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The Relational Geographic Information System (SIGR) a proposal of a new methodology of regional and local management and planning

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THE RELATIONAL GEOGRAPHIC INFORMATION SYSTEM (SIGR) A PROPOSAL OF A NEW METHODOLOGY FOR REGIONAL AND LOCAL MANAGEMENT AND PLANNING

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Abstract

The objective of this communication is to present a new methodology for territorial analysis and planning which allows the inclusion in the diagnosis, characterisation and planning of local and regional territorial units, the thorough knowledge and identification of institutional, organisational and entrepreneurial intra- and inter-territorial relations developed in the territory, from the territory and for the territory being analysed. A new instrument for territorial analysis, which we call The Relational Geographic Information System (SIGR), makes it possible to evaluate the relational potential, internal and external, of the territory, and to include, in its planning, strategic options for the evaluation of this dimension as a factor in the reinforcement of intra-territorial cohesion and in promotion and inter-territorial transnational repositioning.

Key words: Relational, cartography, information, regional development.

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Introduction

The relative positioning and the survival of a multiplicity of regional and local territories involved in the process of European integration requires the development of a new force for mapping European economic reality, in which new points of reference should be not only the rigorous identification and evaluation of the intrinsic capacities of each territory, but also the recognition and identification of multiple economic inter-territorial, inter-organisational and transnational interdependencies, interrelationships and communities of interest in operation or in the process of becoming operational in the territory of the Union.

The particular economic decline or rise of certain regions appears to result, on the whole, from their capacity to develop or to up-date their relational portfolio (the grouping and characteristics of their exterior relations - the “wallet” of the external relationships of the territory) within this complex system and organised into a hierarchy of networks of specialisation, innovation, co-operation and of the reticular and informational organisation of markets, sectors and economic agents.

So, there is a need for the development and strategic utilisation of a territorial cartography of the relational nature which allows the rigorous identification of the positioning of each territory within the ambit of the European and the global economy.

1. Factors in the increasing evaluation of the relational dimension of local and regional territories

The concretisation of Economic and Monetary Union has determined in European Union terms the creation of an economic territory in which the factors of production tend to circulate freely and to be moved principally on the basis of economic criteria and of localisation, in a way similar to that which happens in any national economy.

This new relation “in open space” is, for each of the infranational territories in the Union, increasingly a problem of searching for a relationship with and a more favourable position within the European Union. The operation of the economic territory and the functional territory of the Union is to alter the economic and spatial organisation of economic sectors, as well as the economic specialisation of different regional and local territories.

The process of European integration, and the consequent internationalisation of inter-territorial relations ¹, inevitably implies alterations to the structural nature of the territories and of their respective economies. The fact that enterprises have begun to distribute themselves in a different form within the territory of the European Union and have reformulated their spatial strategies certainly implies structural alterations in the territories to which the enterprises have moved or whence they have withdrawn.

The external relationship of territories through external commerce, direct foreign investment, movements of capital and through these new inter-territorial relations reinforces the process of establishing hierarchies and, in some cases, of disarticulation in relation to the local / regional / national economic territories involved at the same time as allowing them to encounter new economic partners.

Frequently, this type of relationship established between cities and between different regions belonging to different member states still represents an innovation in organisational terms (interactive functioning, partenarial nature, development of a given culture of networking,; new forms of relationship between production and the market; temporary / permanent intensification of special transnational relations; the acceptance on the part of different territories and member-organisations of development together, or with common strategies and functions).

These forms of transnational inter-regional and inter-urban association even constitute a new politico-administrative dimension in terms of the European Union ², and the definition itself of this type of reticular relationship is, in some way, the practical affirmation of the principle of subsidiarity as well as tending also to affirm natural positions of leadership on the part of some of them ³.

