



## **ESPON Project 3.3**

# **Territorial dimension of the Lisbon-Gothenburg strategy**

## **Final Report Revisited Part One**

**15 December 2006**



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## **Final Report Revisited Part One**

This Report presents the Final results of a research project conducted from July 2004 to March 2006 within the framework of the ESPON 2000-2006 programme, partly financed through the INTERREG programme.

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## 1. Executive Summary: main 3.3 project final results

The cross-thematic ESPON 3.3 project (2004-2006), named the *Territorial dimension of the Lisbon/Gothenburg Strategy*, was inspired by and oriented towards meeting several needs:

- to apply the updated Lisbon/Gothenburg Strategy goals at the territorial dimension, developing them in relation to the new Structural Funds 2007-2013;
- to conduct ex-ante analysis of the impacts of these strategies in order to develop EU national and regional competitiveness in a sustainable way;
- to introduce territorial cohesion to the Lisbon/Gothenburg Strategy, indicating ways of integrating the Lisbon/Gothenburg Strategy in Structural Fund interventions in support of a balanced and cohesive territorial development of the enlarged EU.

Within this framework, the **main aims (scope) of the study** were to:

- link the Lisbon and Gothenburg Strategies;
- read them through national (macro), regional (meso) and sub-regional (micro) *territorial dimensions*;
- measure the territorial capability for applying the Lisbon/Gothenburg Strategy at national, regional, sub-regional levels;
- present general and specific policy recommendations with regard to sectors relevant to Lisbon/Gothenburg, looking at cooperative transnational areas;
- realise – as an added value of the project - a simple-user operational procedure to handle the project results.

The **main results** were obtained according to the scope of the project, developing a number of basic analytical elements:

- a series of discussions and/or paradigmatic hypotheses stemming from the more relevant economic and territorial international scientific theories of the 90's, EU political reports, declarations and directives. They were critically revisited: i) to arrive at defining the implicit question of the Lisbon/Gothenburg Strategy: *How to be competitive in sustainability* and ii) to define and review the concepts of sustainability and competitiveness in the European territorial dimension by the necessary criteria (indicators);
- several traditional and additional indicators were identified and measured to achieve the final indicators useful for monitoring the "spatial" and "territorial" Lisbon/Gothenburg Strategy. The project recommends taking into account at the political level this final list (thereafter A-case) in order to acquire a common European regional measure of the territorial capability of applying the Lisbon/Gothenburg Strategy;
- a 'process' (the SteM Approach, which produces a Territorial Impact Assessment – TIA) that can be used to assess the current and future national, regional, sub-regional capability to be competitive in sustainability.

The final project proposal was to study *four* key "determinants" or **composite indicators**<sup>1</sup>. These arose from simple indicators (metadata) included from both the

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<sup>1</sup> They arose from the literature review and were tested within this too. In the end, this review has motivated the project to *revisit* the most important contribution to the competitiveness debate in the

re-visited and renovated Lisbon Agenda, and the implementation of the Gothenburg strategy (Almunia Document, 2005 and the relative Eurostat update 2005-2006). They are:

- **Innovation & Research** (including ICT, R&D, Innovation, Human capital, Age)
- **Global/local interaction** (including CT, R&D, Innovation, SMEs, Human capital, Employment, Transport)
- **Quality** (including SMEs, Human capital, Employment, Climate, Public health, Natural resources, Poverty, Transport, Age)
- **Use of resources and funds** (including ICT, Innovation, Employment, Human capital, Age, Climate, Public health, Natural resources, Poverty);

These were used: i) to interpret the Lisbon/Gothenburg territorial dimension and strategy; ii) to measure Lisbon/Gothenburg Strategies ex-ante (before the year 2007) and ex post (simulation) by a new methodological approach (STeMA). Into this approach, the four composite indicators assumed the role of basic Lisbon/Gothenburg strategic key messages.

*Territorial cohesion* was also introduced to indicate ways of integrating the Lisbon/Gothenburg Strategy into the new Structural Funds (see ToR).

