought, available on an international scale such as scientific and technological knowledge. The specific form of the local system of *governance* - for example, the System of Industrial Relations, the education system, the complexity and completeness and accessibility of a system of rights to citizenship - produces an alternation and an overlap - almost a diffraction spectrum - of moments of convergence and divergence between that given system and the external pressures. This description of a possible use of the concepts of governance and of the intermediate institutions may be of practical interest because it allows us to analyse the situations in which we try to export or import a model of action - whether it is a matter of a new managerial technique at the company level, or whether it is a question of a different regulatory criterion for labour, at meso or macro level - to evaluate how to orient the public policies *in such a way as to select the modalities for learning and readjustment*. A straightforward way to clarify my concept is to state that in a situation of crisis there is a large set of alternatives available but that they cannot be adopted liberally; because they are interconnected according to degrees of congruence that are more or less rigid. In short, we have to choose profiles of action that are structured and alternative to one another.

# THE ELECTRONIC NETWORKS

## TRANSACTION COSTS, SOCIAL RELATIONS AND INSTITUTIONAL SET-UPS

The lesson hitherto studied - i.e. that all the economic activities are “encapsulated in social relations and are structured and sustained by political authorities. these institutional set-ups, that serve to reduce the transaction costs, are essential to the working of the economy”<sup>34</sup> - tends to fade away in the consciousness of whoever reflects on electronic networks. In such a case the technological aspect is in the foreground and it seems as though the socio-economic or cultural implications possible are the result already inscribed in the technology - that is to say, an application - that can switch off or come on at will. For example, we say that the new technologies today make possible the creation of global networks of economic activities and thus make accessible the benefits of agglomeration, typical of local economies, on a scale previously unthinkable. By saying this we only say a part of the truth. That is, we are describing a possibility that is contradicted by other effects deriving from the same technological basis. The creation of such networks, in fact, comes about through phenomena such as the externalisation of functions and processes, first concentrated in the same company, and in the territorial dispersion even with long logistic chains, of functions and processes that previously, even if being a part of different companies, were concentrated on a local scale or at most regional/national. These two concomitant phenomena of externalisation/articulation and dispersion exponentially increase the co-ordination tasks of the leading companies<sup>35</sup> increasingly the transaction costs and running the risk of creating real bottlenecks. As Mansell observes: “ICT networks can improve information flow among firms and, depending on their design and exclusivity, they may even contribute to gains through a strengthened ability to appropriate information. But there is nothing inherent in the hardware and software components of an ICT network that produces more productive information exchange. In fact, increased problems for co-ordination and control can arise alongside the benefits of more flexible networks.”<sup>36</sup> It is thus true that the new *information and communication technologies* (ICT) “Configured in a networked architecture, they not only extend *the reach of market information*, as in the past. Equally - if not more - important, they can greatly enhance *the density and the functionality* of market information, thereby generating the kinds of economies of agglomeration that hitherto were available only in local, tight-knit, geographic, markets.”<sup>37</sup> But this does not only depend on their “technical capabilities but also on their design and architecture as well as the rules governing their access and use. To establish and execute such rules, and to resolve competing claims with respect to them, some form of *governance* - operating at all levels - will

<sup>34</sup> Garcia, D. Linda - GOVERNING ELECTRONIC COMMERCE IN A GLOBAL ENVIRONMENT - essay in Fukuyama, F. (ed.) - NEW WORLD ORDER: INFORMATION TECHNOLOGY AND INTERNATIONAL RELATIONS - Suny press, in press; p.2

<sup>35</sup> cf. Sassen, S - The Global City - Princeton University Press, 1991

<sup>36</sup> Mansell, R. - Information, organisation, competitiveness - in Antonelli, C. (ed) - The Economics of Information Networks - North - Holland, Amsterdam, 1992; p.219.