Some of the developing inter-organisational and inter-territorial networks of cooperation involve a group of regional territories with levels of economic development sufficiently above the Union mean, and with a specific economic specialisation distinct from the rest. This, on its own, transforms these networks into complete territories from the economic point of view and, for this reason, they could be considered as functional

¹ Internationalisation of territories lies in their economic base and in their relational capacity on the transnational scale.

² The network is, in itself, an image and a perspective of power. See RAFFESTIN, C. (1981).

³ The relationship within a network always involves strategies and procedures for inter-articulation and coordination between the different member territories. Concerning cities or leader-territories and cities or space-territories see BONNEVILLE, M. (1994)

large territories in the Union framework and / or being established as for territorial economic re-equilibrium ⁴.

The position and the role of each territory in the network is, above all, dependent on its economic dimension, on its level of internationalisation, on the variety of its participation in other forms of cooperation within the network, on its relational capacity, and on its level of autonomy to develop transnational cooperation activities.

Thus the networks will tend to function as a new form of regulation of spatial interactions on a Union scale as to decisions about localisation, population migrations, the transnationalisation of productive processes and of processes of innovation.

The process of integration, in itself, tends even to create a belief in the loss of importance of the nationality of the ownership of factors of production. The standard of living of citizens itself appears increasingly to be less dependent on the nationality of enterprises, and increasingly subsidiary to enterprises which are located in the territories in which they are found (importance in terms of employment and income) and to general access to products (importance in terms of consumer capacity) in the whole territory of the Union.

The progressive disappearance of national frontiers themselves, and the significant increase in the number of member states and of the characteristics of individual sectoral and spatial / regional policies of the European Union, has developed, on a Union scale, a system for the spatial functioning of a type of city state. In this way the territories depend increasingly on themselves and on their own economic potentialities which either do or do not confer on them the capacity to face up to competition and to determine in accordance with their interests a multiplicity of selective forms of cooperation and preferential relationship.

The relationships in a network create new networks of confidence between the members. The inter-organisational networks promote increasing accessibility between partners, develop new interdependencies and stimulate inter-organisational metabolism,

⁴ The functioning of the market entails a selective process of locations, of territories, and a redefinition of territorial unities as a result of reticular transnational relationships, , generating a new definition and conception of regions of equilibrium. This new reality thus creates difficulties in the estimation for real territories in virtue of the fact that each of them presents very different configurations as a consequence of developments of reticular relationships. These new forms of interdependency create problems of visibility for territorial economic planning itself.

at the same time as allowing corporate competitiveness and enabling the creation of value between organisations ⁵.

Thus, it is necessary to consider the reticular relationships as an emergent reality which constitutes, in global terms, a set of new opportunities and of new threats.

At the same time, the new process of integration makes imperative the development of efforts towards strategic harmonisation and articulation between the different economic, institutional and politico-administrative agents of each territory to define together territorial initiatives for employment, economic planning, technology, entrepreneurial policy, infrastructures, innovation and internationalisation, together with a strategy for the reconversion and re-evaluation of their economic base. Which, in its turn, stimulates the intra-territorial development of reticular models for cooperation and relationship.

This new reality requires and/or compels a higher level of understanding of markets; a rigorous evaluation of the cartography of its geo-strategic models of intra- and inter-territorial relationship and positioning; and an exhaustive diagnosis of the geography of flows and economic and institutional relationships in which the different partners find themselves involved.

In this way, local and regional territories will have to develop models of territorial management with criteria and principles of variable territorial geometry which has the potential to reconvert or put in place models of internal inter-organisational and inter-institutional cooperation and promote and evaluate concerted strategies for internationalisation and external positioning and for the reformulation of territorial comparative and competitive advantages.

