

POLYCENTRISM IN THE MARCHE REGION, A STRATEGIC FACTOR FOR A COMPETITIVE DEVELOPMENT IN SUSTAINABILITY

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10.1. THE INTERPRETATION OF COMPETITIVENESS AND SUSTAINABILITY IN THE MARCHE REGION

It is well-known that the shift from the paradigm of quantitative “growth” to “sustainable development” has been significantly achieved with the Treaty of Lisbon (2000) and the Council of Gothenburg (2001), although the search for alternatives to the mere economic growth represented one of the European Union’s strategic objectives since the nineties of the last century, in response to the warning of the United Nation Commission on Environment and Development (UNCED), which in the late eighties warned the world about the shortage of resources.

Since then the quality of development has become the main objective to achieve through the right combination of EU policies; but only later (in 2007) attention would be focused on the territory, rather than the space, as the right dimension and most appropriate key to intervene and plan a European polycentric and balanced development.

Since the beginning of the twenty-first century, regional planning in the Marche region took as reference the objectives of the Lisbon strategy (knowledge society, social cohesion and equal opportunities, innovative development) and the guiding principle of Gothenburg (ensure environmental, social and regional sustainability to economic development).

¹ Despite the common reflection and sharing of results, paragraph 10.2 (including BOX 3) have to be ascribed to Simone Betti, subparagraph 10.3.1 to Enrico Nicosia, paragraphs 10.1 (including BOX 1 and 2) and 10.4 and subparagraph 10.3.2 to Carmelo Maria Porto.

The target set by the Lisbon Council to steer European economy, by 2010, towards a more competitive and dynamic vision that is able to achieve a sustainable economic growth based on employment growth and social cohesion is, therefore, the reference point of the activities of the Marche Region² for 2007-2013.

On the other hand the twenty-seven countries of the European Union drafted a national plan of reorganization on the basis of these general guidelines, in which they stated reforms and other measures of national competence that are necessary to approach the above-mentioned objectives. Italy has approved the *Piano per l'Innovazione, la Crescita e l'Occupazione* (PICO - *Plan for Innovation, Growth and Employment*)³, which specifies reforms, measures and national programmatic actions to pursue the Lisbon objectives and renew their potential.

The main axes of the Lisbon strategy's launch are then configured as decisive strategic guidelines for development and competitiveness policies in Marche region as well, and this is quite clear from the analysis of the contents of *Programma Operativo Regionale* (POR- *Regional Operational Programme* - ERDF 2007-2013), which endorses the strategies of regional development outlined in the *Documento Strategico Regionale* (DSR - *Regional Strategic Agenda*); these can be summarized in the *launch of the regional production system's competitiveness*.

This objective will be pursued through the upgrading and conversion of production systems; the reduction of potential factors of natural and technological risk; the promotion of energy saving; the strengthening of infrastructure facilities and accessibility; the promotion of opportunities offered by the information technology and the exploitation of territories.

This strategy aims also at supporting quantitative and qualitative employment

² "The planning of Community intervention is performed by each Region on the basis of guidelines set by the European Commission and through specific thematic programs and documents related to the use of Structural Funds (*European Regional Development Fund* ERDF, *European Agricultural Guidance and Guarantee Fund* EAGGF, *European Social Fund* ESE, and *Financial Instrument for Fisheries Guidance* FIFG) or one of the four Community Initiatives (URBAN for the economic and social regeneration of cities and suburbs in crisis, INTERREG for the trans-border, transnational and interregional cooperation for development, LEADER+ for the development of EU's rural areas, EQUAL for combating discrimination and inequalities in the labour market. Implementation of strategies under (national or regional) Operational Programmes is entrusted in part to the *Progetti Integrati Territoriali* (PIT- *Integrated Territorial Projects*), i.e. programs developed by local partnerships involving public agencies, representatives of various interests (professional, cultural and voluntary associations) and representatives of local associations (Leader's GAL, industrial district committees, representatives of the territorial pacts), individual companies" (Cirelli et al, 2009).

³ "In particular, the Operational Programme will contribute specifically to the following priority objectives of PICO - *Plan for Innovation, Growth and Employment*: extending the area of free choice for citizens and enterprises; encouraging scientific research and technological innovation - strengthening the capacity of research and development of the regional system (especially the production) is indeed a priority area of intervention for regional development policies; the adaptation of hard and soft infrastructure, in continuity with the 2000-2006 programming and the main results from national policies, especially on the transport system; the environmental protection, in implementing the directives of the European Council in Gothenburg in 2001" (Cirelli et al, 2009).

growth processes, in particular considering the principle of equal opportunities and environmental sustainability of the interventions. Indeed it was built not only on the experience gained in previous programming cycles, but also on the results of context analysis, the information contained in the Regulation (EC) 1080/2006 and the priorities for action identified in the *Quadro Strategico Nazionale* (QSN - *National Strategic Reference Framework*), and it can be summarized in two guiding principles: “system making” and “promoting the spread of innovation”.

To achieve the goal of “system making”, policies will be promoted to enhance the capacity of stakeholders to operate in an integrated way, through, when possible, the construction of projects which make use of both multiple lines of intervention of the POR – *Regional Operational Programme* and other European funds, also to strengthen relations between local systems and the various productive sectors.

On the other hand the implementation of the principle of “promoting the spread of innovation” will aim at increasing the competitiveness of regional productions. That means pursuing a system innovation, which requires, first, an effort to be consistent in planning and implementing policies that guarantee high performance.

This strategy, clearly set out in POR-ERDF 2007-2013 and a certainly good choice for the achievement of the objectives of Lisbon (2000) and Gothenburg (2001), represents the tip of an iceberg with a broad and compact basis that contains the stratification of regional policies and planning instruments that characterized the policy choices of the past two decades.

The above is revealed in the analysis of coherence of the Marche’s POR-ERDF 2007-2013 with the national and regional development policies initiated in the territory over the last two decades, which is manifested in the strong programmatic integration between Community, national and regional objectives, to be achieved by identifying common development principles.

In particular, the programmed lines of intervention are explicitly instrumental to the achievement of some priorities that were stated in the following national and regional policies for the sector.

BOX 1 - SECTOR NATIONAL POLICIES

- Interventions for Industrial Innovation (D.Lgs. 488/2006 – *Industria 2015*);
- TLC and transports (National Logistics Plan - DPR 14 March 2001 and Law 443/2001 “Legge obiettivo”);
- Dispositions able to increase the realisation of strategic telecommunications’ infrastructures to modernise and to develop the country;
- Environment and Sustainable Development (Environmental Action Strategy for Sustainable Development in Italy);
- Rules for the implementation of the national energy plan in terms of rational use of energy, energy saving and development of sustainable energy resources;
- Tourism (Law 135/2001 – Reform of the national tourism legislation).

Source: POR- ERDF 2007-2013.

BOX 2 - SECTOR REGIONAL POLICIES

- Regional Law 20/2003 *Testo unico delle norme in materia industriale, artigiana e dei servizi alla produzione (Consolidated Regional Act on industry, handicraft and services aimed at production)*;
 - *Piano Regionale per le attività produttive (Regional Plan for production activities) 2005/2010*;
 - *Piano regionale per la ricerca e l'innovazione (Regional Plan for Research and Innovation)*;
 - *Strategia Regionale di Azione Ambientale per lo Sviluppo Sostenibile (STRASS - Regional Strategy of Environmental Action for Sustainable Development)*;
 - *Piano Energetico Ambientale Regionale (PEAR - Regional Environmental Energy Plan)*;
 - *Piano d'Assetto Idrogeologico (PAI - Hydro-geological Structure Plan)*;
 - *Testo Unico delle norme Regionali in materia di turismo (Consolidated Regional Act on tourism) (Resolution of Regional Council no.35 of July 7, 2006)*;
 - *Piano Regionale per i Beni e le Attività Culturali (Regional Plan for Cultural Heritage) (BUR dn.160 of January 13, 2005)*
- Source: POR-ERDF 2007-2013.

The POR-ERDF is also consistent with the regional development policies defined by the *Intesa Istituzionale di Programma (Institutional Programme Understanding)* (signed May 7, 1999), being implemented through the 15 *Accordi di Programma Quadro (Framework Programme Agreements)* listed below (with date of approval and additions):

- *Feasibility study of a plan of priority actions for soil conservation in areas with highest environmental risk (February 2000).*
- *Local development – infrastructures of territorial paths (July 2005).*
- *Research and Innovation (December 2004 – November 2005).*
- *Information society (May 2004).*
- *Railways (November 1999).*
- *Interventions of high strategic importance for post-earthquake reconstruction (May 2004 - May 2005).*
- *Road conditions (May 1999 – March 2003 – February 2005).*
- *Waste management (October 2004 – December 2004).*
- *Atmospheric pollution (July 2004).*
- *Dock systems (June 2004 – November 2005).*
- *Soil defence (November 2005).*
- *Cultural heritage (July 2004).*
- *Protection of water and integrated management of water resources (July 2004).*
- *Interventions for the rehabilitation of social and health structures functionalities (December 2005).*

Consistency with the overall strategy of territorial development, (the result, as mentioned, of the stratification of policies and instruments of regional planning undertaken for over a decade) would not be able to guarantee the soundness of decisions

and guidelines of territorial development planning contained in the POR - *Regional Operational Programme* without a careful context analysis to highlight the results of past policies and the real *ex-ante* situation. From a context analysis several issues still emerge, as it is evident that the region still shows strong criticalities in *innovation*, *accessibility* and *environment*, which are all factors the new European Policy of Regional Cohesion is based upon.