<sup>37</sup> Garcia, D. Linda - op .cit. - p.16.

be required. Absence governance, electronic networks will not reduce transaction costs, but will, instead, generate greater uncertainty. Networked markets will then - if they do not cease to exist - function very inefficiently as a result.”<sup>38</sup> On the same wavelength, Mansell also points out: “However, rather than giving emphasis to technical change and the transformations accompanying the innovation and diffusion of ICTs themselves, analysis needs to shift to the sources and determinants of institutional and organisational change among the components of a network system. Decisions with regard to the *organisation* of network systems and the *allocation of economic resources* to the development of different facets of the interlocking components affect the competitiveness of larger firms as well as their suppliers and customers.”<sup>39</sup> Moreover, so far the contradictions described are not specific to this historic phase. The extension of the markets and the increase in the complexity of the economic activities have meant a constant increase in the transaction costs which has been faced with the creation of a new mix of technologies and specific institutions and mechanisms; amongst these a fundamental role has always been played by the improvement in the system of communications, in a broad sense, and by public control - in the double sense of regulating the use and the access for the members of the community (be it a city or a state) and to use it as an element, a State policy, advantageous *vis-à-vis* other communities - on the use and access to information linked to the market. It is no coincidence that starting from Adam Smith the classical example of the need for a public sphere of economic activity has been that of the system of communication - roads, bridges, ports, etc. - and of the control exercised on the proper functioning of the market. It was evident ever since then that this role of the State could not be suppressed for two reasons, one the very cohesion of the State itself, the other the efficacy of the market. Indeed, as concerns the first reason, making an exception for the areas with a very high density of inhabitants, there is no economic return for investments of that kind and there would thus be territorial discrimination that in general is associated to a social one, inside the same country, which would undermine its unity. Exactly what is happening today in the United Kingdom or the United States, with the total deregulation of the telecommunications sector. In the case of the USA it is evident, and the unexpected results of the 1976 Communications Act go to prove it, that the lack of a system of rules and values that somehow make the behaviour of the actors at play less uncertain, runs the risk of triggering off a ‘war without rules’ that destroys the market itself, besides unproductively destroying huge riches. The economic concept of *externalities* or, to be more exact, *external economies* (Marshall, 1920) introduced the idea that there exist some interdependencies, between the participants to an economic system, that do not operate through the market mechanism or that are not completely mediated by process, there can be negative externalities - a third party, external to the economic transaction, is hit by the consequences of a transaction between seller and buyer as in the case of pollution - just as there are positive externalities - for example, when there is a direct interdependence between producers that use free of charge, each one in his function of production, some factors generated by a third party, such as for example, a certain know-how publicly available in that territorial area or in that industrial sector. Typically, the positive externalities are external to the market and are related to co-operation and co-ordination. A very special example of externalities is that of transaction costs. There is no doubt that the concept itself of network is from the very beginning linked to the role of the externalities in the explanation of growth and economic change. What is specific to this phase is the organic transformation of the information, of knowledge, into a particularly precious datum such that its value consists in giving, to whosoever possesses it, a strategic advantage in the production of all the other goods not only from the distributive point of view but also from the point of view of the very organisation of the economic cycle and the production of those goods. Information and knowledge have become an important part of the

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<sup>38</sup> Ibidem, p.3.

<sup>39</sup> Mansell, R. - op. cit. - p.224

‘productive base’ of wealth. As has already been mentioned, there is no linear process, guided by technological, by development, there are contradictory trends: “The long-term impact of networking technologies on the economy will depend to a large degree on how businesses employ them to reduce rising transaction costs [*partly dependent upon the technologies themselves - my note*]. To optimise their benefits, new ways of doing business are required; in the future, co-operation will likely prove more rewarding than competition and information-sharing more fruitful than information control. The businesses that succeed in this radically changed environment will be those who - like the railroad owners in their day - seize the opportunity to restructure their organisations and goals to take the best advantage of their situations.”<sup>40</sup>

So what will the kind of outcome of these contradictory pressures depend on? What will the prevalence of a reduction in transaction costs depend and thus a contribution to a greater overall wealth or the onset of a free-for-all ‘war’ to off-load onto others the unstoppable rise in transaction costs, the prevailing, that is, of a reduction in the extension and the “depth”<sup>41</sup> of the market, and thus an impoverishment?

Fundamentally speaking, the capacity to realise a co-ordinated set of social and economic innovations. These innovation regard:

- ✓ all three levels of analysis defined earlier: the macro. i.e. national and European-, the meso - regional and local; and lastly, the micro: the organisational structure of the public/private companies/organisations and their labour organisation;
- ✓ the institutional levels defined on page X that is, the *societal level*, whose institutions supply the context within which exist and are modelled both the specific fields and the specific institutional forms; the *intermediate level* in which the *organisational fields* supply specific institutional structures within which specific organisations operate. lastly, the organisations that supply the institutional context within which specific actors operate;
- ✓ the juridically-defined institutional set-ups - for example: schools, the labour market - just as the structures of governance - for example the actual industrial relations system - and the strategies and behaviours of the collective actors - for example, labour unions and entrepreneurs’ associations.