The project at its inception could already count on some commonly shared results (see Table 2):

- i) a list of 42 indicators, which are subject to revision every three years;
- ii) a reduced/short list of 14 indicators (based on the EU *Spring Report*, 2004) proposed in order to arrange a more easily constructible European governance model (2001), based on common statistical indicators reflecting the Lisbon/Gothenburg goals, looking at the social and economic objectives and at the geographical scale of NUTS 1, 2 and 3;
- iii) then (March 2005), the Almunia list of 15 indicators.

Anyway, a new appropriate selection of indicators (*in 'the overall 69'*, Table 2) appeared useful in order to:

- provide a common basic analysis of European regional results, obtained from 2000 to 2004, to support and explain political choices for the period from 2007 to 2013 and to
- suggest some possible integrations with regard to the real and complex differences within and between the old and new EU regions for the full utilisation of the revisited Structural Funds.

The TPG point of view in view of scope of the 3.3 project was mainly oriented from:

- a critical discussion in the light of some scientific and institutional inputs, such as e.g. the Kok Final Report, *Facing the Challenge. The Lisbon Strategy for growth and employment* (November, 2004); and
- the full incorporation of others, such as: the study *Adaptation of Cohesion Policy to the Enlarged Europe and the Lisbon and Gothenburg Objectives* by the European Parliament's Committee on regional development (provisional version, January, 2005) and the *Communication from Mr. Almunia* (March, 2005) to the Commission *Sustainable Development Indicators to monitor the implementation of the EU Sustainable Development Strategy*";

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90's: **Porter's Diamond** (this revision can be considered a scientific added value of the project) and its **integration** into an updated Lisbon/Gothenburg Agenda (2005) on the basis of *proposals* by the European Commission COM(2004) 495 (ERDF); COM(2004) 494 (Cohesion Fund).



These demonstrate why the initial Lisbon proposal based on the list of 14 synthetic indicators (2003-2004) should not be suitable. To better sustain this “ambitious” thesis, the 3.3 TPG decided to make, at the same time, two complementary analyses and mapping activities to perform a comparison:

- **The first (A)** related to the new methodology for the four composite indicators or determinants
- **The second (B)** based on the short-list of indicators (the 14 “Spring Report” indicators)

In this way, the 3.3 project has offered a concrete and operational answer to the ToR about *how* EU countries (25+2+2 at NUTs0), regions (NUTs2) and sub-regional areas (NUTs3) can achieve the goals of the Lisbon/Gothenburg Strategy and territorial cohesion by using their regional potentials; and from the standpoint of how the regional areas currently are, which may best benefit from the granting of a cooperative use of the new Structural Funds.

The project met these requirements by territorialising spatial data (statistically) and establishing a proposed organization of ‘cross-thematic cooperative regions’, identifying their potentialities in the light of Lisbon/Gothenburg, through ‘bottom-up’ research of their regional and sub-regional qualitative and quantitative values. In order to develop a common cooperative territorial milieu through the use of new Structural Funds, as ToR requested, the project suggested an integration of the indicators list in relation to different territorial dimensions (regional typologies and transnational areas involved in Interreg III B programmes and projects).

Thus the **3.3 project proposed two types of results:**

- **spatial ones** at national and regional level (at NUTs 0 and 2) from ‘A’ and ‘B’ approaches (see above);
- **territorialized ones** at regional and sub-regional level (at NUTs 2 and 3) from the ‘A’ approach. In this case, the project has *proposed and built an original base for this territorialisation* of the spatial data (statistical data) combining the ESPON Programme typologies (see in Figs 24 and 25 below).

A more selective and “customised” set of policy recommendations were presented together with scenarios towards the implementation of the Lisbon/Gothenburg Strategy. These focused on the **different capabilities** shown by territories and their aggregated hypotheses on a cooperative basis, to confirm initial key messages, suggesting general and sectoral policies.

By using the STeM Approach and EU TIA input 2005, the 3.3 project has identified (see ToR):

- i) relative national and regional territorial status (which also correspond to ex ante potential demand for supplying national and regional appropriate operative plans);
- ii) the desired effects of applying Lisbon/Gothenburg sectoral policies through the Structural Funds;
- iii) the ex post simulation of national and regional changes.

This approach was useful in order “to assess the development potential and territorial imbalance in different transnational/national territories and types of regions in relation to the objective of Lisbon/Gothenburg Strategy” (ToR, pg. 22).