The summary of the *ex-ante* situation of Marche's territorial reality contained in the POR clearly highlights these problems. The background related to the *innovation* variable shows that delays are mainly connected to the peculiarities of the regional productive composition/specialization, highly sensitive to competition from emerging countries.

This is worsened by the delay in research, due to the low level of expenditure for investment in research and technological development⁴.

The competitive capacity of the "Marche system" is also negatively affected by the inadequacy of infrastructures to provide improved accessibility to the territory, both with regard to the potential offered by ITC and as essential support to the movement of goods and people.

Context indicators show a mismatch between production capacity and possibility to connect to transport infrastructure. The high concentration of local systems specialized in manufacturing coincides with a level of access to transport nodes that is usually lower than the national average.

This lack of territorial accessibility, particularly in remote areas, also affects the competitiveness of the tourism system, which in the Marche region is still prevalently beach tourism, also considering that the coastal towns are the most accessible because of their location on the Adriatic axis, while the smaller centres of the Apennine and hills remain almost totally excluded from the main national and international tourist circuits, despite the strong potential they express in terms of cultural resources.

An improvement of such systemic problems is clearly highlighted in the activities of 2007-2013 POR-ERDF "Regional Competitiveness and Employment" and they will find specification and consistency in the strategic and operational directions of the forthcoming *Documento Strategico Territoriale* (DST - *Territorial Strategic Agenda*).

As much as *innovation* and *accessibility*, also environment shows different critical elements.

An analysis of the state of *environment* shows a growing environmental pressure at territorial level, especially on the coast, where the major urban and production settlements are concentrated.

⁴ As it is known, the region suffers from structural limitations related to the regional productive base which is represented by companies with such insufficient size as to affect the propensity for innovation and applied research. This structural feature also makes it difficult for the occurrence of spontaneous dynamics of technology transfer. Production systems that are characterized by the presence of small enterprises, as in the Marche region, in response to entrepreneurial dynamism show significant difficulties in terms of competitive ability of the production units, caused not only by their small size, but also by their financial frailty, produced primarily by under-capitalization.

Particularly significant issues are related to energy efficiency, production and consumption of energy from renewable sources, as well as to the support to policies aimed at a more sustainable management of the territory.

Given the issues raised, some aspects that can contribute effectively to the competitive development of the Marche region and that can be the basis for regional action are the existence of highly valuable natural and cultural resources, the presence of an intermodal transport network (even though it has to be strengthened), some industrial centres of excellence, some successful case-studies of spin-off companies in highly innovative sectors.

That is why the priorities for action declared in the POR – *Regional Operational Programme* are related to innovation and knowledge economy; innovation society; energy; accessibility; enhancement of the territory.

In particular, based on these priorities, the regional strategy contained in the POR has identified five priority objectives that can be synthesized in increasing the *competitiveness of the productive and economic system*; in improving *accessibility to the tools of the information society*; in pursuing a *balanced and sustainable energy development*; in improving *territorial accessibility* by strengthening and integrating the different transport modes to build a sustainable and integrated system capable of lowering the level of marginality of the most inland territories; finally, but this is closely related to the previous target, in enhancing the *attractiveness factors of the territory through the recovery and exploitation of local resources*.

By analysing the *Regional Operational Programme* it also emerges that in pursuing these objectives, attention will be focused on some basic principles, such as the wide-meaning concept of innovation, which goes beyond technological innovation to encompass also innovation of institutions, management, planning, territory and market, and the paradigm of sustainable development, which will be implemented through the integration of environmental objectives in all lines of action envisaged (connection between the policies of socio-economic development and the reduction of pressure on environmental system).

In particular, we will take into account the principle of environmental sustainability, through the formulation of specific indicators for the different types of intervention that will be identified considering also the different types of risk present in the various areas; the principle of equal opportunities, by assigning a higher score in all actions involving a significant contribution in terms of increasing female employment or bringing real effects on reconciliation of work time with family life and on the categories of the immigrants and the disabled; furthermore, the implementation of measures will be supported to promote the diffusion of innovation and contribute to overcome the problems linked to the slowdown of development and competitiveness of the productive system of the Marche region.

Finally, it is particularly interesting, at least from our point of view, the goal of the integration with other EC, national and regional funds, in the context of regional development policies to ensure a higher functionality and performance of the incentives system operating in the region to encourage greater employment and specifically highly qualified jobs, which is an essential element in promoting a cumulative process of sustainable and long lasting development.

10.2. REGIONALISATION, SETTLEMENT STRUCTURE AND ECONOMIC-TERRITORIAL SYSTEMS IN THE MARCHE REGION

“A marginal rectangle, sleepy and full of farmers, located between north and south of the Adriatic coast: this was, up until the fifties, the image of the Marche region, which appeared also as a place to escape from, as many had already done in the nineteenth century [...] the leap forward of the fifties-seventies has significantly changed the Marche region, but its landowner-sharecropper origin, and therefore the hundreds of municipalities, small centres and villages⁵ well hinged in the area, and the widespread presence of the practical sharecropper culture, which evolved in contact with the urban culture (inter alia, nowadays there are four universities in Marche, with all kinds of courses, and musical institutes and academies), continue to give shape to the region and provide it with a unique politeness”. In the mid-eighties that was how the historian Sergio Anselmi described his region (Anselmi, 1985, pp. 9-11).

In the last thirty years we have witnessed a double revolution: first the late arrival of the Marche region (9,694 sq km) on the national and international scene has not prevented its production system to enter among the most advanced ones, although featuring some peculiar characteristics from the structural point of view; on the other hand, the specificity of Marche model requested and requires further adjustments and changes to better respond to external factors.

In the second half of the twentieth century the crisis of sharecropping and the growth of the industry sector meant that the rural population would largely shift, first to Rome and the industrial towns of northern Italy and then to the coastal towns, so that the settlements in the hills, when in absence of manufacturing activities, have become empty shells, while the valley villages and the towns of the plains and coast were inordinately enlarging.

During the last thirty years, as well as in economy, changes in the production structures have had not less conspicuous consequences with regard to population distribution.

The already noticeable contrast between the coast, rich in various types of settlements, and the hills-mountains, mainly scattered with nuclei and centres, has gone further accentuating (Betti, 2002, p. 186).

This has broken the geographical distribution of the rather homogeneous entire region, which had lasted for centuries; the province of Ancona has nowadays a population density twice that of Macerata and Pesaro-Urbino.

Although characterised by a polycentric organization, the space of Marche is characterized by a growing dualism between the coastal (33% of the territory) and the hill (36%) and mountain (31%) areas inland.

The coastal municipalities have been welded together to form a linear urban region, whose only interruption is represented by Monte Conero. On one-seventh of the area the 50% of the population gathers with an average density of 450 inhabitants/km², which confronts a regional average of 160.

The spine is, therefore, the Adriatic Corridor; a spatial axis that includes areas

⁵ The inhabitants of Marche, 1,553,063 representing 2.6% of the Italian population at December 31, 2007, are distributed in 246 municipalities, 56% of whom have fewer than 3,000 people.

where the relationship between settlement and infrastructure is often confrontational, particularly in the main centres where, from the coastal road, the cross roads often intersect inside the urban settlement.

Among the towns of such urbanized continuum Ancona, with about 100,000 inhabitants, is the largest in size and functional complexity, followed by Pesaro, Fano, Senigallia, Civitanova Marche and San Benedetto del Tronto (among the best equipped fishing ports in Italy together with Chioggia and Mazzara del Vallo)⁶.

The area of low hills sloping down towards the sea forms an intermediate belt, with active towns and villages; in this framework the provincial capitals of Macerata, Fermo and Ascoli Piceno stand out, which, with their expansions in the valleys or at sea, have an average of 50,000 inhabitants. Many inland centres have a significant historical and artistic heritage (Arcevia, Cagli, Camerino, Fabriano, Tolentino, Urbino), in addition to the impressive “balconies” of Marche: Cingoli, Osimo, Recanati and Loreto (an important destination for religious tourism).

Overall the building territory is affected by the morphological settlement structure, a “comb” of urbanised valleys transversal to the coast that shows multiple relationships between individual settlements.

In the case of Ancona, the role of economic and social capital is strengthened by the presence of some neighbouring driving towns in close relation with it, such as Falconara Marittima, Osimo, Camerano, Castelfidardo, Loreto, Jesi and Senigallia.

These are integrated with the intermediate level centres of support, interrelated to form a crown of municipalities that are small, but functional (Camerata Picena, Agugliano, Polverigi, Offagna, Sirolo and Numana), creating a hierarchical and substantially balanced structure.

Economic growth in the Marche region was based on a production specialization strongly focused on traditional sectors (especially footwear, furniture and clothing) and a large number of small and micro enterprises, mostly gathered in industrial clusters and localised in specific geographic areas.