An analysis of these innovations as a whole lies beyond the scope of this paper - an excellent contribution in this direction is the Final Policy Report of the high-level expert group of the DGV of the Commission of the European Union entitled “Building the European information society for us all” - but it is worth trying to outline the direction to be taken in order to concentrate on the meso and micro levels.

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<sup>40</sup> *ibidem*, p.20, the bold type in the text is mine.

<sup>41</sup> By the term *depth* I mean to indicate the relationship between internal market and external market and thus the degree of real access of the whole population to a representative basket of the wealth of that market.

## THE ELECTRONIC NETWORKS AS POSITIVE EXTERNALITIES

The concept of externality has already been introduced in IV, i. It is a very useful concept because it is one of the overarching concepts that link the analysis of the networks with that of the industrial districts. Hence, two contexts of application of the concept of externality will be taken into consideration: the *industrial districts*, and the *company networks* to gather those common elements that are relevant to this analysis.

- (a) The industrial districts. All the analyses performed on the Italian districts have stressed and demonstrated the importance of that blend of co-operation and co-ordination not guided by the price and the competition mechanism which enable the benefits of a mutual exchange of benefits from a set of positive externalities linked to what Becattini and Rullani define as the intrinsically *situated* nature of production. Brusco (1997) thus sums up a long discussion that dates back from the 1970s to the present day: “(...) it was stressed that the district is a community of people and companies that operates on a limited territory, where the presence of economies external to the companies but inside the territory stimulated the formation and the development of a specialised productive apparatus, in which the minor companies have a very important role. (...) the community shares values and know-how that contribute to the success of the productive apparatus. These values and competencies are translated into co-operative behaviours between companies, and between workers and entrepreneurs. Often the local institutions have an important role in guarding and fostering the growth and the evolution of the community’s own characteristics. The Town Council, the entrepreneur’s associations, the trades unions, the banking system, the universities, the technical colleges, the training institutes, the service centres, lay and catholic voluntary associations, are all places and forms in which the community slowly designs and plans its own future.<sup>42</sup> Much international research has analysed in detail the role of each actor and each institution and the modalities by which they have played as positive externalities.<sup>43</sup> An analytic problem<sup>44</sup> which has a strong correlation between the territorial localisation and the identification of the districts; this correlation regards the social and economic fabric as a whole and among the characteristics under examination there is evidently that of a form of proximity that allows for effective access and thus for sharing, among all the actors, of the positive externalities identified. From a historical standpoint, we could point out how some of these characteristics, for example, the actual system of industrial relations, is to such an extent a discriminant factor that the very presence, or at any rate, the survival over time of companies belonging to certain branches of industry has depended on the character of the system of industrial relations actually existing in that specific territorial area; there is, in short, a dimension of organisation of space that has to be taken seriously into consideration. Alongside

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<sup>42</sup> Brusco, S; Paba, S. - The Italian Industrial Districts - in Barca, F. (edited by) - STORIA DEL CAPITALISMO ITALIANO DAL DOPOGUERRA AD OGGI (History of Italian capitalism from the end of the 2nd World War until today) - Donzelli, Roma, 1997; pp. 277-278.

<sup>43</sup> An excellent systematisation is in Amin, A. - Institutional Foundation and Problems of Adaptation in Entrepreneurial Regions: Illustrations from Emilia-Romagna -mimeo, 1997.

<sup>44</sup> See Chapters 2 and 3 of the essay by Brusco, S. and Paba, S. - op cit. -

such organically social and cultural factors, like the actual system of industrial relations, there are other aspects belonging to the system of external economies, that are a blend of infrastructuring - the existence or non-existence of certain physical resources and their concrete “architecture”-, their accessibility - both physically and in terms of rights - and the existence of a culture to use them virtuously. Even these aspects have a territorial and spatial dimension that conditions the possibility to single out a local system and the birth, growth and survival, inside it, of the system of districts. In these cases one cannot think of two phases, i.e. first the existence of the material part and then the immaterial part, so to speak. What countless studies have let us understand is the close relationship between the planning of the material part and of the institutional system that defines its accessibility and utilisability. Faced with the planning of a physical structure, for example, a network whether it is logistic<sup>45</sup> or telematic<sup>46</sup>, the first two questions we must ask ourselves are as follows: to do what and for whom? While it is clearly demonstrable, in negative terms, that the logistic system is a determining factor for the external economies of the districts already operating; the critical nature of the telematic networks for the district nature of the local economies is unclear from the operative standpoint. Indeed, if one looks at the demand and supply of telematic services nothing seems to authorise their definition as being strategic for the development of the districts - a different matter is that of pure telecommunications services - but some considerations on the dynamic in progress help to better focus on the problem. The experience of the company networks can help us.