In this sense, we are seeking to develop a methodology for analysis and territorial planning, which we have called The Relational Geographic Information System (SIGR), which allows, in the diagnosis and planning of territorial entities, the inclusion of intra-territorial and inter-territorial institutional, organisational and entrepreneurial relationships developed in the territory, from the territory and to the territory in analysing and evaluating the internal and external relational potential of the territory. In this way it would be possible to include in its planning strategic options for

⁵ The primary form of inter-organisational network results from the coming together of organisations which comprises the “wallet” of clients and furnishers of a certain enterprise or sector. From a territorial point of view, the primary and most embryonic form of cooperation or association consists of the twinning of territories.

evaluation of this relational dimension as a factor for strengthening intra-territorial cohesion, and for inter-territorial transnational promotion and repositioning.

It is an instrument which allows evaluation to be made of networks and of diverse inter-enterprise and inter-institutional relationships created within the ambit of a determined local/regional territory and on a transnational scale, and the evaluation of the degree of importance of assimilation and shared interest which these networks and relationships generate in the economic and institutional agents involved in it.

2. The diagnosis and the evaluation of local and regional characteristics and potentialities

The growing competitiveness between local and regional territories requires, in terms of the planning and management of territorial units, a deep and thorough understanding of the characteristics and of the organisations and firms situated in it. At a time of great inter-territorial competition such as that in which we live, success in the planning of organisations, firms and territories depends, to a large extent, on their capacity to reformulate and up-date their competitive advantage in ever shorter periods of time. In this way, the effectiveness of strategies to implement for the territories (by the local/regional political), for enterprises and organisations established there, is strongly dependent on the quality of the information system which serves to support them and on the nature of the information they have at their disposal.

The need for firms, for organisations and also for territories to take decisions ever more in real time, requires a precise knowledge of their characteristics (potentialities/weaknesses), of the resources they have at their disposal (Human, natural, financial, technological), of their economic dimension, of the quality of their infrastructures and equipment and of their internal and external involvement.

In terms of territorial planning, knowledge of aspects such as those following is absolutely essential:

- i) The evaluation of local/regional production capacity and of the nature of its commercial relationship with other territories on different territorial scales (local, regional, national, supranational), and a study of the geographical location of the principal markets as destination for local/regional products;
- ii) The characterisation of territorial economic specialisation for sectors and for products, and a diagnosis of the complexity and sophistication of the principal

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- local/regional economic ranks in operation and the respective potentialities in terms of future development;
- iii) The evaluation of the local/regional level and capacity for the transformation of locally available raw materials and a knowledge of current technology in productive processes installed in local and regional firms;
 - iv) A study of the level of promotion and local/regional development of processes and infrastructures for research and innovation, and an analysis of the local/regional capacity to absorb processes of innovation and of technology transfer;
 - v) The evaluation of the local/regional entrepreneurial dynamic and an inventory of the degree of involvement of local/regional enterprises and organisations in national and/or international processes for technology transfer, for sub-contracting and for entrepreneurial cooperation;
 - vi) An inventory of the principal economic investments made, of the sources of financing used and of the economic sectors receiving most support;
 - vii) The evaluation of the degree of local/regional development of forms of public/private/mixed cooperation;
 - viii) The evaluation of the quality of the infrastructures and of available equipment and an analysis of the level of internal and external accessibility of the territory;
 - ix) The identification and characterisation of the principal local/regional socio-economic-political agents and of their current and future strategies;
 - x) The characterisation of human resources and of the characteristics of the territory in terms of its attractiveness for population;
 - xi) The identification and evaluation of public policies ⁶ already implemented locally and regionally or in the process of implementation;
 - xii) The characterisation of the degree of external attractiveness and of the degree of internationalisation of the territory, and a diagnosis of the territorial areas of influence of the territory and of its products, firms and organisations.

The collection and treatment of this information allows, in intra-territorial terms, the attainment of an inclusive and detailed picture of the principal characteristics of the territory under study and, in inter-territorial terms, a primary identification of its relative position in relation to other territories. Further to this, there are other aspects that must

⁶ About evaluation of public policies see PIGALLE (1998)

be taken into consideration, namely, compiling an inventory , from an intra- and inter-territorial perspective, of the assortment of inter-institutional, inter-enterprise and inter-organisational relations being developed in the territory, from the territory and to the territory.