Areas of light industrialization, on which Fuà spoke of “NEC model”, indicating the particular type of industrialization approach which emerged in the North East and Centre regions, based on indigenous enterprises, mostly small, widely scattered, intimately connected with the countryside and the small and medium-sized cities (Fuà, 1983).

Historical and cultural reasons see small businesses born from the desire of entrepreneurship among particular groups of local workers and through the shift from traditional handicrafts to industrial experience (Becattini, 2000).

Perfectly in line with the arguments of Fuà: “Without an explicit central plan a mobilization has been realized, zone by zone, of the endogenous potential of entrepreneurship, employment, savings and an enhancement of the physical and social structures inherited from history, with results likely better than what could be achieved by importing resources and models from outside.” (Fuà, 1983, p. 41)⁷.

⁶ Jesi completes the number of Marche’s cities belonging to the first seven hierarchy classes (Bartaletti, 2006, p. 1048).

⁷ The difficulties experienced by small businesses in an environment where scarce and uncoordinated government interventions did not encourage the overcoming of obstacles to growth in size (Balloni, 1980), while the persistence and development of SMEs is also explained

The current national economic slowdown and the reduction of the Italian share in world trade are a sign that maybe this particular model of development is no longer adequate to meet the challenges of the global market. In this perspective some structural and organizational weaknesses typical of the districts are beginning to weigh: while the system proves to be a production giant, it is also a strategic dwarf that has no human capital, productive facilities and adequate financial resources to support the change.

As for all the “made in Italy” production organised as district, competitive advantage is due to low labour costs, hence the increasing intake of immigrants and high flexibility that comes from the considerable decentralization of production⁸.

When you can no longer rely on price competitiveness, the productive structure that so far has been a strong point of the district, becomes a weakness: thus we are dealing with a highly fragmented productive organization which leads to a modest professional technical qualification, a limited financial capacity and a low cultural sensitivity for innovation.

Even in the ‘90s the organization of the Marche’s industrial districts was similar to that of the ‘70s, with decentralization of production and high reliance on external economies, especially contractors⁹.

The production systems of Marche will overcome the crisis only if businesses will be able to develop new strategies to reposition its product on the international market.

The entrepreneurs’ great individualism is reflected in the diversity of strategies they adopted, as everyone believes that the best way is to do by themselves.

There are companies that specialise in high quality products, using top materials and mostly craftsmanship that turn the product into elitist, while others bet strongly on the brand, preferably combined with quality and innovation (e.g. Della Valle, Scavolini, Berloni, Febal, Elica, Ariston).

Yet other companies are forced to follow the path of relocation, and these are those specializing in medium-low quality production.

And then there are contractor companies that produce on commission of multinational brands.

The strategic and priority goal to encourage and support the development and recovery of the district competitiveness is to promote growth in size and boost availability of “intangible” resources such as knowledge, training, skilled human capital.

in a series of economic policy measures deliberated with different and sometimes “parochial” objectives, whose unintended effect would be to make dimensional overcoming inconvenient (Barbetta, 1989, p. 184).

⁸ The companies have embarked upon relocation of production to countries with lower labour costs and increasingly devoted more resources to functions related to product sales and marketing (Balloni and Cucculelli, 1998). They have also developed products born as auxiliary, parallel or entirely new branches, which with the passage of time seems to acquire their own identity (an obvious example is the increase of firms producing soles for footwear and industrial machinery for woodworking).

⁹ The most evident innovation, following the structural crisis of the ‘80s, is the presence of “informal groups” of companies legally distinct, characterized by proprietary links. While in formal groups a company holds controlling stakes in most firms, in the informal groups the capital control of several companies is held by one or more persons acting as a strategic agency (Balloni and Iacobucci, 1997).

BOX 3 –INFRASTRUCTURAL “NODES” IN THE MARCHE REGION

The Marche region's lines of communication and their evolution mirror the demographic phenomenon of abandonment of the settlements on ridges and up hills in favour of valleys, where activities are preferably implanted and infrastructure is more developed.

In particular, the localization of production activities and settlements, as well as the related “flow” is conditioned by the presence/absence of network infrastructure and its quality.

Following the rapid increase in traffic (the highest percentage increase of the whole national network) in recent years, Autostrade per l'Italia S.p.A. published a project to build the third lane on the Rimini north - Pedaso stretch, with the realization of some new interchanges, also along the 168 km that cross the Marche territory (3% of Italian motorways) and never far from the coast for more than 7 km¹⁰.

The Ancona south - Porto S. Elpidio stretch of the A14 motorway is currently under construction, and in the coming years the problem of the remaining segments in the Marche will have to be dealt with.

The northern one presents difficulties due to the crossing of urban settlements and the expansion of some galleries, whereas between Pedaso and San Benedetto is expected the strengthening of the State Road SS16 associated with an optimum use of corresponding motorway section.

The roadway follows the existing one, eliminating bottlenecks and providing some links and junctions with the local road network, particularly the connection of Porto S. Elpidio with the new capital of the province, Fermo.

The State Road SS16 “Adriatica”, except for some short sections, passes through the coastal towns, and that practically makes it a city street, affecting its function of medium distance link.

An integrated project is urgent for both main arteries, as well as the development of alternative roads for the main coastal towns: Pesaro-Fano, Senigallia, Ancona-Falconara-Marina di Montemarciano¹¹.

From north to south, the Region is crossed by some valley roads that, like rungs grafted on the “coastal” upright of an imaginary ladder, still follow the paths of the

¹⁰ The new interchanges are planned in Pesaro (but the local government is opposing), in Montemarciano, Ancona and Porto S. Elpidio. In almost all other interchanges upgrades and interventions are planned to relieve traffic congestion.

¹¹ The works, under the ten-year Plan 2003-2012 of ANAS (public operator of National road and motorway network), should be implemented by Autostrade SpA for the common parts to the two paths: the variante Pesaro-Fano will be coplanar to the A14 motorway, to be designed and built by ANAS together with the junctions of Pesaro (after Cattabrighe) and Fano (near the airport) to improve the connection with the E 78 Fano-Grosseto, too; the urban variante of Senigallia, coplanar at east and west of the junction; the *variante* of the towns of Ancona, Falconara and Marina di Montemarciano (necessary also for the safety of the API area together with the backing of the tract of Adriatic railway line and the implementation of its connection with the Orte-Falconara line), including the doubling of the current stretch Falconara-Pontelungo has not received support of local authorities; finally, the variante of S. Benedetto del Tronto, outside of the highway works, would complete the link road from the urban junction to the existing tract on the east waterfront.

Roman consular roads and, although improved in recent decades, do not allow a simple trans-Appennine connection – missing both the connections with the uprights of the E45 and the A1 and an upright in the Marche foothill – encouraging and forcing the gravitation of enterprises and settlements from inland to the coast.

The heavy traffic road E78 “Fano-Grosseto”, with its 85.3 km is the northernmost of the Marche’s road network, together with the so-called “junction of Urbino” (Bretella), in progress, and also enables fast connection between Fano and Urbino. Being completed the first gallery of Guinza and the stretch connecting it to Mercatello sul Metauro, the connection between Mercatello and S.Stefano di Gaifa (34 km) and the second gallery of Guinza (6 km) are yet to be completed.

Other road works that deserve attention are those included in the “Marche-Umbria Quadrilateral” passing through the valleys of Esino and Chienti¹² and the State Road No.4 “Salaria” (62.8 km), which represents the southern rung of Marche’s “heavy traffic” network.

Among the most important road nodes is undoubtedly the connection of Ancona’s harbour with state roads and the A14 motorway, essential for the development of port facilities and for the disposal of the related traffic away from the urban context. With an average density of highways and roads below the national values, 1.7 and 5.2 km against 2.2 and 7.1 per sq km of area respectively, regional and provincial roads extend over an average of 60.4 km along each square kilometre of the Marche region, far beyond the Italian average (49.2 km).

The investments of the Region seem to focus on the historical axis passing through valleys and between them: for the former it is expected the construction of urban variants and side variants, and the updating of roads to standard levels, for the latter interventions on the spot or mapping variants with updating to standard levels¹³.

¹² The State Road nr. 76 “Vallesina” (68.0 km) is considered an “absolute priority” in regional planning, both for the importance within the Region, and for the role conferred by the Umbria Region, as it represents a connection to the port of Ancona, the Interport of Jesi and the whole production area of Vallesina with central Italy. Outside the “Quadrilatero” project, but always along the State Road 76, near Jesi, the construction of the ring road for the Interport of Marche is nearing completion. The road network consisting of the State Road 77 “Val di Chienti” (84.0 km) is important at regional and interregional level. The road, completed for about 60 km from Civitanova (junction with the A14 highway) to Sfercia, falls within the Quadrilatero project and provides extension to Foligno.