The 3.3 project named this development potential *capability to be competitive in sustainability*. For this scope, the specific GIS assessment was built, too, as added value of the 3.3. project (see CD in attachment).

A successful implementation of the Lisbon-Gothenburg Strategies depends on differentiated interventions at the macro, meso and micro levels and policy recommendations were proposed accordingly. In addition, the methodology developed in this project has pioneered an approach in which the potential impact of such interventions are assessed in relation to the specificities of each particular region, as opposed simply to the 'type' of region. Thus within this revisited Report, recommendations were also differentiated according to the specificity of particular regions. The summary of the key recommendations arising from the 3.3 project consisted of:

- the conclusions of a survey of the entire ESPON programme which identified implicit recommendations related to the delivery of Lisbon/Gothenburg;
- a charting of 'Lisbon and Gothenburg derived policy objectives' set in relation to the composite indicators within the 3.3 project.

## 1.1 Key messages and findings

Since the first findings of the work (FIR, October 2004; SIR, March 2005), some broader implications as to how to proceed became apparent, these were:

- in order to apply the basic **principles** that orient the Lisbon/Gothenburg Strategy, it would be necessary to concentrate European and national actions on some **global principal themes**, and the regional level on some **sub-themes**, utilising interpretative **common words** (see the following list of composite indicators and the Table 2: 'A'-case, list of indicators). These words have been subsequently translated/transformed into indicators (on the basis of statistical availability) for measuring existing territorial gaps and capabilities so as to determine potential interventions by the Structural Funds (see Table 2);

**Table 1:** Example of Lisbon/Gothenburg themes and words (n.b. the name of the indicators was intentionally left as key-words for the sake of simplicity)

<b>Lisbon/Gothenburg themes</b>	<b>Lisbon/Gothenburg sub-themes</b>	<b>Lisbon/Gothenburg operational words</b>
<b>Innovation &amp; Research</b>	ICT, R&D, Innovation, Human capital, Age, technologies	Internet users, Firms with internet access; e-government; Municipalities with internet access; Universities Students; Innovative dependency index; Population with tertiary education; Population in life-long learning; Research Centres; Old and new technologies

- to achieve simultaneously the objectives of Lisbon and Gothenburg both being integral to the short-term European global strategy, the regional rather than the national level would be the more significant;
- the strategy should be based on some fundamental pillars (e.g. I&R; ICT; Age; social; natural resource; climate, etc ..) and on a **microeconomic approach** inspired by the American development model as opposed to a **macroeconomic**

**vision** focusing only on the issue of employment;

- ICT and I&R assets should be used to determine these fundamental changes in the global and European productive process, whilst looking critically at the U.S. economic experience (e.g. the massive substitutions of ICT investment for labour and human capital);
- ways to sustain the EU by improving its endogenous strength ought to be developed, by proposing for instance, a “substitutive” model to compensate for capital deficiencies. A way forward should be found around the “dependence” on technological and net-economies (U.S., China, India, Pakistan, etc.) without renouncing an **active socially cohesive policy, this could involve** modernizing the European social model through the new Structural Funds;
- so as to be consistent with the Lisbon/Gothenburg treaties/declarations, an adequate *policy-mix* should be applied in accordance with a polycentric territorial vision towards ESDP II;
- Lisbon/Gothenburg goals and questions ought not to be trivialized, but could be made easier by a complex and clear quali-quantitative methodological approach *for realising an economic European model simultaneously competitive, cohesive, and sustainable*. This is a “substitutive” model that includes both traditional European horizontal social welfare; and the vertical economic organisation for competitiveness, maintaining a general equity in the use of EU social, financial, natural resources (*subsidiarity vision*)

The project then proposed into the ‘A-approach’ (methodology, see above) its own list of indicators, composed in order to be used in an integrated way (vertical and horizontal subsidiarity), from the sub-Regional scale (NUTS3) to the European scale (NUTS0), and *vice versa*. The intention being: *to (ensure) the complete enforcement of the Lisbon/Gothenburg Strategy, it is necessary both to build a complex decision process; and then emphasise how each of the previous subsidiary levels relates itself to a geographical-economic scale in territorial Lisbon/Gothenburg actions.*

Thus, rather than relying on simple case studies (as ToR suggested), the 3.3 project examined the selected indicators for all European countries and regions, according to their national operative plans, too; or with regard to typologies of cooperation, even in the pre-accession stage and considered also including cross-border areas and large transnational areas similar to INTERREG III B cooperation areas (e.g., see Resources and Funds indicators).