So, in order to understand and evaluate the internal and external relational capacity of organisations, enterprises and institutions present in a territory, it is extremely useful to move forward to an approach to an analysis of the flows and to a measurement of the intensity, frequency, continuity and practical results of these flows.

This analysis will allow an inventory to be constructed, on different territorial and sectoral scales, of the relations which the diverse socio-politico-economic agents have established, permitting the discovery of the equilibrium platforms among that which has constituted, and must continue to constitute, the competitive dimension, with that which could come to be the dimension of cooperation on a local/regional scale for the repositioning of the territory at a local, regional, national and supranational level.

The study of the relational dimension of territories through the identification of their relational cartography allows us to develop, in diagnostic terms, a three-dimensional type of picture, and to reinforce the importance of the relational dimension in territorial analysis and planning.

3. The analysis of the relational dimension and of the internal and external relational capacity of territorial units

The relational dimension of each local and regional territory consists of a conjunction of economic and institutional relationships developed intra- and inter-territorially by firms and institutions in the ambit of the performance of their specific activities and or in the course of their own strategic intention to increase their competitiveness and to add value to their relative positioning.

The degree of sophistication, of diversification and of effectiveness of the intra- and inter-territorial relational portfolio of each territory (the combination and characteristics of their internal and external relationships - the “wallet” of the relationships of the territory) has constituted a determining factor in terms of its capacity to reformulate and update respective comparative and competitive advantages.

In the context of great inter-territorial competition in which the economic and institutional relationships are found, progressively, structured by networks of

specialisation, innovation, cooperation and by the growing reticular and informational organisation of the markets, sectors and economic agents, the development and strengthening of inter-institutional, inter-organisational and inter-enterprise relationships, with strategic intention within a determined territory, could constitute a factor for reinforcing intra-territorial cohesion and for preserving local/regional communities of interest and identities.

In the same way, the great values and the multipliable effects which could result from the intra-territorial articulation of the individual strategies of different institutions, firms and organisations present there, and from the strategic sharing of their “wallets” of external relationships, could ensure a new internal dynamic and vitality to the economy of the territory, and strengthen development of economies of proximity ⁷, as well as, being a major facility for the positioning and the relationship of the territory and of each of the firms located in it in supranational markets.

In this context of the widespread integration of markets and of the growing transnational relationship of enterprises and institutions, local and regional territories must develop a growing strength in and a continuous reformulation of their competitive advantages and of the anticipation of predictable future developments in terms of opportunities and threats to their territorial economic specialisation.

The reformulation of competitive advantages of each one of the territories, in large measure, could result from internal bonds of cooperation which could develop among locally placed institutions and enterprises (the importance of sharing networks and cooperative relations between different economic and institutional agents while at the same time an instrument for revaluation and territorial strategic planning).

The capacity for external relationships for each local/regional territory is naturally dependent on its economic dimension as well as on the degree of internationalisation that already characterises it. In this sense, it is important to find, in territorial terms, the equilibrium platforms among which has constituted, and must continue to constitute, the competitive dimension at a local, regional, national level and a cooperative dimension at a supranational level.

It is important to reconcile the models of competition and performance in the markets for each of the enterprises, institutions and organisations within the territory with models of inter-institutional and inter-organisational cooperation and articulation,

⁷ Concerning economies of proximity see VELTZ (1993), concerning organisational proximity see (KIRAT & LUNG (1995).

to put a value on complementarity, to strengthen the economic base, and to articulate the public policies and the territorial policies to be implemented. The new design of territorial public policies should increasingly include this aspect in its conception as well as developing strength in the sense of progressively putting in place in network the instruments of policy and the respective mechanisms for their execution.

The articulation of the different strategic options for the economic and institutional agents of each territory should even precede some of the territorial public policies destined for them. In order to ensure the most effective adaptation between the regional and the sectoral policies for implementing and the specific requirements of each territory, it is necessary to achieve a better harmonisation between the territory to be evaluated and the strategies which should be followed to attain it.