- (b) The company networks. In Emilia-Romagna there are starting to be some true and proper company networks, i.e. productive systems made up of several companies with activities that are dishomogeneous and functionally integrated, into a multiplicity of organisational forms, for the realisation of a specific product/service (Lipparini, 1995; Garibaldo, 1997; Belussi and Tolomelli, 1997); what happens in typical industrial districts such as that of the so-called automatic machines<sup>47</sup>. They are born for two strong and different reasons<sup>48</sup>:
- ✓ “virtuous reasons” such as the combination of a search for structural flexibility, through the de-verticalisation of productive cycles once integrated, and the efforts to selectively internalise the variety of factors necessary to manage the innovation process, through a strategic co-operation aimed at the sharing of know-how, the technical capacities and the learning opportunities. These networks, generally characterised by unequal relations, develop complementary innovative projects based on the reciprocity in the access to the results<sup>49</sup>; the most highly evolved of these

<sup>45</sup> Sergio Bologna has demonstrated how the non-existence of a specific logistic platform for the district economies is today an external diseconomy or a negative externality. Bologna, S. - LOGISTICA PER I DISTRETTI INDUSTRIALI (Logistics for the industrial districts) - Logistica Management, March, 1997

<sup>46</sup> In this regard see Mansell, R. - The new telecommunications. A political economy of network evolution - Sage, London, 1993.

<sup>47</sup> A detailed analysis is in Lipparini, A. - IMPRESE, RELAZIONI TRA IMPRESE E POSIZIONAMENTO COMPETITIVO (Companies, relationships between companies and competitive placement) - Etaslibri, Milan, 1995.

<sup>48</sup> see the specific analysis in Garibaldo, F. - Lecture on the presentation of the research, LA QUALITA' NEL SETTORE DELLE MACCHINE AUTOMATICHE (QUALITY IN THE AUTOMATIC WRAPPING AND PACKAGING MACHINE SECTOR), commissioned by the Board for productive Activities of the Emilia-Romagna Region - mimeo, Bologna, July, 1997.

<sup>49</sup> an example of school if the case of the Tetra Brick Packaging System of Modena which, together with the network of its own suppliers, has set up a non-profit-making Consortium of purpose for the presentation of a Community regional

networks is that of an equal relationship between companies that function both individually and in networks, thus supplying both specialised products/services as well as complex integrated ones.

- ✓ pure reasons of cost, off-loading “downstream” all the costs and the inefficiencies of the parts of the non-strategic productive process for company purposes.

In any case - even in the virtuous case - they need dedicated systems for the exchange of communications and information in order to realise the integration of the complementary services/products. the “architecture”, both technological as well as social, of these systems is critical in the same way as property relations, incentives systems, organisational models, etc.: “The communicative networks enable a co-operative co-ordination among specialised companies and can become a substitute for hierarchical co-ordination. the physical integration in a communicative network can thus become a factor of near-economic integration between independent companies that decide to share a set of relevant information and act as a consequence in a co-operative framework.<sup>50</sup> So if the critical role of the electronic networks for the strategic change of the district economies can be missed in a static analysis, in a dynamic evaluation their crucial value becomes clear. As is underlined by the DGV report, the innovative nature of this technology must not be overlooked: “Unlike the previous ‘technological packages’, the new technologies of communication and information are not typically so closely linked to an intermediate demand for material physical goods and equipment. Certainly it is what makes the data so different from conventional primary materials (...). In physical terms it seems unlikely that the increased demand for computers, mobile telephones, fibre optics and Internet connections will give way to a strong impulse for growth, stimulating a demand for plastic to build computers and the fibre optic and ferric oxide to build the semiconductors. In spite of the large capital investments required for some of these products (e.g. the semiconductors), the physical accumulation of capital is no longer the essential ‘complementary economic good’ of this set of new technologies. Rather, given that the knowledge of how to use information typically depends on individual competencies and on what we have decided to call ‘tacit’<sup>51</sup> knowledge, the new economic good complementary to the growth and the use of the new

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ADAPT project - from the acronym Get-it - Group of Enterprises on Technical Improvement Training - with the aim of “moving from a situation of supply centred on the conformity of the product to the specification assigned, to a new relationship with a greater designation of tasks and acquisition of responsibilities of the supplier”.