All indicators have been mapped and re-marked.

Some sectoral cooperation scenarios coming out of this mapping work (see examples in Figure 14), are applicable to the new policy on Structural Funds starting from 2007, in agreement with another fundamental 3.3 project message: *to think development, competitiveness, sustainability arising from a territorial “bottom up” analytic vision. Only in this way, will “top-down” policy choices show efficacy and be appropriate to territorial demands.* For this purpose, in the project, a set of indicators (e.g., see Quality indicators) is expressly dedicated to measure cohesion and its implementation on a territorialized base.

The target of a simultaneous operational application of the territorial dimension of Lisbon/Gothenburg Strategy has been reassessed and integrated with new and more current scientific results produced within the TPG. They may be considered an integrated aspect of the following *other 3.3 key messages*:

- for Europe to become (then continue to be) competitive and dynamic by building on knowledge and innovation, it needs to know its *territorial potentials* (or *capabilities*) and *competitive advantages* which are required for economic development; at the same time, it needs to know the imbalances and disadvantages that issue from existing important European phenomena, such as urban agglomeration, environmental pollution, climate change and related social and health risks;
- for the Lisbon/Gothenburg Strategy to be applied, some key functional common services are a prerequisite. Today, they are concentrated in urban systems (urban agglomerations, large and metropolitan areas or cities which contrast with polycentrism). In these areas the full use of such services is linked to different European urban levels of physical and virtual regional accessibility (above all in the enlargement countries), as well as to the capability of attracting foreign direct investment (FDI) to use for improving human and physical capital performance;
- for an enlarged Europe to build its development (not just growth) on knowledge, it is a priority for employment policies to invest in human capital with high educational and innovative levels (with an intensive and appropriate use of ICT and R&D) and “dedicated” services, and in less competitive and dynamic regions too. This should allow for the improvement of territorial and economic performances, overcoming informative asymmetry.

This work has encouraged a reflection on the first European Spatial Development Perspective – ESDP (1999) and its polycentric revision (see the ESPON 3.2 project) as another important focal reference point with regard to its suggestions about a balanced and cohesive development of the European territory, and, *vice versa*, to advise on some new orientations from the Lisbon/Gothenburg Strategy, in order to better specify the direct link that must exist between the new ESDP and competitiveness.

To facilitate this new ESDP integrated process, a fundamental message of the project is:

that *competitiveness (Lisbon) could have lots of definitions, and different territorial dimensions*. That is precisely opposite to what in the case with respect to sustainability (Gothenburg), whose definition is clear to everybody (see Report of the Brundtland Commission or WCED, *Our Common Future*, 1987, Oxford: Oxford University Press; Scientific Summary - Glossary): “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*”.

Starting from the definition of competitiveness given by several scientific references (e.g. Porter, Camagni, Krugman, Kok, etc), and from the sustainability basic concept, the project suggests the integration of these definitions into the polycentric vision of ESDP, by the following *key messages* collated at the regional scale. So, a polycentric, cohesive, competitive, sustainable region would have or seek to obtain:

- *a competitive market which uses internal and differentiated development factors, with respect to rules (governance) granting environmental, social, cultural and economic sustainability;*
- *the availability of key resources beneficial to business vitality and innovative factors acting within a stable social system;*
- *the ownership of cooperative and subsidiary managerial capabilities, to inspire*

*confidence towards the institutions;*

- *the capability to produce in a stable way the maximum possible added value (economic competitiveness) in the territory, enhancing the resources through local cooperation (social competitiveness);*
- *environmental values distinctive to the territory itself, whose active protection is granted by a renewable use of natural resources and wealth (environmental competitiveness);*
- *a high level of cooperative internal capacities, measurable in the ranking assigned by globalization (political competitiveness).*

Concerning the evaluation of the *territorial dimension* of competitiveness in sustainability, and also referring to the studies on the competitiveness of nations (i.e. Porter, Krugman, Kok), *the approach of macro-economic evaluation widened to the regional scale has to be critically evaluated*. At the regional European scale this approach, indeed, cannot count on the same adjustment mechanisms, or on the completely independent fiscal systems that can be found at national level. For instance, such factors as 'knowledge and innovations' express all their criticality at the regional level only, where it is possible to evaluate their differences and changes in time and space.