¹³ The crossroads that need overall planning are those covering the valleys of the rivers Foglia, Misa, Potenza and Tenna; the “Marechiese”, Val Burano, Val Cesano and Val d’Aso complete the picture of the provincial “rungs”. The most important inter-valley routes are the “Pedemontana” whose Montefeltro stretch has been subject of debate for decades, since it presents considerable difficulties for morphological-environmental problems, and the access to the E45. The Pedemontana road (145 km) is the main longitudinal link for the inner areas and it is divided into functional parts with different characteristics and functions depending on the zones. The “Mediocollinare” (“Mezzina” or “Transcollinare” in the province of Ascoli) is divided into three distinct stretches that are not necessarily continuous: the first one connects the footwear production area between the Chienti (Casette d’Ete) and the Tenna (Fermo); the second one connects Tenna and Tesino, and crosses (through) an area with predominantly agricultural vocation; the third one connects the production area of the Consortium of Tronto’s Industrialization (Offida) from Tesino to Tronto. A plan by the provinces of Macerata and Ancona

Therefore, in building the network, while the continuity is confirmed along the transversal valley axes, it is not deemed necessary to focus on the continuity of the inter-valley relations on the road junctions.

The aim is to build a road network of type “C” (a roadway and two lanes), which excludes the crossing of major urban centres, but that connects them together and with the national network, through the longitudinal directions of the Adriatic Corridor, the east-west transversal valleys and the internal inter-valley paths that form two separate routes: a medium-hill and a foothill one.

The above-mentioned inter-valley paths are joined by a third one, required by the provinces of Macerata and Ancona, which is located in the territory where the hills are lower and closer to the coast, where many production facilities are located.

In Marche transport and travel by rail may draw significant benefits with the creation of a link between the Falconara-Orte railway line and the Adriatica line, thanks to the bypass of the API refinery (Falconara node) and the new shunting yard at the Interport. The preliminary draft aims at to improving functionality and security of the Adriatica line¹⁴.

In addition to the net of infrastructures, the localised pivotal spots should be considered, as the Interport of Jesi, the car ports and/or logistics platforms, Falconara Airport and the Port of Ancona. These infrastructure nodes can be identified as the main intermodal node of the Marche region.

The intermodal junction of Ancona is also interested in a project of connection to the ITC network for which the Marche Region is involved in an INTERREG project jointly with the main Adriatic Regions.

The goal is to create a hardware network between the main logistics platforms of the area, with an intercommunication software system available to involved operators, so encouraging an intermodal transport system that reduces the weight of the currently prevailing all-road one.

In addition to the intermodal node of Ancona, other minor centres are taken into account; which, if initially they were identified with “Autoporti” according to the safety objectives set by the EU, can now be interpreted as potential logistics platforms for handling goods on the medium-long distances, available to various industrial clusters.

The evolution of freight transport towards the “logistics” application was also established with the identification of two logistics “plates” (Civitanova Marche and Fabriano).

The port of Ancona has insufficient infrastructure to support the continuous development of the different port functions, and this raises the need for a reorganization of the Doric harbour.

In order to achieve suitable dimensions, in addition to completion of the New

identifies a low hill path that, continuing the “Mezzina” of Ascoli, would stir Montecosaro, Potenza Picena, Castelfidardo, Loreto, Chiaravalle, up to the valley of Cesano.

¹⁴ It is urgent to double the Marche’s stretch of the Orte-Falconara railway line (currently on a single track), while it has already been presented and approved the project of the rail link between the new harbour of Ancona and the railway network near its railway station. In northern Marche, where the Apennines almost touch the Adriatic coast by the “sella” of Siligate, the inter-modal traffic upgrade of the tunnel of Cattolica and Castellano was carried out between 2005 and 2007.

Dock, the state-owned maritime areas should be devoted to commercial-port uses and actions to recover private areas should be put in place.

As regards air traffic, the “Raffaello Sanzio” Airport of Falconara Marittima, managed by Aerdorica SpA, has characteristics suitable for almost all aircraft, but passenger traffic, increased from 451,000 in 2001 to 533,000 in 2005, is now declining (416,331 in 2008).

The sustained and steady growth of traffic that in the second half of the nineties benefited from the activation of the Monaco-Ancona line (Air Dolomiti) and mostly the Ancona-London line (Ryanair in 1999), did not result in an increased budget (penalised by the introduction of low-cost flights and not sufficiently promoted new routes) and that made it difficult for public-private partnerships.

Within the infrastructure network of the Marche region, launching the airport – through new routes, promotional programs targeted jointly with the Regional Department of Tourism and agreements with airports in the catchment area – gives confidence that the plant, capable of supporting a traffic of approximately one million passengers, can be fully exploited¹⁵.

The third infrastructure hub, after the port of Ancona and the Falconara airport is the Interporto of Jesi.

The related works, begun in 2002 with the establishment of a first batch, have helped to launch the intermodal activity, while the “Interporto” interchange of the Ancona-Roma highway is nearing completion; that will provide vehicles with direct access to the facility, speeding up the sorting of goods while reducing traffic on the adjacent provincial road.

Reference markets for the inter-port of Jesi will be the European combined transport and the national combined transport.

The state road 16 and the motorway A14 on the north-south axis, the Ancona-Roma railway and the state road 76 on the east-west axis, plus the proximity to the commercial port of Ancona and the airport of Ancona-Falconara, will guarantee the centrality of the inter-port as a development and employment pole for the economy both of Marche and Umbria regions, constituting a fundamental step in the streamlining of collection and distribution of goods on the whole territory.

Another step in the definitive entering of the Interporto in the national logistics and transportation network is its participation to the Unione Interporti Riuniti (UIR NET) that promotes a management system for the interconnection of modal interchange nodes (inter-ports) and the improvement of safety of freight transport.

The surface of the interport of Jesi, currently identified by the perimeter of the Piano Regolatore Generale (PGR - Municipal Master Plan), is 796,949 square meters, which, with the hypothesized expansion of the facility towards Chiaravalle, will reach 983,532 square meters and a covered area of 102,400 square meters.

¹⁵ A new 4-story parking lot for 350 cars in 2003, and a new terminal for goods and passengers in 2004 were completed and put into operation in order to make the airport more functional. Currently the airport is spread over 10,000 square meters (8,200 for passengers and 1,800 for freight terminal), plus 35,000 square meters of airplanes apron, 600 parking spaces (350 in the parking garage), 600 square meters of housing for ramp facilities and a fuel deposit of 600,000 litres. The restructuring of the existing building (main building) was carried out between 2006 and 2007.

Furthermore, the final form of the Interporto involves the construction of a new switching rail yard consisting of a new freight station. In the *Piano Regionale dei Trasporti (Regional Transport Plan)* the Interporto will be connected with the Autoporto Valle del Tronto (situated in Villa San Antonio, in the town of Ascoli Piceno), a regional network node.

As regards the infrastructural aspects, cf. Box 3.

For the specific location and the characteristics of the involved territory, between Abruzzi and Marche regions with a widespread production system, in particular the Interporto facility has as its objective the organization and delivery of logistics services accessible by all local transport companies and by those local production companies that are not satisfied in their need for services of supply of raw materials and distribution of produced goods.

The Marche region, in particular, although consisting of a variety of districts, is a single model of regional development, which trespasses both in nearby Umbria (e.g. the expansion of Fabriano's mechanical industry) and, by de-localization processes, outside the national borders.

In addition, the production organization/restructuring in the last fifteen years has left itself wide open, in each local area, to a few medium-large leading companies, which on one hand disjoint the supply chains spread in their own territories and, on the other hand, constitute a hierarchical model where at the top companies are positioned that can mediate the markets and at the base the traditional pulverized structure of small subcontracting businesses, increasingly squeezed by pressure from international competition of the newly industrialized countries (Orazi, 2008).

Some issues seem to require particular attention, especially the breaking of the long continuity of tradition and innovation, with the result of an always widening rift between the fates of local communities and the business net.

Key elements of change are identified in the raising average education of young people and the widespread penetration of consumerism-hedonism cultures that are alternatives to the ethical structures inherited from the rural culture: within the family institution, the traditional local ethics of entrepreneur fathers is facing the post-modern ethics of their entrepreneur children; at level of local community, the old structure of relational and united networks seems to be accompanied, and in many cases replaced, by a social model of individualism that emerges from the cultural sources of market and media.

10.3. POLICY CHOICES AND THEIR IMPACT ON MARCHE'S TERRITORIAL DEVELOPMENT

10.3.1. *The Innovation and Research and Global/Local Interaction determinants*

For the Marche region the analysis on the *Innovation and Research* determinant plays a dominant role in achieving the objective of territorial competitiveness in sustainability.

From the observation of data contained in the POR – *Regional Operational Programme*

Marche (2007-2013) on *Innovation and Research*, an *ex-ante* varied picture emerges. We know that the utilization of Information and Communication Technology (ICT), the level of education attained by a society, and the infrastructural endowment indicate conclusively a region's ability to generate innovation.

The summary data highlight the good level of the province of Ancona (B), while the remaining provinces, Ascoli Piceno, Macerata and Pesaro-Urbino (C) lag behind in the process of technological innovation for structural reasons.

Of the nine indicators taken into account, the data that are most significant are those relating to *Innovative Dependency Index (IDI)*, *Educational Structures (KCE)* (with the exception of Ascoli Piceno which stands at level D), *Level of Telecommunication development (LTD)*, where all the provinces achieve optimal levels (A), while the indicators that define the typology of *Virtual Society (VS)*, that is the number of firms and, in general, individuals who use the Internet and the level of computerization of Public Administration (*Available e-government services (VI)*), achieve a level ranging from B to C.