<sup>50</sup> Antonelli, C. - op. cit. - p.22.

<sup>51</sup> The concept of tacit knowledge originates from Polanyi and is aimed at highlighting non-formalisable knowledge which cannot be learned in formal educational contexts; today it is thus defined by Lundvall :”The economics of knowledge is not a high-technology economy. This implies of course a wide definition of knowledge and skills. The wealth-creating knowledge includes the practical capacities learnt by doing, like the competencies acquired through a regular study course and formal training courses. It also includes management capacities learned through practice, like the new capacities produced by the investments in R&D.

It is also important to underline the fact that learning is an activity that occurs in all the branches of the economy, including the so-called low-technology, traditional sectors. In actual fact learning that occurs in those sectors can even be more important than what happens in few, small, isolated high-technology companies. The knowledge potential (the technological opportunities) can differ between sectors and technologies, but in most of the macro-sectors there are niches in which the knowledge potential is high. Lastly, it is worth noting the fact that every kind of work possesses some professional capacities and some knowledge capacities, including so-called unqualified male or female workers. These points are made in order to avoid the hypothesis occurring that the knowledge economy leads to neglecting the development potential of those parts of the economy that make a less intensive use of formally-acquired knowledge.” In Lundvall, B - A. - Information Technology in the knowledge economy - OPSI, supplement to IRES Materials, 5, May, 1996, pp. 37-46.



technologies of communication and information is the investment in intangible human capital.”<sup>52</sup> These considerations are essential for the district economies, other authors have underlined the importance of forms of knowledge different from the codified kind (Beccattini and Rullani, 1997) such as the contextual one, developing the idea of an articulation of integrated cognitive spheres: the local one, linked to the context; and the global one, linked to codes. Integration would take place by way of such ‘codes’ as technological, organisational and communicative ones.<sup>53</sup> We can infer that: “industrial progress can be thought of as a sort of large circuit that, on the one hand, spreads in the single local systems already codified knowledge and, on the other, it fuels the global network with the new (or old, but not yet codified) contextual knowledge of the local systems and the global companies (...). Of the company we can say that it is not complete without a sales network and a clientele, of the productive area we can say that it is not (not yet or no longer) a local productive system if it does not possess a stable network for the placement of its products and its own ‘image’. Besides, symmetrically, globalness does not occur in antithesis to each place, but vice-versa is nourished by them.”<sup>54</sup> We are starting to catch a glimpse of a series of connections between electronic networks and district economies but the analysis can be pushed even further. One of the technocratic myths linked to information technology and the electronic networks is the idea that the whole of human knowledge can be codified and thus made available, independently of their ‘human carriers’, thus realising an integral automation of human knowledge that, put into the network, would be available upon request from any place. A series of counter-deductions have already been presented against this standpoint but the most important one in regard to the study of electronic networks and district economies are the considerations made by Lundvall (1997). He refers to a series of international studies on the experiments undertaken, above all the so-called expert systems, observing that: “the main impact of these applications is not the reduction in the importance of tacit knowledge; rather it consists in an acceleration of the specific phases of the innovation process. Such an acceleration can paradoxically increase demand for competencies that are tacit rather than non-tacit. When the rate of change accelerates it affects all the economic agents with the consequent need to analyse and react against a complex, rapidly changing flow of knowledge; in this case the exclusive use of strictly analytical models does not work. My conclusion is that tacit knowledge as a mainstay of the reactions, the creativity and the practical intuitions is necessary both in order to adapt to the change induced by the clients and the competitors, as well as to impose a change in the competition with other actors; furthermore, any attempt to impose over-ambitious analytic models will slow down rather than stimulate the decision-making process in these kinds of context.”<sup>55</sup> From this comes his proposal, a key point for us, to consider information technology, and thus the networks, as a flexible instrument to support the human interactions and an interactive modality of knowledge.<sup>56</sup> “In this case what is focused on is not its capacity to substitute tacit knowledge but rather how it can give support and mobilise tacit knowledge. E-mail systems that link agents that share common local codes and interpretative frameworks can have this effect just like a wider access to the data and to the information by the employees can foster the development of common prospects and objectives in the company. Multimedia exchanges can be useful in transferring elements of

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<sup>52</sup> Various authors - Building the European information society for us all - Final policy report of the high-level expert group, DGV of the European Commission, Brussels, 1997, pp. 16-17.