From this point of view, the project agrees with the *III Report on Social and Economic Cohesion* (European Commission, 2004), which asks for a selection of factors able to establish territorial development and not only growth (see the European Parliament's Committee Study on Regional Development, 2005, which evaluates the coherence between structural reforms - financial and social – and the anticipated variations in the Structural Funds and the Lisbon/Gothenburg objectives).

The project suggests evaluating territorial competitiveness (Lisbon) linked to sustainability (Gothenburg), also from the externalities and internalities point of views (economies of external and internal cooperation scale). It suggests that European policy makers push single regions in order to make them do the same to define independent policy declarations in their regional operational documents/programs.

The dimension of these declarations should be evaluated through the parameters selected in the project, which have to be adopted as reference points to start the enhancement of the different territorial contexts in the 2007-2013 period. The perspective of **stable cohesion**<sup>2</sup> (an approach inside countries), **convergent cohesion** (a comparable approach between indicators at national and regional level), **cohesion towards a continuing improvement** of European populations' general life style, must be the basis on which to evaluate the positive progress of regional **performance** in terms of employment, income and productivity.

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<sup>2</sup> In this case the word means the capabilities of strength, cooperation, peaceful and productive co-existence among all the components of productive systems; but also the institutions' eligibility and efficiency in putting into practice *governance* rules, leading the business community to pursue, in individual behaviours, such goals as:

- 1) a positive and productive introduction into the social and economic environment,
- 2) the development of "proactive" behaviours towards the inclusion of collective choices (up to the "burdening" of individual and social responsibilities),
- 3) the contribution of (formal or informal) institutions of the community (governance), sharing their "good practices".

## 1.2 Main maps and relative interpretation

In this project framework, the aforementioned proposal of *four determinants* or *composite indicators* (proposal A) - which includes at its base, and for the evaluation of the territorial dimension, a larger number of indicators (though from the initial 77, they were reduced to **69**) than the initial 42, including the synthetic list of the 14 Spring Report (see Table 2) – answers to EU “subsidiary and cohesive” needs requested from European regions.

Until the Third Interim Report (TIR), 3.3 project interpretations were based on both the 3.3 indicators mixed list (proposal A edited by CEIS with the CEG contribution for territorialisation), the “Spring report” (proposal B edited by CURS) and the relative mapping results.

However, although both interpretations should adhere to the Lisbon/Gothenburg Strategy, the two different scientific approaches (systemic and by cluster) traced out different trends towards the enforcement of Lisbon/Gothenburg.

Particularly:

- in the first case (A, the autonomous 3.3 indicator list), the basic indicators allow us to give the European policy makers the choice of **4 synthetic criteria (composite indicators)** relating to: ***Innovation and Research; Global/Local Interaction; Quality; Resources and Funds*** at national, regional, sub-regional spatial and territorialised scale for the enforcement of Lisbon/Gothenburg, enabling the realization of the TIA process, too, for Lisbon/Gothenburg policy choices, as well as a continuous data updating for monitoring the result in the time and space;
- in the second case (B), the basic indicators are able to present **a single spatial and territorialised synthetic indicator on the basis of three essential general** criteria (economy, environment, society) by regional clusters.

**Following negotiation with the ESPON MC, it was recommended that these selected indicators were used for their capacity to simultaneously represent the Lisbon/Gothenburg goals** (A-case), considering the availability of official statistical sources and their consistency with the geographical reference scale and timescales. This required several tests and a long refinement process, held both within the TPG and with the ESPON Programme and European Institutions representatives, to whom the final results in this Report are transmitted.

This appropriate selection of indicators (see Table 2) appeared useful in order to provide a basic analysis of European regional results obtained from 2000 to 2004 for supporting and explaining political choices for the period from 2007 to 2013; to incorporate territorial cohesion into Lisbon/Gothenburg topics and goals; and to suggest some possible integrations with regard to the real and complex differences within and between the old and new EU regions for the full use of the revised Structural Funds. The 3.3 List included the 15 synthetic indicator List from Almunia (2005), as well.