In this sense, it is important to stimulate internally the feeling of solidarity in territorial terms and to demonstrate the potential which could be associated with the definition of concerted performance strategies. The aim is to make possible the articulation and definition of institutional and entrepreneurial strategies for participation and involvement in networks of international cooperation in order to promote intra-territorial⁸ economic restructuring and, at the same time, a revaluation of the regional territory involved⁹.

This process should be developed through intra-territorial institutional and entrepreneurial strategic accords in a form which allows it to be sustained and developed with strategic purpose. Only in this way it will be possible to propitiate development and to strengthen cooperation and internal complementarities and define policy bases and joint solutions for understanding with regard to:

- i) Projects and initiatives for territorial economic evaluation and implementation;
- ii) Models and solutions for internal cooperation with a view to exploring and acquiring new markets for local products on different territorial scales;
- iii) Forms of finance together infrastructures with strategic relevance;
- iv) Initiatives to evaluate attractiveness and external territorial visibility;
- v) Strategic articulation of the strategic development plans of institutions and organisations in the territory, whenever possible;

⁸ See BUISSON & ROUSIER (1998).

⁹ See GILLY & LERROUX (1999) concerning institutional and enterprise relationships and the definition of a mechanism for territorial regulation.

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- vi) The definition of global concerted strategic options with regard to the model of intended territorial development;
 - vii) Forms of development and evaluation for internal economic ranks;
 - viii) Models for internationalisation and external repositioning.

The management of the territorial relational dimension would thus be developed simultaneously via two routes (intra- and inter-territorial) and with variable territorial geometry, that is, the strategic relational groupings for promotion would vary in the function of the sectoral ambit and in the nature of the strategic options which would be developed.

The definition of a strategy for communication and exterior relations would naturally have to be settled by a fundamental mediator - the image of the territory. The image of each territory consists of a qualitative representation of the territory composed not only from objective indicators but also based on symbols and associations of symbols between the real and the imaginary, developing a set of representations (one of the fundamental components of territorial strategic planning)¹⁰. Above all, the objective of the development and strategic utilization of the image of the territory is to attract new economic activities and new populations, as well as to influence their location decisions (attracting new localisations as well as maintaining the enterprises and the populations already established there).

The institutional management of the territories themselves thus tends to centre itself increasingly on a mid-point between the reality of each moment and the future conceptualisation of each of the territories or network of territories. The territorial strategic planning should be developed through a *just in time*¹¹ type planning model, and must be the most feasible in bringing about the reconciliation of these two realities. The networks of transnational cooperation comprise, even, a new privileged framework for territorial strategic planning with multiple possibilities which occur precisely from

¹⁰ The image which is naturally used for the definition of its position related to other territories or networks of territories, and in terms of development of its own attractiveness. This territorial image functions as an instrument for external territorial evaluation.

¹¹ Strategic planning as an interactive and recurrent planning model, is a form of seeking reversible strategies and seeking to perpetuate or reinvent at every moment new competitive/comparative advantages, is now transposed to territories and networks or groups of territories with, new possibilities and potentialities as a consequence, also, of new informational networks created, at the same time, between them. Territorial strategic planning involves, especially, prospective analysis and constant and interactive revaluation, and the reemployment of results acquired through experience and experiment, involving the participation and collaboration of all of the agents located in each territory.

the fact of the possibility of their articulating, in multiple combinations, the different individual images from each of the territories with the image of the network itself.

The nature of the internal and external relational model of each territory is strongly dependent on its economic dimension and on the dimension of the enterprises and organisations located within it, and on the relational experience itself of each of them in relation to different territorial scales.

Each territory has its own relational model which results from its economic and social history, from its past in terms of taking decisions about the localisation of infrastructures and about support in the localisation of enterprises, of institutions and organisms for public administration as well as from the nature and the type of the collected entrepreneurial and economic dynamic it has been possible to establish.