Obviously, for the enhancement of territorial competitiveness, it is desirable that local institutions and private enterprises undertake a shared journey in the quest for strategies and solutions aimed at enhancing territorial attractiveness in terms of *Virtual Society (VS)*.

Regarding the *Potential for the creation of knowledge (KIS)*, the Marche region has a quite good level of development, especially in Ancona, for indicators related to *Innovative Dependency Index (IDI)* and *Population with tertiary education (PTE)*, and in Macerata for *Knowledge creation education (KCE)* and *Innovative Dependency Index (IDI)*, which reaches optimal levels (A).

Obviously, with regard to university education, we must emphasize the presence in the territory of four Universities (Ancona, Camerino, Macerata and Urbino) that involves a different distribution of university students in the provinces of the Marche region.

Nevertheless, the regional Universities have a good level of scientific expertise, as in specific research areas several national and international relationships of cooperation are taking place.

The Marche region shows a positive attitude towards innovation, recording a growing rate of graduates in technical scientific fields and with a higher value than the national average.

Contrarily, expenditure on research and development relative to GDP is low, in both private and public sectors as well as in the academic one.

In fact, if the Lisbon objective points to a share of 3% of GDP, in Marche research expenditure is just 0.68%; yet it is true that regional business is focused on traditional, such as footwear, and craft sectors, and at the public level the region hosts no institutional research centres.

The category that shows the development of telecommunications defines an optimal value. It is given by the indicators *Old and new technologies (LTD)*.

This is a very positive result, especially if we think that the new ICT technologies, based mainly on the Internet, are nowadays the main tool for spreading knowledge.

At the same time, as regards the indicator of *R&D infrastructures (RDI)*, policies

should be implemented directed at raising them up to make more uniform the current situation, as the predominant position of Ancona (A) emerges, followed by Macerata and Ascoli Piceno (B) and Pesaro-Urbino behind (C).

Investments in developing *R&D infrastructures (RDI)* and in *Human capital (HC)* must be one of the main objectives that the Regional Local Government should take to trigger a process of competitive development that, starting from the local level, can reach the European scale.

Moreover, in order to enhance the regional system of Research and technological Innovation, it is necessary to increase the number of researchers, strengthening their skills in international settings, since, according to the *Global/Local Interaction* determinant, could promote the opening and integration of regional research centres with facilities of international excellence. Indeed, through an international scientific cooperation activity it is possible to improve quality and performance of local research centres.

While summary data show a not completely negative situation (C), except for Ancona (B), after territorialization a general improvement is evident for Ascoli Piceno, Macerata and Pesaro-Urbino (C→B). Overall, the feasible choices of governance are those related (see Table 1) to *Innovation, Research and Development, Human Capital, Age structure and Economic Development*.

Policies regarding *Virtual Society (VS)* show, after territorialization, improvements in Ascoli Piceno, Macerata and Pesaro-Urbino (C→B) in the *Virtual Population (VP)* indicator, for Ascoli Piceno and Pesaro-Urbino (C→B) in *Virtual Firms (VF)*, for Ancona, Macerata and Pesaro-Urbino (B→C) in *Virtual Institutions (VI)*.

Minimum investments in human capital policies can also affect the same sector indicators, particularly on *Population in lifelong learning (PLL)*, as we notice an improvement in Ascoli Piceno, Macerata and Pesaro-Urbino (C→B). Finally, we must emphasize that deterioration is recorded in the *Level of telecommunication development (LTD)* for all four provinces (A→B).

These policies cross each other, improve the indicators' performance and show that integrated policy interventions can sometimes bring improvements to territorial systems.

Regarding the summary framework concerning the *Global/Local Interaction*

Table 1 - Recommended policy choices for territorial competitiveness of *Innovation and Research* at NUTS3 level in the Marche region.

Innovation	Bridging digital divide
	Technological/innovative dissemination for enterprises and institutions
	Support to trans-regional cooperative projects
	Use/development of environment friendly technologies
	Quality certification and assessment tools
R&D	R&D infrastructures
	Support to BAT
	Development of waste recycling technologies
Human Capital	Supply of education
Age	Re-involvement of ageing people
	Social integration
	Cultural integration
Economic development	Promotion of a global enterprise culture

determinant, fundamental both in a financial-economic and a socio-environmental aspect (which is a component to pay constantly attention to, in the objective to follow the paradigm of sustainable development), we can highlight an overall starting position that is not satisfying for the provinces of Ancona, Ascoli Piceno, Pesaro-Urbino (C) and poor for the province of Macerata (D).

The assessment according to the four typologies, *Economic Interaction (EI)*, *Financial Interaction (FI)*, *International Cooperation on Environment (ICE)* and *Social Interaction (SI)*, evaluated on the basis of the related indicators, shows a not homogeneous *ex-ante* situation. There are some peaks of excellence: in the *Economic Interaction (EI)*, for the indicators *Manufacturing Enterprises (ME)* and *Trade integration of goods (TiD)* (Ascoli Piceno, Macerata and Pesaro-Urbino), for the indicators *Fiscal pressure (Q_FP)* e *Labour cost index (LC)* (all four provinces), for *Product trademarks (PTm)* (Ancona and Macerata), for *R&D Accessibility* (indicator computed with *Accessibility (TMAP)* & *R&D Infrastructure (RDI)*) (Ancona); in the *Financial Interaction (FI)*, for *Credit Institutions (BnK)* (Ancona) and *Insurance Companies (InsC)* (Ancona and Macerata) and in *Social Interaction(SI)* for *Population Change (PCh)* (Ancona, Macerata and Pesaro-Urbino), *Erasmus/Socrates programme's students (InStud)* (Ancona and Macerata) and *Erasmus/Socrates programme's students (OutStud)* (Ancona). On the other hand the Marche's provinces reached an average B-C level in the typology of *International Cooperation on Environment (ICE)* (*General environmental concerns (GEC)* and *Specific environmental concerns (SEC)*), as well as in *Economic Interaction (EI)*, for the indicators *Vulnerability (Q_Vuln (NH))* (Ancona, Ascoli Piceno and Pesaro-Urbino (B), Macerata (C)) and *Foreign Direct Investments intensity (FDIin)* (Ancona (B), Ascoli Piceno, Macerata and Pesaro-Urbino (C)) and for *Product Trademarks (PTm)* (Ascoli Piceno and Pesaro-Urbino (C)), for *Trade integration of services (TiS)* for the *Long-term interest rate (LTIr)* (all four provinces (C)).

Also the typology *Financial Interaction (FI)* shows medium level: for *Credit Institutions (BnK)* (Pesaro-Urbino (B) and Macerata and Ascoli Piceno (C)), for *Insurance Companies (InsC)* (Ascoli Piceno and Pesaro-Urbino (C)) and for *Stock Market Capitalisation (STM)* (all four provinces (C)) and *Companies (BC)* (Ancona, Ascoli Piceno and Pesaro-Urbino (B), Macerata (C)) as well as *Social Interaction (SI)* for the indicators *Outbound tourism (OutT)* (Ancona, Ascoli Piceno and Pesaro-Urbino (B), Macerata (C)) and *Erasmus/Socrates programme's students (OutStud)* (Ascoli Piceno, Macerata and Pesaro-Urbino (B)), for *Researcher Inbound (InRes)* and *Researcher Outbound (OutRes)* (Ancona and Macerata (B)). Furthermore, attention should be given to the achievement of a low level of *Global/Local Interaction*, especially in terms of *Economic Interaction (EI)* for the *Energy Self-sufficiency Index (ESSI)* indicator, and low level of *Social Interaction (SI)* for the *Inbound tourism (InT)* indicator in all four provinces, for *Erasmus/Socrates programme's students (InStud)* and *Researcher Inbound (InRes)* and *Researcher Outbound (OutRes)* (Ascoli Piceno and Pesaro-Urbino) and for *Active Population (AcP)* (Macerata).

A careful analysis of the *ex-ante* situation regarding the large number of indicators related to *Economic Interaction (EI)*, the performance of the index *Identity of the productive system (PSI)* appears as a function of two indicators *Manufacturing Enterprises (ME)* and *Product Trademarks (PTm)*.

The data on *Manufacturing Enterprises (ME)* (percentage ratio of manufacturing firms

and active population) is significant only for the provinces of Ascoli Piceno, Macerata and Pesaro-Urbino. The data on *Product Trademarks (PTm)* (given by the percentage ratio between registered trademarks and number of firms) shows rather inhomogeneous values.

Territorial competitiveness can be measured also through the effective and efficient use of energy resources. Despite recent developments in the use of renewable resources due to huge investments by Enel (the main Italian operator in the field), the *Energy Self-sufficiency Index (ESSI)* has very low values for all four provinces, so much more could be done in a territory that could make use of forms of alternative energy.

Natural resources and environment are a priority for the European Council of Gothenburg (2001), which outlines a strategic framework highlighting the need to combine social and territorial cohesion with sustainable development, to strengthen environmental integration. Therefore a use of policies aimed at a more efficient use of the environment would involve a better result of the indicator *Global/Local Interaction*. Such a policy would lead consequently to improve the rate of *Energy Self-sufficiency*.