**Table 2:** List of basic indicators used in the 3.3 project (A-case), compared with the list of 42, the short list of 14 indicators and the ESPON projects list (the new indicators advised by the 3.3 project are underlined)

Determinant	3.3 Indicator	42 Spring indicator (2003)	14 Short list indicator	ESPON references
<i>Innovation &amp; Research<sup>3</sup></i>	Internet users	II.3.1		project 1.2.2
	Firms with internet access	II.3.2		project 1.2.2
	Available e-government services			
	Universities students			project 1.1.2 (w. gaps)
	Innovative dependency index			ESPON DB
	Population with tertiary education			ESPON DB (w. gaps)
	Population in life-long learning	I.5		
	Research Centres			project 2.2.1
	Old and new technologies	III.3.3		project 1.2.2
	<i>Global-Local interaction</i>	General environmental concerns	V.7.2; g/f	
Specific environmental concerns		V.7.2		
Manufacturing enterprise				
Products trademarks				
Energy self-sufficiency index		V.2	Energy intensity of the economy	project 2.1.4
FDI intensity		III.6.6		
Trade integration of goods		III.6.4		
Trade integration of services		III.6.5		project 1.3.1
Degree of Vulnerability in Europe			Volume of freight transport relative to GDP	
Typology Multimodal Accessibility Potential		V.3		project 2.1.1
Fiscal pressure Long-term interest rate institutions	Labour - cost index (2000:100) - NSA	e d		
	Research Centres			
	Credit			
			Financial market integration (convergence in bank lending rates)	
				project 2.2.1 project 3.3
			Employment rate	
	Insurance companies			
	Companies Stock market capitalisation - end of period - Milliards of euro - NSA			
	Population change			
	Tourists inbound	III.6.1		
			ESPON DB	

<sup>3</sup> Into the calculation of the composite index "Innovation & Research" the indicator *Employment rate of older workers* was substituted by the *Innovative dependency index*. The older workers are however indirectly considered in the indicator *Population in life-long learning*.

<hr/>				
	Tourists outbound			
	Students inbound			
	Students outbound			
	Researchers inbound			
	Researchers outbound			
<i>Quality</i> <sup>4</sup>	Active people GDP pps per capita Consumption per capita Level of employment Consumer price index Hospital beds Hotel beds	I.1.1 a.1 I.1 III.1.1	GDP per capita (PPS) Employment rate	ESPON DB ESPON DB ESPON DB
	Cultural opportunities Typology Multimodal Accessibility Potential Old and new technologies Municipal waste generation Hazardous waste generation Municipal waste recycling Degree of vulnerability in Europe Total greenhouse emissions Total gross abstraction of freshwater CO <sub>2</sub> emissions			project 2.1.1 project 1.2.2 project 3.3 project 1.3.1
	Confidence in EU Commission			
	Confidence in EU Council of Ministers			
	Confidence in EU Parliament			
	National public participation European public participation Early school leavers Inequity of regional income distribution	IV.5.1 IV.1 IV.7	Long-term unemployment rate	
	Persons aged 0-17 who are living in households where no one works			
	At-risk-of-poverty rate before social transfers	IV.2.2	At-risk-of-poverty rate	
	Female employment	I.2.1		
	Fertility rate			
	Healthy life years			
<i>Resources and funds</i>	R&D expenditure	II.2.1	R&D expenditure IT expenditure	project 2.1.2
	(firms) National aids	III.5		
	Human capital expenditure (pps per capita)	II.1	Spending on human resources (public expenditure on education)	
	Employment expenditure (pps per capita)			
	Climate and natural resources			

<sup>4</sup> The indicator *Labour productivity per person employed* into the composite index "Quality". The indicator *Dispersion of regional employment rates* is not used because cover data is missing.



expenditure pps per capita		
Efficiency and accessibility		project 2.2.1
Public Health expenditure pps per capita	III.5	
Poverty and age expenditure pps per capita	III.5	
EU funds spending		project 2.2.2
Economic resources	III.1.1	

The 14 indicators of the Spring Report were analysed and mapped, too; and an accurate critical analysis was completed, that showed their low adherence to the Lisbon/Gothenburg parameters. The inadequacy of the method traditionally utilised in the evaluation of the Lisbon/Gothenburg Strategy, with the 14 synthetic structural indicators “Short List” proposed by the European Commission in the *Spring Report 2003*, was verified considering the *Cohesion Report 2004*. This test proved quite useful to demonstrate how the regional perspectives are deeply reduced and the results are homogenized even in presence of the various functional typologies that the Union brings.