This specific relational model should now be re-evaluated and reformulated with respect to the definition of concerted strategic options in ensuring strategic operationality.

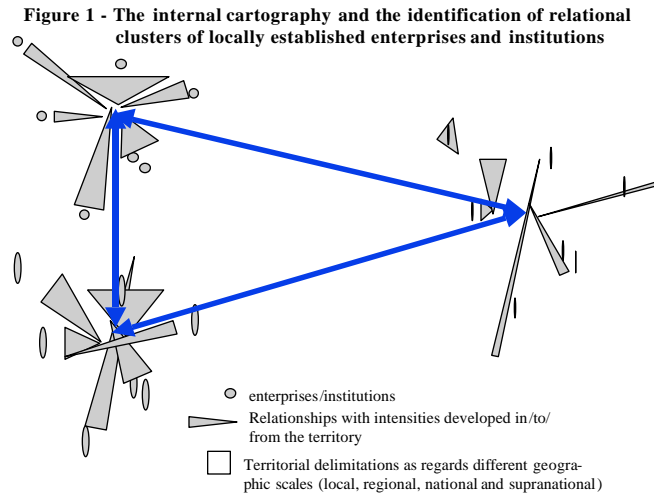
So, this can only be attained through thorough knowledge of the relationships already functioning in the territory, from the territory, and to the territory and through the identification of the relational portfolio (internal and external) of each of the institutions, organisations and enterprises locally established. And thus, through the identification of a map of economic and institutional relationships (local, regional, national and supranational) of the territory and a map of relationships of each of the enterprises, institutions and organisations within the territory. That is, through constructing in detail its relational cartography.

4. The cartography of intra- and inter-territorial economic and institutional relationships - the relational cartography

The production of the relational cartography for each territory allows the identification of the geography of its relative positioning and of its relationships vis-à-vis different territorial scales - its relational geography.

The relational cartography of territories could thus constitute an important instrument for the diagnosis and operating of strategic options, and allow gains in visibility and in the articulation of inter-organisational strategies in development in the territory.

This relational cartography should achieve not only the identification of the internal and external economic and institutional relationships in which the territory is involved but also, in relation to each of these relationships, the evaluation of their nature, the objectives underlie them, their intensity, durability and temporal continuity, together with the identification of internal and external relational clusters (figure 1).



Each of the local and regional territories is, in itself, a small system¹² characterised by a conjunction of resources and material and non-material factors of production, an economy with a collection of economic agents and a collection of markets interacting with it and interacting with others belonging to other local/regional systems and, in its turn, interacting with higher order systems (national inter-regional, national¹³, transnational inter-regional), they themselves in interaction with other systems of equal order and with yet others of higher order (transnational inter-regional of a higher territorial ambit), all functioning, together, within the European Union system¹⁴ and, for its part, within the megasystem - the world economy.

In local and regional territories, as in all types of systems, there exists a double characteristic of order and disorder which, in this particular case, results from the adaptive processes which occur from the progressive integration and inter-relationship¹⁵ with many other local and regional economies and their implications in terms of

¹² Composed of a collection of hierarchic and heterarchic organisations, each of them contributing to the complexity of the group.

¹³ The national productive systems are composed of a mosaic of local and regional economies.

¹⁴ *System* is, by definition, a group of elements in interaction, which is maintained in a state of dynamic stability within defined or known limits.

¹⁵ Concerning *the tectonics* of territories see SANDERS (1992).

internal/external structural adjustment. In the same way, different local territories are not equal in terms of resources and infrastructures which are arranged neither with regard to the characteristics of institutions, organisations and firms in these territories nor with regard to the level of economic development that characterises them. Also, their relational cartography will vary from territory to territory.