Considering the analysis of *Financial Interaction (FI)*, which is a function of the two sectors *Attitude to Credit* and *Insurance (C&IA)* – which depends on the number of *Credit Institutions (BnK)* and *Insurance Companies (InsC)* – and *Management Attitude (MA)* – which is function of the number of *Companies (BC)* (as ratio with respect to total Italian number) and the level of *Stock market capitalisation (STM)* –, we can measure in the Marche region values ranging from peaks of excellence to medium-low levels.

The environmental interaction is given by the indicators *General Environmental Concerns (GEC)*, for which all provinces have a medium-low level (C) and *Specific Environmental Concerns (SEC)*, for which, instead, all provinces achieve a medium level (B). Then, in matter of environment, agreements should be made to be supported by concrete measures in technology, which are currently non-existent, and cooperation agreements with other areas (Provinces or Regions).

Regarding *Social Interaction (SI)*, it depends on the areas of *Population Mobility (PM)* and *Active Population (AcP)*. The first refers to indicators related to population change (*PCh*), tourist flows (*Tourism (TI)*) and students and researchers mobility (*Cultural Exchange (CE)*).

For these last two categories the data are computed with reference only to the provinces where universities are located.

The opportunities for exchange between students of different nationalities are almost fully exploited (mainly through the Erasmus/Socrates programmes), but they appear to be few or at least not quantitatively homogeneous in the different faculties.

Regarding the mobility of researchers, the data is consistent both inbound and outbound, and it is mainly related to Ancona and Macerata.

As for the mobility related to Tourism (*Inbound tourism (InT)* and *Outbound tourism (OutT)*) Ancona, Ascoli Piceno and Pesaro-Urbino (B) show a medium level of outbound, while Macerata has a low level (C). The situation of *Inbound tourism (InT)* is very bad, since all four provinces achieve the D level.

Despite the results in the tourism sector in recent years reveal a positive trend, the potential of the region is much higher, Marche still has a weak tourism system, because of poor supply planning, spontaneity and lack of diversification of demand, which is strongly seasonal and spatially concentrated.

Table 2 - Recommended policy choices for territorial competitiveness of *Global/Local Interaction* at NUTS3 in the Marche region.

Employment	Standardization of business costs
	Support enterprise creation
	Support worker mobility
	Support equal opportunities
Transport/network	Development of telecommunication networks
	Development of energy networks
	Increase of physical accessibility
Natural Resources	Use of renewable resources
Climate	Energy policies
	Climate Active Protection
Public Health	Support Welfare

The indicator related to migration, called *Population change (PCh)* shows excellent values for Ancona, Macerata and Pesaro-Urbino, and an average value (B) for Ascoli Piceno, due to a low ratio of unemployment. The indicator related to active population, which may indirectly help to clarify the level of social interaction, appears to be not significant.

Therefore it is possible to say that the degree of *Global/Local Interaction*, after a careful analysis of aspects that are apparently inconsistent with each other, is to be considered insignificant in the Marche region, but with outstanding prospects for improvement in the future.

The policies that can improve territorial performance (see Table 2) are those related to the areas of *Employment, Transport/Network, Natural resources, Climate and Public health*.

Furthermore, it is essential a real shift in the tourism sector, especially in action devoted to *Inbound tourism (InT)*, as after territorialization we find a transition from D to C for all four provinces, which could further increase regional economy.

This requires investment in promoting the territory and training of sector professionals, who must be able to sponsor those places that are less involved in the phenomenon of tourism, but no less important.

Surely the indicator that describes the *Energy self-sufficiency (ESSI)* can significantly improve, rising from level D to B in all four provinces, by implementing a specific policy for energy and the use of renewable resources. Furthermore, the use of policies for *Transport and Network* will increase regional accessibility.

As regards environmental policies, the starting situation remains unchanged after territorialisation, thus showing that the conditions for competitive development of the territory will remain underdeveloped in environmental matters.

It would also be necessary to encourage the temporary outbound mobility of students and researchers, by investing more in information technology and knowledge of foreign languages, so to learn and apply to the labour world the best practices and know-how gained from periods spent abroad.

We highlight a potential improvement for Ascoli Piceno and Pesaro-Urbino (D→C), while the positions remain unchanged for Ancona and Macerata (B).

Starting from these considerations about the *Global/Local Interaction* determinant, the Marche region is characterised by a poor capability to become competitive, being able to respond with a slightly positive outcome to stimuli arising from the territorial policies.

10.3.2. *The Quality and Resources and Funds determinants*

With the support of STeMA, by the analysis at NUTS3 level of the indicators that make up the two determinants *Quality* and use of *Resources and Funds* we will seek to understand the evolutionary dynamics of policies promoting development, and the reasons for the persistence of several critical issues that undermine the good performances of the Marche region against the objectives of Lisbon 2010.

The purpose of the study of the *Quality* determinant is to measure, through a geo-economic approach, the level of quality within European territories in order to test policies of transnational cooperation that can take advantage of new financial resources from the Structural Funds.

The status of European Regions in relation to *Quality* can lead to many changes:

- a) expand and strengthen the internal market;
- b) ensuring open and competitive markets inside and outside Europe;
- c) expand and improve European infrastructure;
- d) expand and improve investment in research and development (Prezioso, 2006b)

The current level of the above mentioned determinant stands at (C) for all the provinces of the Marche region, with Ancona the only exception (B), on which a positive influence is especially given by the indicators involving the typology *Quality of Life (QL)*.

Also the regional performance as a whole stands at C, despite the positive data expressed by some structural indicators.

In the construction of the *Quality* determinant, *Quality of Life (QL)* is among the typologies taken into account, usually supported by specific policies aimed at ensuring suitable economic conditions to the needs of families¹⁶ and the achievement of an adequate level of all non-economic aspects that contribute to the citizens' well-being¹⁷.

Marche's reality is rather complex and difficult to interpret as the analysis of economic variables already reveals heterogeneity in the ability of the different provinces to generate wealth.

In particular, GPD per capita (*GDP pps*), based on real purchasing power, has fair values for the entire region (C), except again for Ancona (B) that has a better performance than the regional figure, although the trend seems to draw a low speed process towards growth, because of the disappointing productivity levels especially in the manufacturing industry.

On the demand side, growth of domestic final consumption in the Marche region stands at positions substantially similar to Italy and the Convergence area, with a favourable performance that is mainly affected, in comparative terms, by the evolution of private consumption rather than public.

The level of the *Index of Consumer Prices (HICP)* is not uniform across the region and presents lower values, in line with the national average, in the provinces of Ancona and Macerata (C), but higher values for the provinces of Pesaro-Urbino and Ascoli Piceno (B).

¹⁶ *GDP per capita pps (GDP pps), Consumption per capita (Cons), Level of employment (Emp), Index of Consumer Prices (HICP).*

¹⁷ *Health (Hlt), Level of Leisure (LS), Accessibility (PhAc).*

The labour dynamics instead show how the *Level of employment (Emp)* trend is uniform across the region (B), not only above the national average but almost in line with the Lisbon objectives, meaning that unemployment measured on the active population is rather low; therefore, policies are needed not so much for the creation of new jobs, as rather to maintain the status quo and favouring employment in those sectors with highest added value and the lowest environmental impact.

Also non-economic variables, or *Infrastructural variables of cohesion (IVC)*, draw a fair regional situation (C). The analysed categories (related to the indicators *Hospital beds (Hlt)*, *Infrastructural accessibility (PhAc)* and *Hotel beds (Htb)*), despite unevenly distributed throughout the region, show medium-high values for two of the four provinces (Ancona (A) and Macerata (B)), in line with the national situation and especially of central Italy, while the other two achieve medium-low values (Pesaro-Urbino (D) and Ascoli Piceno (C)).

The overall regional infrastructures reveal a gap against Italy, and in particular against the regions of northern and central Italy, that still exists and shows no significant improvements in recent years.

For Marche's economy this is definitely a strategic weakness that requires immediate action, even or perhaps especially to ensure that level of systemic competitiveness needed mainly by SMEs, which represent the most dynamic sector of the regional business system.

The most critical situation involves the transport system, particularly road and rail.

Regarding the allocation of tourist facilities (*Hotel beds (Htb)*), the province of Macerata is the one that presents the most significant deficiencies (C) although still achieving a medium value, while medium-high is the value of the provinces of Ancona and Ascoli Piceno (B), and very high is the performance of Pesaro-Urbino (A).

The data to be analysed with more attention seems to be the variable *Cultural Opportunities (CuOp)*, which presents instead a regional medium value (C) that is also reflected in three of the four provinces, except for Ancona (B). The provinces of Pesaro-Urbino, Macerata and Ascoli Piceno all stand on a level C and so define a flat and monotonous socio-cultural system.

The analysis of this variable seems to confirm that, despite the high average levels of income and mostly high levels of employment, perhaps there is a lack of those cultural stimuli typical of the large and medium-sized urban areas that allow many regional capitals of Central and Southern Italy to achieve higher performances for this variable.

The four areas of action of the Lisbon Treaty, *employment, innovation, economic reforms* and *social cohesion* have been joined, in the Treaty of Gothenburg (2001), by a fifth, *environmental sustainability*, which will be integrated into all these mentioned areas, producing effects in the decision-making processes of all policies of economic, social and environmental development.