The adhesion of the new Member States had a relatively low influence on the values of the used indicators, for the adopted statistical method in case A; the great variety that characterises the ten new members in the areas of reference is nevertheless meaningful, variety producing a not inevitable global effect.

In case A, each dataset has then been arranged and linked to the geographical subdivisions; the quantitative variables or metadata are transformed into qualitative ones through weight assignment.

In parallel, a database/GIS tool for the automatic combination starting from the basic indicators according to the methodology has been developed as an added specific value of the 3.3 project. It could be used as a tool for easy delivery and choice for policy makers. The design and capabilities of the tool is described in a dedicated section.

In order to provide a territorial typology useful for data territorialisation, the underlying question was incorporated into the A-case (edited by CEG). The typology of territories was selected as a function of the typologies of regions developed within the ESPON Programme, specifically those from Project 1.1.1. – “The role, specific situation and potentials of urban areas as nodes in a polycentric development” (2002-2004) and Project 1.1.2. – “Urban-rural relations in Europe” (2002-2004).

The classification of territories was developed in 3 steps and 7 classes (see Chapter 2 of this Report, Figs 24 and 25). The aggregation was made in order to highlight the real difference between the “regional/local areas” and the “no special function areas”.

Following this selection, more depopulated areas are separated from the rural areas where we can find medium-sized cities with regional/local economic bases, remembering that the main arguments of the analysis were (ESPON, ToR, 2004) to:

- identify the more competitive and dynamic territories based on knowledge and innovation and relate it with urban and regional characteristics;

- discover if urban centres and metropolitan agglomerations play a crucial role in providing the framework conditions for a knowledge-based economic development;
- understand the polycentric model at different scales, which includes the dynamics of urban growth centres and linking peripheral and disadvantaged areas with urban centres

This type of approach allows one to construct an indicator which includes not only the information on the current situation according to its own specificities, but also to the real dynamics of the actions that enable a given goal to be reached: in this case we turn from the simple territorial competitiveness to the **capability to generate territorial competitiveness in sustainability**.

### 1.2.1 The **A** case: the 4 composite indices of the Lisbon/Gothenburg Strategy

The A-case produced a large number of “maps” and horizontal and vertical observations. Each map, besides representing the indicator, the category, the sector, the typology and finally the determinant, expresses comparative assessments that unite or separate even adjacent European regions.

To avoid the excessive distributive uniformity of the data deriving from a classification with *equal* interval (quite popular in European geographic studies), we preferred to use the so called *quantile method*.

The strongest effects **do not come out of** the two indicators which traditionally synthesise the general economic context of competitiveness (pps GDP and labour employment for calculating productivity), where the average value for the new members is about half of the EU value and the price level is also about half; but they come out of occupancy rates – both general and those taking into account the age of workers –these draw attention to the current critical advantage for the new Member States of youth education levels in relation to the European average (the proportion of youth aged 15 to 24 with secondary school graduation is about 90%, but lower than the percentage of youth with a tertiary level graduation or degree).

In the following section, the main results are briefly presented with regard to first case, obtained for the 25 countries forming the EU, to whom Norway, Bulgaria, Romania and Switzerland were added. In addition to the spatial and territorialized synthetic maps, some indicators stand as particularly relevant for the ex-ante regional status assessment. Immediately possible cooperation areas are clear, and represented as such. They will be specifically recalled later in the chapter dedicated to the evaluation of the policy recommendations’ effects and the cooperation scenarios.