The relational cartography for each territory depends on the relational dimension and, consequently, on the relational cartography of each enterprise, organisation and institution (including organisms of public administration and local and regional authorities) localised there. (figure 2). The relational cartography of each territory is the result of the sum and overlapping of the individual relational cartographies of each enterprise and institution (figure 3), and the nature and type of the input and output flows as well as the geographic location of their origin and destination, in relation to each one of them, must be identified.

Figure 2 - The enterprises and institutions relational cartography

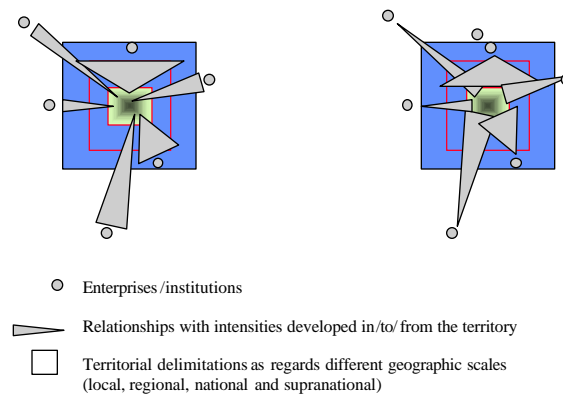
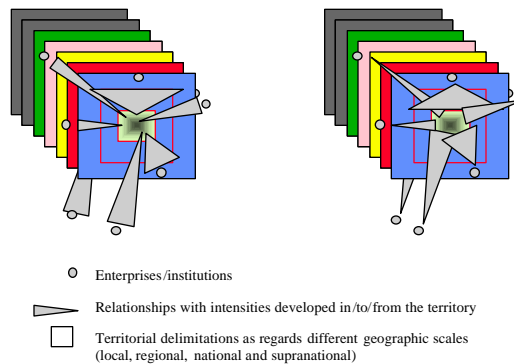


Figure 3 - The relational cartography of local and regional territories



The definition of the relational cartography of each territory thus requires the definition and articulation of a multiplicity of separate relational cartographies, among which are:

- i) The cartography of territorial localisation and of the relational capacity/dimension of the locally and regionally established enterprises with foreign capital;
- ii) The cartography of territorial localisation and of the nature of the relationships between enterprises belonging to the same economic group;
- iii) The cartography of territorial localisation and of the relational capacity/dimension of the principal locally and regionally established exporting enterprises and of their principal markets of destination;
- iv) The cartography of territorial localisation and of the relational capacity/dimension of the principal locally and regionally established importing enterprises and of the principal markets of origin of imported products;
- v) The cartography of principal markets of destination of local/regional production as regards different territorial scales (local, regional, national, supranational);
- vi) The cartography of the principal market areas / areas of influence of locally and regionally established enterprises;
- vii) The cartography of the territorial localisation of locally and regionally established enterprises in terms of their nature and dimension;
- viii) The cartography of protocols of intra- and inter-territorial inter-organisational cooperation and of its intensity;
- ix) The cartography of protocols of intra- and inter-territorial institutional cooperation and its intensity;
- x) The cartography of the most important markets of origin of the principal local/regional inputs;
- xi) The cartography of the transnational inter-organisational networks of cooperation in which the organisations in the territory participate;
- xii) The cartography of the transnational inter-institutional and inter-enterprise networks localised in the territory are involved;
- xiii) The cartography of the flows/relationships and their intensity developed between the members of each of the transnational inter-enterprise, inter-institutional and inter-organisational networks in which the territory will be involved.

The relational cartography of each territory will thus result from the overlapping of different distinct relational cartographies. At the same time, the relational cartography allows the identification of the different types of input and output flows in / to/ from the local/regional territories among and between institutions, organisations and enterprises, helping to determine the degree of intensity and frequency of these relations.

5. The Relational Geographic Information System (SIGR)

The processing and storage of information that has been gathered, having in view the elaboration of the relational cartography of each territory, should be concretised through the development of a specific geographic information system, which we call The Relational Geographic Information System (SIGR), which precisely places in evidence the nature and the intensity of the flows and the intra- and inter-territorial relationships already identified earlier with regard to different territorial scales.