<sup>53</sup> Beccattini, G.; Rullani, E. - op .cit. - pp.243-244.

<sup>54</sup> Ibidem, p.248.

<sup>55</sup> Lundvall, B-A- op. cit. - p.41.

<sup>56</sup> From this standpoint the Steve Jobs’ concept of *augmented reality* in Wired, iv, February 1996,2, pp. 102 et seq. is interesting

tacit knowledge, using, for example, combinations of sounds and images interactively, etc.”<sup>57</sup>

## ELECTRONIC NETWORKS, ENTITLEMENTS AND CAPABILITIES

The development of the networks involves the risk of a phenomenon of ‘enlargement’ (Garibaldo, 1996) of social trends towards social polarisation and marginalisation, already operating for other causes. In fact, they build a new system of opportunities and advantages that questions the previous rights (entitlements) and the previous ‘realisation systems’ (capabilities) of those rights; the examples are endless and range from what can happen on the labour market, to what can happen in the workplaces, as far as the rights of citizenship. In fact, it is evident that the growing pervasiveness of the information technologies and the growing use of networks for working and social activities, and for the use of services mean that:

- ✓ a certain computer ‘illiteracy’ can turn itself into an important cause of social marginalisation;
- ✓ the design of information and telematic equipment regardless of the user, in the double sense of his psychological and cognitive characteristics and of his interests and those of the groups he belongs to, produces class, gender, territorial discriminations, etc.; by design we not only mean the problem of more or less friendly *interfaces* but also the problem of *architecture* (Garcia, in press) and the *technical aspects of the network* which as Mansell demonstrates<sup>58</sup> are not neutral *vis-à-vis* the interests at play;
- ✓ the non-accessibility of the service due to reasons of territorial localisation can generate a fundamental discrimination; the topic is known as that of the universal service. A very difficult topic for two reasons: a) the need to extend the concept from the current one of a guarantee of the basic telephone service as far as including at least a guarantee of the telematic connection; b) the service providers, contrary to the neoliberalist ideas that inspired the 1996 Communications Act<sup>59</sup>, do not have much incentive to provide open, ubiquitous services: “Given sufficient demand, network providers will maximise the return on their investments if they restrict network access to a limited number of users. These users will likely be willing to pay a premium for exclusive network access to gain in two important ways. First, they will have greater control over their customers or suppliers, as well as privileged access to market information. Second, they will benefit from the economies of agglomeration that stem from a significant reduction in transaction costs. The benefits of reduced transaction costs will, moreover, become increasingly important with the proliferation of independent electronic markets, as products become more customised and complex, and markets are extended further across time and space.”<sup>60</sup> So it is no way true that market liberalisation automatically means a wider low-cost availability for all the services;

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<sup>57</sup> Ibidem. p.41.

<sup>58</sup> Mansell, R. - The New Telecommunications. A political economy of network evolution - Sage, London, 1993 - the whole of Chap. 10.

<sup>59</sup> Garcia, D.L. - The Failure of Telecom Reform - Telecommunications, September. 1996, pp. 43-48.

<sup>60</sup> Garcia, D.L. - GOVERNING ELECTRONIC COMMERCE IN A GLOBAL ENVIRONMENT - op. cit. - p.27.

- ✓ the choice of language and the modes of communication can determine a choice of marginalisation for cultural reasons that is no less harsh than that for reasons of wealth. Then there is the growing use of *virtual environments* both for working reasons as well as for playful or convivial reasons, which opens a serious problem on the impact that ensues on personal level and as concerns interpersonal communication; among the effects of this interaction we have to take into account the process of working reorganisation: work in virtual groups at a distance, telework, mobile work, etc.;
- ✓ the design of the telematic equipment built on the broadcasting model of the contents elaborated by the cultural industry or of products/services centralised by the public administration or by large enterprises, without any space with an *architecture* - it is not just a problem of connection costs - which enables point-to-point communication and the supply of products/services even to small independent producers, can lead to forms of true and proper censorship and new monopolistic practices;
- ✓ lastly, the problems of architecture, that is, how the networks are formed and connected between them, are very relevant; they must be flexible and open, inter-operative and connected; as has already been observed for the universal service, this does not happen automatically on the basis of the market forces, actually, it could be argued that the opposite is more likely to occur.