That's why in the construction of the *Quality* determinant a key role is played by the typology *Environmental quality (EQ)*, whose structure is determined by direct and indirect indicators, such as *Natural resources status (NRS)* (*State of the Air and Water use*) *Waste (WS)* (*Urban waste, Hazardous waste, Waste recycling*), *Climate change* and *Natural and anthropic hazard*.

For this group of indicators, the *ex-ante* situation of the Marche region shows quite

comforting values that are perfectly in line with national ones, since the summary data of regional and provincial levels is on a medium-high value (B.)

The *Status of the air (Total greenhouse gas emissions (SA))* shows, however, critical values (D) in Pesaro-Urbino and Ascoli Piceno, while the situation is much better for the province of Macerata (C) and even more for Ancona (B), despite the existence along the coast, north of the regional capital, of the largest petrochemical plant in central-northern Italy.

These results can be explained by some indicators that negatively affect this category.

Air quality in urban areas is especially critical for the emissions of nitrogen dioxide and fine particles (PM10), of which the transport sector is the main culprit.

In the Marche region the demand for mobility of people is met mainly through private cars, in a higher percentage than the already high national averages, and also an increase is recorded in highway traffic, both in relation to heavy transport and cars.

This increase in demand for mobility can be also interpreted through the pattern of regional territorial development. In recent decades, in fact, depopulation hit large part of the Apennine area as well as many hilly areas inland, whereas many cities, especially in coastal areas witnessed a strong growth.

The increase of population, and consequently of employees, did not occur evenly, but rather involved groups of adjacent municipalities (74 municipalities out of 246).

From an initial condition consisting of a network of municipalities with low interdependence, we have moved first to a growing relational density between sets of adjacent municipalities, up to reaching a degree of interdependence so high to identify a single socio-territorial system, the so-called functional urban area.

The Marche region is also characterized by the presence of polluted sites (137, of which 46% located in the province of Ancona); only 5 of these were cleared in February 2005 according to DM 471/99 (Ministerial Decree N. 471 of 1999)

Moreover, we must remember that in the Marche region there are industrial plants at risk of a major accident, according to the Seveso II Directive.

Finally, only in the province of Ancona (in the whole region), there is an area at High Risk of Environmental Crisis (AERCA), involving the areas of Ancona, Falconara Marittima and the Lower Esino Valley (POR – *Regional Operational Plan - ERDF 2007-2013*).

The negative effects in terms of environmental policy due to the significant pollution problems for the region, are partly mitigated by the low consumption of drinking water (*Total gross supply of drinking water (SW)*), which shows levels much lower than the national average, and by the good performance of the *ex-ante* situation of the indicators related to production and management of urban waste (*Municipal waste generation (MWAs)*), with specific reference to the capacity of recycling (*Municipal waste recycling (RMWAs)*).

The analysis of this latter group of indicators shows, in fact, a rather reassuring overall situation; a high production of hazardous waste, with a provincial performance among the worst in the country (D for all provinces), corresponds to a low production of solid waste, with very high values (A) on a regional and provincial basis.

Then if you consider that, despite the high production of waste, for over a decade no serious policy on waste collection and recycling was implemented, it is clear why this indicator has a very high performance (A) too.

With regard to natural hazards¹⁸, 2.35% of the regional territory is at risk of flooding, in particular the areas of the valley floors and the final stretches of the river courses, while the areas at risk of landslide (16.87% of the region) are spread evenly throughout the region, although only a small portion falls into the categories of higher risk.

Moreover, and this is an element too often overlooked in policy choices that characterise the different governance levels in Italy, the entire region is characterized by high seismic risk: 90% of municipalities falls in risk class 2 .

The policies of conservation of nature, landscape and biodiversity so far taken have led to the establishment and recognition of many different types of protected areas (parks, reserves, SIC, ZPS, etc.).

These areas, often located along the Apennine and hilly internal area, affected by depopulation and lack of territorial enhancement, ask for interventions, also at infrastructure level, that are related to biodiversity and to the Natura 2000 sites, aimed at sustainable economic development.

Considering the above, it is quite clear that the overall environmental quality in the Marche region has medium-high levels, although some adjustments are needed not only to improve current performance, but above all to avoid a deterioration, which in the long run could occur for effect of the resurgence of the values expressed in this analysis by the variables related to hazardous waste production and management, and of the increasing risk related to *Degree of vulnerability (NH) (Natural and anthropic hazard)*.

Finally, in building the *Quality* determinant a fundamental role is played by the typologies *Government quality (GC)* and *Social quality and cohesion (Vul)*; both represent a summary of some indicators that aim at measuring the degree of participation and sharing in policy-making at different territorial levels and the capacity of local realities to address the new challenges posed by economic slowdown, worsening phenomena of unemployment and inactivity, changes in family structure and ageing population, through new and more efficient welfare policies.

With reference to the first typology, once again, the Marche region shows medium-high quality levels compared to national average. This situation is succinctly expressed by the category *Level of citizen confidence* that reaches a very high value (A) at the different institutional levels, and by a level of participation in political decisions summarized by the category *Level of public participation*, which is characterized by a lack of homogeneity at regional level that shows how the quite positive regional figure (B) is only the consequence of the harmonization of spatial realities where there is a strong “confidence” of citizens towards the EU and participation in political life (A for Pesaro-Urbino, B for Macerata), with other territorial realities that instead show average values (C for Ancona and Ascoli Piceno).

Much better, finally, resulted the regional analysis of *Social quality and cohesion (Vul)* indicators, which returned an excellent structural framework, by now settled, expressed by the high levels of the category *Wellness (Wns)* (A) (that includes the *Fertility rate (Fty)* and *Life expectancy (HLY)* indicators) and by the low levels of *Poverty (Pvy)*; furthermore, medium-low (and thus encouraging) values are measured for the degree of *Risk of children exclusion (Cer)*. While considering the typology that summarizes the indexes expressing Social wellness attitude (SWA), and in particular the indicator for female

¹⁸ Index that, as known, presents medium-high values in several parts of the region.

employment, expressed by the variable *Equal opportunities (EqOp)*, despite a quite high regional average (B), the Marche region shows some differences at the provincial level (A for Pesaro-Urbino and Ancona; C for Macerata and Ascoli Piceno), which again confirms the persistence of structural deficiencies, despite the regional policies for gender equality that in recent years have sought to promote women's work through specific educational projects and special funding for female entrepreneurship.

On the other hand, what has been said is confirmed by some classic statistical indicators such as the employment rate by gender, which records quite comforting values (in 2005 53% of women aged 15-65 is employed) above the national average (45,3%) but still far from the Lisbon targets for 2010 that expect an average of female occupancy at 60%.

In conclusion, the analysis of *Quality*, of life and environment, but also of government and social cohesion, considering economic and non-economic variables, gives us a quite comforting overall picture. Nevertheless, selected appropriate policies could improve the already positive value of some variables involved in typologies of *Government Quality (GQ)* and *Social quality and cohesion (Vul)*, and mitigate those elements of vulnerability expressed by the level of *Base education (EdB)* and *Economic elements for Social Cohesion (SCEc)*, which, expressing regional values respectively medium (C) and medium-low average (D) could move away the territorial system of the Marche region from the Gothenburg objectives.

The quality topic is closely related to financial availability. The change of the European paradigm - from growth to sustainable development - has brought many OECD countries to face the problem of addressing sustainable development by coming to terms with an effective and efficient use of resources.

Table 3 - Recommended policy choices for territorial competitiveness of *Quality* at NUTS3 level in the Marche region.

Innovation	Technological/innovative dissemination for enterprises and institutions
	Use/development of environment friendly technologies
R&D	Development of waste recycling technologies
Human Capital	Supply of education
	Human capital internationalisation
Age	Social integration
	Cultural integration
Economic development	Support Local productive identity
	Promotion of a global enterprise culture
	New business/service instruments
	Inflation control
	Internationalisation of goods and services
Transport/network	Development of telecommunication networks
	Increase of physical accessibility
Natural Resources	Use of renewable resources
	Active Protection of Natural resources
	Reduction of Natural Resources consumption
	Natural hazard prevention
Climate	Energy policies
	Climate Active Protection
Public Health	Social Programme Financing
	Safety

Territorial competitiveness, in fact, is created also through a balanced use of the financial resources available that is consistent with the objectives to achieve.

Aware that the sustainable competitiveness of a region is constructed through the right mix of endogenous factors, aspects as connecting infrastructure, network services, accommodation facilities, social organization, qualification of work, favourable conditions for satisfying the demand expressed by citizens, all constitute elements of the competitive advantage that a territorial system must acquire in a global economy.

Especially the most vulnerable systems, but also those stronger local systems as the Marche region, need appropriate and integrated policies to address simultaneously support to business, human capital formation, employment, infrastructures.

An appropriate use of financial and economic resources for pursuing the objectives of Lisbon and Gothenburg can be verified by the qualitative-quantitative measurement of the phenomenon, using groups of indicators suitable to assess the contribution the resources can bring to regional development: research and development, state aid, human capital, climate and natural resources, accessibility, poverty and ageing, spent funds, economic resources.