It is a geographic information system which allows an updating and a dynamic utilisation of this relational cartography and which could serve to support the decision-making of public policy-makers in defining territorial economic policies and at the same time being an instrument of supporting the orientation of firms, institutions and the territory itself. It allows a rigorous analysis, identification and mapping of different flows/relationships that exist between each point, and from point to point (in geographic terms), each point corresponding to an enterprise, an institution, an organisation or a territory, or a group of territories according to the degree of association at which it would work (concerning to each point the system must have an information database).

An information system comprising:

- i) Graphic and alphanumeric digital databases with cartographic base and thematic and alphanumeric data concerning the graphic and cartographic elements;
- ii) Databases containing images, data and text concerning the assembled information;
- iii) Applications for the insertion and conversion of data (graphic and alphanumeric) to update the cartographic bases;
- iv) Applications for spatial analysis which allow the cross-referencing and analysis of diverse types of graphic and alphanumeric information even though expressed on different scales;

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- v) Applications for consulting and visualising data bases which allow the simultaneous consultation of graphic elements and respective alphanumeric elements.

Each enterprise, institution, organisation, territory or group of territories will be geographically localised and positioned, in so far as this information system will have as a cartographic base a world map with a degree of detail sufficient to apportion each type of relational cartography. So, it is a way of allowing the elaboration of an economic, social and relational atlas of the territory in intra- and inter-territorial terms - a cartography of the spatial trajectories of the territory - a dynamic analysis of its relational conduct on different territorial scales.

This, then, makes it absolutely essential that the databases of the Relational Geographic Information System (SIGR) also allow the storage and processing of all existing and available information concerning the territory in question, which has been assembled through the use of all different methods and techniques of spatial analysis.

At the same time, as regards relational analysis, it is important to develop instruments and ways to quantify and inventory these flows/relationships in a way that makes possible the processing of all of the information associated with each type of already identified cartography and thus to make clear aspects such as:

- i) The degree of diversity in the type of economic and institutional flows/relationships developed in / to / from the territory;
- ii) Characteristics and number of partners involved in each internal partnership initiative, number of initiatives and projects current there;
- iii) Characteristics and number of partners involved in each type of economic/institutional flow/relationship developed from and to the territory;
- iv) Degree and diversity of the concretisation of the objectives for each type of economic and institutional flow/relationship developed in the territory, to the territory and from the territory;
- v) Nature of the results occurring in each type of economic and institutional flow/relationship developed in the territory, to the territory and from the territory.

As well as identifying the respective most important points of origin and destination.

Final comment

By virtue of the growing process of the internationalisation of socio-economic relations, the politico-administrative geography of states and of local/regional territories no longer coincides with the geography of their economic and institutional relations, in the same way their politico-administrative frontiers no longer coincide with their economic frontiers or with the frontiers of their economic relationships.

The detailing of the relational cartography for each local and regional territory, and its systemisation through The Relational Geographic Information System (SIGR), allows the evaluation of its relational dimension, understood as the sum of the individual relational dimensions of each of its enterprises and institutions, which could contribute to a better understanding of each of the local and regional territories as dynamic systems in inter-action. That is, it allows clear demonstration of the model of the internal functioning of the territory and of the way it is related to wider territorial areas.

The production of the relational cartography of each of the socio-economic-political agents locally and regionally established in the territory through The Relational Geographic Information System (SIGR) allows the identification of the geography of its positioning and relationship as regards different territorial scales ensuring, in this way, gains in visibility and in the articulation of organisational strategies for the development of the territory.

In this sense, it would be possible to bring together, in the analysis and characterisation of territorial units and their relationships, a socio-economic approach to the territory with a behavioural approach to the role of, and the relationships between, the different socio-economic-political agents territorially established.

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