## SOME PRELIMINARY CONCLUSIONS

So we can draw some first conclusions as to the relationship between district economies and electronic networks:

- (a) In the first place, the essential role of the bilateral nature of the relationship: I) on the one hand, it is necessary to understand the dynamics of crisis and reorganisation of the regional district systems (Brusco and Paba, 1997; Amin, 1997) to understand if and how the diffusion of electronic networks amounts to an element of actual breaking up and destabilisation of the old system or an opportunity of growth, even if with a strong discontinuity in regard to the past; II) on the other, it is necessary to understand the multiple dimensions of the combination of information technology and the networks: 1) the ‘autocratic automa’, in the Marxian sense, of this technological revolution, that is a horizontal technology; 2) a sector of economic activity that ranges from manufacturing to services; 3) a new raw material of the productive process; 4) a new communicative medium, thus a way to extend the proximity and the degree of integration of the different working activities; 5) through the application of the a virtual dimension to the communications in the network, the possibility to realise a ‘new operative reality’ - i.e. Steve Jobs’ *augmented reality* (1996) - which allows for a re-organisation of the previous modalities of social and technical division of work and consequently a different organisation of work, both on company scale (micro) and on societal level (meso and macro);
- (b) the possibility to achieve a cross fertilisation of the two re-organisational tendencies; for example, on the one hand, the possibility, through the extension of the proximity of the working activities, of a larger territorial scale for the districts, on the other, through the extension of their degree of integration, a greater density of social relations both on micro as well as meso level. As has already been observed, that possibility does not

come from technology automatically - even if it is in need of it, that is, there is a need for a specific technological policy - but requires 1) apolitical and institutional framework active by means of specific policies (a system of governance), 2) a system of 'entitlements and capabilities'-;

- (c) the practical character, i.e. social and experimental of knowledge, both in the case of districts and in that of the networks, requires an itinerary of collective learning which is not only translated into the necessity to study and train people to use a new method, supposed to be already defined, but also in that of transforming the existing practice to create others. This is a fundamentally political requirement as it concerns a restructuring and a redefinition of personal and collective roles, thus it regards the structure of given power. It requires an institutional framework and a 'social atmosphere' capable of managing and dealing with conflicts 'openly', i.e. with the definition of dynamic equilibria or, otherwise said, of a framework of intermediate institutions - a system of industrial relations, an education system, new market rules, a different credit system, etc. and of civil cohabitation that considers equilibrium as a process fact, i.e. a virtuous circle that requires a continuous job of reconstruction because it has no claim or guarantee of organic integrity. This involves the need for policies for the creation of these new 'public goods' or, if we prefer, a new class of positive externalities; policies that are not just down to the public powers but also to civil society and collective actors;
- (d) an institutional framework and an adequate 'social atmosphere' require two preconditions: 1) a policy of inclusion, i.e. social cohesion; 2) a shared symbolic horizon, a hypothesis of transformation, i.e. which comprises, among the values and ideologies that accompany it (Musso, 1997), even if conflictually, a declination of the articulation of values and ideologies of the actors at play;
- (e) a policy of inclusion, i.e. social cohesion requires the choice of priorities and timing for the change that are the fruit of a public and transparent discussion/negotiation, not only between the strong actors - whether social or territorial - and the political power, but which allows for the inclusion of the weak actors; this is only possible with some specific policies of promotion and safeguarding for those who do not have access - a voice - in the political-institutional arena;
- (f) a shared symbolic horizon has something to do with identity, both personal and that mediated by the organisations, and thus with the possibility to grasp a change, on the part of the majority, a possible route of personal growth; this requires an equilibrium between solidarity and competition that cannot come from political action and not from the market pure and simple. From here the abstractness of the 'modernisers' who think they can substitute one model with another, liquidating the capacity for strategic thought and the powers of intermediation as a conservative residue: "there seems to be emerging a harsh neoliberalist reference framework, preoccupied with efficient and effective delivery, from the point of view of costs, of projects determined by the client, exactly in the moment in which it is necessary to define a broader agenda oriented to certain objectives. In short, the political culture seems to go exactly in the direction opposite to the one necessary to pursue a process of creative institutional path-shaping"<sup>61</sup>. So it is a question of giving shape to that *experimental regionalism* that Sabel (1995) speaks of and that requires "a change in the role of political leadership, from a culture of service, or command, to that of the management of autonomous networks and 'mobilisation' of