Given the medium-low value the *ex-ante* analysis showed homogeneously throughout the Marche region, the performance of the determinant *Resources and Funds* is modest for all provinces (C), with a negative peak for the Ancona (D). The first objective to be pursued would be to dramatically increase spending on R&D (*R&D expenditures (LsS)*), assuming that an effective strategy in this respect is the competitive basis of a modern society.

A systemic action has to be shared with all local stakeholders, businesses, school system, universities and political-institutional bodies, in order to create a local milieu able to make competitive an area as the Marche region, which is certainly able to express, if stimulated, innovation and knowledge.

Continuing the analysis of policies aiming to achieve the objectives of the Lisbon strategy and evaluate the effectiveness of funds spent for this purpose, attention should be paid to those indicators as *Aid to enterprises (Q_{NA})* and *Human capital Expenditure (Hcex)*, which show for the Marche region a contrasting reality. In fact, despite the high value (A) expressed by the first indicator especially for the southern provinces of Macerata and Ascoli Piceno, the second one, except for the province of Ancona, which has the most negative performance at regional level (C-D), shows values that are still not commensurate with funding received, confirming that investment in lifelong training by Marche's enterprises is not consistent with the Lisbon objectives.

Policies for the Gothenburg strategy show for the Marche region quite appropriate standards. The indicators examined in this case, *Climate and natural resources (CN_{Rex})*, *Expenditure on transport and traffic (Tex)* and *Poverty and ageing (Social expenditure (Paex))* (per capita, per real buying power), show a very comforting reality because both the summary regional result and the values expressed by the individual provinces achieve very high values (A).

This is indicative of a good institutional capacity to promote appropriate policies to contrast the changed European demographic status, characterized by a general ageing population that, affecting the GDP, affect economic models of consumption, work and family life.

Indeed, to achieve the Lisbon objectives of creating more and more skilled jobs according to social cohesion, it is necessary to strengthen the social model in order to reflect the changed needs in terms of knowledge and skills of a society increasingly open to new technologies, despite ageing.

Even the *Climate and natural resources (CNRex)* reaches a very high value (A) in all provinces, confirming the full awareness of local stakeholders of the high risk faced by the region.

The index of efficiency and accessibility (*Expenditure on transport and traffic (Tex)*) deserves a separate treatment, especially because it represents the most important element of weakness of the Marche region.

In this case the regional excellent performance (A) is corresponded by a provincial heterogeneity that highlights the major deficiencies in infrastructure investment at NUTS 3 level, especially in the province of Ancona (C) and the southern ones of Macerata and Ascoli Piceno (B), although these are still medium-high performances, when related to the national average.

Besides, even the sector *Policies for the Gothenburg Strategy (structure) (GtS)* that allows to measure the capacity of a territory to undertake sectoral policies aimed at the development of trans-European transport networks and the optimal use of infrastructure, or at the improvement of the institutional and administrative capabilities in order to enhance the EU overall efficiency, shows for the Marche region an excellent performance, with a very high value (A) of the indicator both at regional and provincial basis.

Table 4 - Recommended policy choices for territorial competitiveness of *Resources and Funds* at NUTS3 in the Marche region.

Innovation	Bridging digital divide
	Technological/innovative dissemination for enterprises and institutions
	Support to trans-regional cooperative projects
	Use/development of environment friendly technologies
	Quality certification and assessment tools
R&D	R&D infrastructures
	Support to BAT
Human Capital	Supply of education
	Human capital internationalisation
Age	Re-involvement of ageing people
	Social integration
	Cultural integration
	Support leisure
Economic development	Support Local productive identity
	Inflation control
	Internationalisation of goods and services
Transport/network	Development of telecommunication networks
	Increase of physical accessibility
Natural Resources	Use of renewable resources
	Natural hazard prevention
Climate	Energy policies
	Flexible Mechanisms
Public Health	Support Welfare

Finally, in the construction of the determinant *Resources and Funds*, a key role is played by the indices of expenditure of funds (*EU funds expenditure (Funds)*) and economic resources (*INTERREGIII funds expenditure (Co-Op_N2)*), which summarise the indicators of use of structural funds and the level of cooperation achieved by the studied territory (typology *Use of funds (RFsq)*).

Both indicators, taken into consideration for the Marche region, have low-medium values, with a rather uniform spatial distribution on the four provinces (C); this result allows to observe a modest use of available resources, despite the necessity of investment in infrastructure and R&D resulting from the analysis carried out until now.

Although this is a sign of good regional competitiveness achieved by the Marche region, be aware that these performances are still far away from the objectives of Lisbon and Gothenburg.

Finally, moving from a spatial dimension to a territorial one, i.e. correlating, according to STeMA, the spatial data to the territorial structure of the region concerned, both studied determinants show after-territorialization values that synthesise an overall improvement in almost all provinces of the Marche region.

The stage of data territorialization is an important tool for analysing the capacity of a region to conform and adapt to the demands of both European integration and economic globalization.

The main purpose of this stage is to identify what policy choices each provincial local authority can make in order to strengthen its own territorial system.

The territorialization of *Resources and Funds* does not bring significant improvements to the provinces of the Marche region because the summary result is still the same (B→B).

An important intervention in order to standardize the local situations on a regional basis may be the one related to the typology *Level of interventions for the Lisbon strategy (LS)*; indeed, a significant contribution can be provided for the same indicators by age-related policies aimed at the *Re-involvement of ageing people* and by policies related to *Human Capital* and aimed at the *Supply of Education* and the *Human Capital Internationalization*, as these would help to improve especially the *Lisbon strategy (LS)* typology (C→B).

Even more significant improvements are obtained for other indicators too.

The choices contained in the POR – *Regional Operational Programme 2007-2013* are aimed at improving the efficiency of Accessibility: among *R&D* area policies there is *R&D Infrastructures*, which leads the analysed territorial system to a high level of competitiveness, especially for the southern provinces of Macerata and Ascoli Piceno (B→A), all the more if properly integrated with *Transport/Network* policies.

The level of the *Quality* determinant rises in the territorialisation stage for all provinces (C→B).

The territorial performances related to this determinant may improve through measures aimed at *Economic development* and *Human capital*, gradually integrated with specific policies related to the single performance.

So the *Buying Power* and the *Consumption tendency*, which are the categories for the *Economic Variables (EV)*, may experience a positive change for all provinces (C→B).

As for *Health*, the shortcomings in the provision of services structures, especially in the provinces of Pesaro (D) and Ascoli Piceno (C), can be overcome through policies in support of *Public Program Financing* and *Safety*, which would raise to B the performance of the category.

The good level of development in *Level of Leisure (LS)* for the analysed territorial system (B) on a regional basis cannot release the community from adopting policies aimed at *Support leisure*, integrated with policies of *Transport/Network*, preferably those directed to the *Increase of physical accessibility*, such as to ensure the weakest realities, as Macerata, to reach at least level B, as the other provinces do.

The typology *Environmental Quality (EQ)* has a good performance (B), and even in case of a joint intervention to obtain an improvement (B→A), this would be useless because, as a result of territorialization, the advantage obtained would be nullified by the presence of some environmental emergencies, namely in the variable *air and water pollution*, that is not easy to solve.

As regards the typology *Government Quality (GQ)*, the high performance of the *ex-ante* situation does not suggest any intervention on specific policies aimed at improving public participation in elections (B) and the so-called level of citizen confidence (A). This figure shows a high sense of belonging and confidence in institutions.

On the contrary, it is absolutely necessary an intervention aimed at improving *Social quality and cohesion (Vul)* level, which are especially critical for the typology *Economic elements for the social cohesion (SCEc)*, showing a low value (D) in the province of Pesaro-Urbino.

Therefore, policies of *Social Integration* and *Cultural integration* are desirable, which, even after territorialisation, would lead to a significant improvement (D→B).

10.4. CONCLUSIONS

In a global economic system which tends more and more to “glo-cal”, ensuring territorial competitiveness also and mostly at NUTS2 (regional) and NUTS3 (provincial) levels becomes strictly necessary, in order to provide some local communities with the achieved level of development, as in northern and central Italy, while granting others the opportunity to finally realize those virtuous processes of growth and development as in the South of Italy.

Marche’s reality fits in this context and the analysis conducted on the four determinants proposed by STeMA gives us a regional picture that is basically positive in the national context, but could be improved in comparison with other territorial contexts of the centre/north and in particular with Emilia Romagna, a region with which the Marche region shares, in the north, administrative boundaries and cultures.

This altogether comforting framework can be further improved through policy choices targeted to the needs expressed by the different provincial contexts, especially for the southern provinces of Macerata and Ascoli Piceno that are weaker urban and territorial systems.

In general, however, by the performed analysis the policy choices contained in the POR - *Regional Operational Programme* - ERDF 2007-2013, show broad consistency

with the Lisbon and Gothenburg objectives, though the possibility of achieving the expected performance is closely tied to the ability of local politicians to reach, through consistent political guidelines, high efficiency and effectiveness in the use of resources and funds. With this regard, for example, in the light of this analysis it would have been desirable, in our opinion, a greater concentration of resources on the POR's *Priority 4: Accessibility of transport services*, which has been allocated just 14% of total funding.