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<sup>61</sup> Amin, A. - op .cit. - pp.17-18.

the ‘intermediate institutions’ (intermediaries) to develop and sustain experimentalism”<sup>62</sup> ;

- (g) *experimental regionalism* requires the development of instruments for critical reflection, through which the community policy become ‘capable of re-evaluating and re-visiting substantive duties and developing a culture of regional experimentalism in which the main task is to help the regional economic actors to master a new discipline of decentralised co-ordination which constitutes the policy of experimentalism as such. Instead, the tradition is that of presupposing that the craftsmen and the small companies know their activity better, and that the task of the collective actors should be that of facilitating access to the factors of production (credit, services to companies, labour, etc.)”<sup>63</sup>. This observation is exactly congruous to the specific innovative character of information technology and the electronic networks, considered in the multiple dimensions indicated before (a, II), and in this consists the policy defined as the creation of a new class of public goods;
- (h) *experimental regionalism*, lastly, requires a labour culture based on the idea that “there is no alternative way for becoming permanently better if not that of putting at the centre of the strategy the knowledge and the creation of knowledge”.<sup>64</sup> And that: “this naturally implies a broader definition of knowledge and skills. the knowledge generating wealth comprises the practical capacities learnt by ‘doing’, just as the competencies acquired after a regular course of studies and formal training courses. It also includes the capacity of management learnt through practice just like the new skills produced by investments in R&D. It is also important to underline the fact that learning is an activity performed in all the branches of the economy, including the sectors so-called at low technology and traditional. In actual fact, the learning that occurs in these sectors can even be more important than what happens in few, small, isolated high-technology companies.”<sup>65</sup> Once again it is not a matter, as the ‘modernisers’ think, of a process of substitution of old social layers with new ones, of manufacturing with services, dependent labour with independent labour, and so on, but re-invention and broadening of a ‘culture’ and an experience, this does not mean excluding solutions of continuity, it is the way of building them that is different.

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<sup>62</sup> Ibidem, p.19.

<sup>63</sup> Ibidem, pp. 14-15.

<sup>64</sup> Lundvall, b-A. -op. cit. - p.38

<sup>65</sup> ibidem, p.38.

# A POLICY FOR THE NETWORKS

So a policy for the networks, both the electronic ones and the logistic one Bologna is talking about, is multifaceted as we have gradually sketched out but also requires, as we have just said, a symbolic framework of reference as we don't want to end up as prisoners of inconclusive technocratic options. It does not consist of a mere list of very general values, such as those that we find today in many company declarations on the so-called 'missions', but in some guidelines that indicate the choice between the ones I have defined as 'coherence frameworks', that is, the 'families' of political and planning choices which, while open, have a certain internal congruence and thus exclude some others. We can thus say that such a policy must be articulated around these load-bearing axes:

- 1) A policy of social inclusion through the development of rights to which correspond, through specific policies, the real possibility to enjoy them; examples of these policies are: the ubiquitous service and the possibility to overcome the characteristics of a basic service through some specific measures of support and promotion; this can be translated, for example, in the case of electronic networks, in the creation of a network of regional networks (flexible, open, inter-operative and interconnected) with an architecture that allows for the use of an instrument of decentralised communication;
- 2) A policy of citizenship extended to the networks; this could be translated, in the case of the electronic ones, into the possibility for each citizen to be able to use the network, as a right to citizenship, within the Region, with the chance, paying the dues, to 'open' its use on a global scale;
- 3) A policy of productive use of the networks, not only therefore a medium for *entertainment* or the communication between the Public Administration and the citizens or between the sellers and the clients but an instrument for economic re-organisation, broadly speaking, actively managed as such;
- 4) A policy for labour; this means, on the one hand, a complex process of reorganisation of the labour organisations congruous to the new criteria of knowledge and co-operation as engendering the working activities; on the other, it is translated into the promotion of the development of information technology and the electronic networks as a sector of economic activity;
- 5) A policy of production of knowledge and support to technological innovation, this could take place through the creation of pre-competitive centres that allow, in one direction, the visibility and the diffusion of international research and, in the other direction, the visibility of the specific problems of the regional context and their utilisation as inputs for product innovation.

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