In this section, only the *three final maps* for each determinant are presented (spatial NUTS2 final value, NUTS2 and NUTS3 territorial final values). *All the maps are included in Part Two or Part Three of this Revisited Report.*

Since the project has used the systemic quali-quantitative STeM approach, the legend of each map is characterised by:

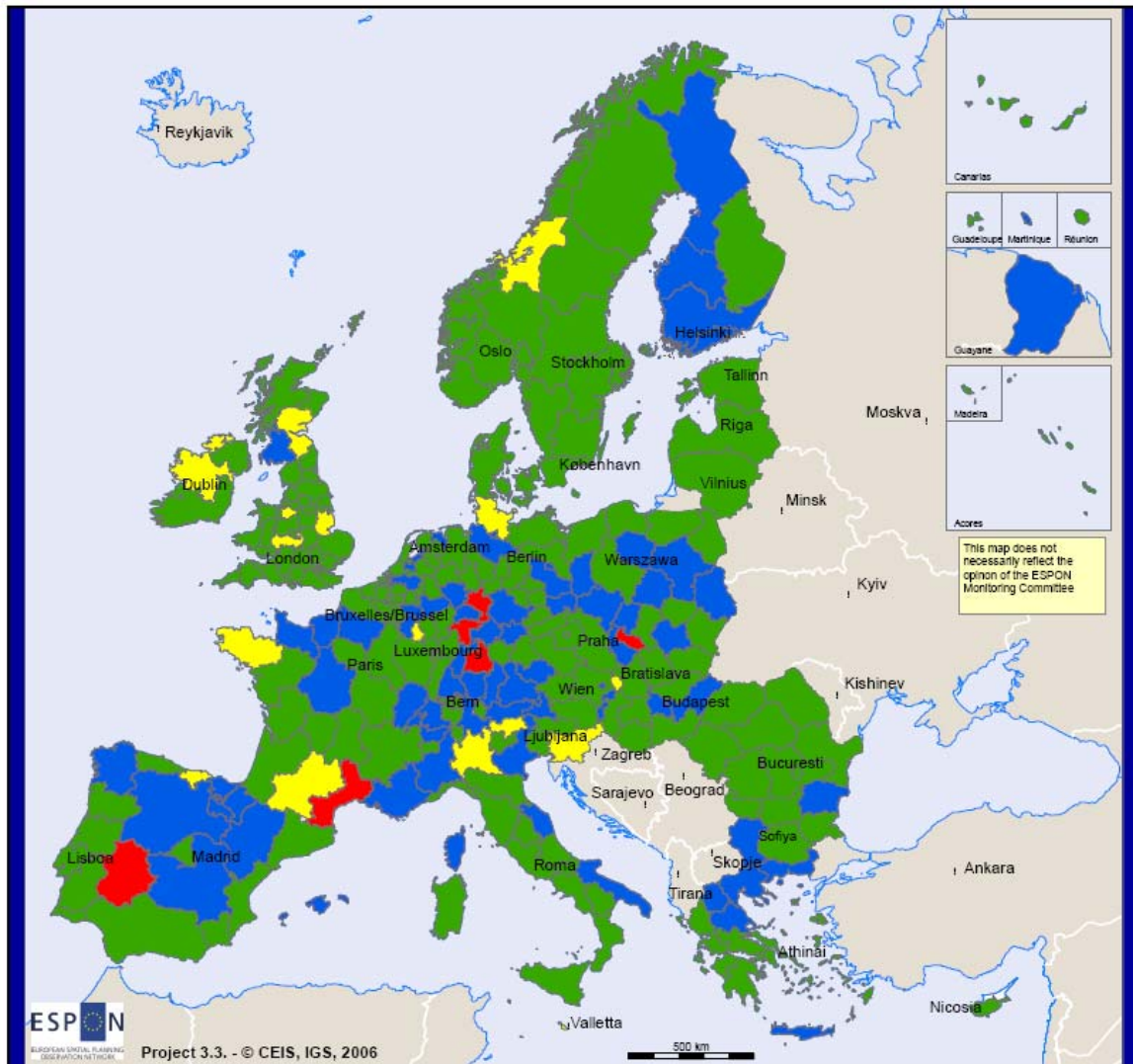
- quantitative values grouped into 4 classes according to quartiles of distribution; qualitative places were assigned at each class (A; B;C;D, where A>B; B>C; C>D).

### Innovation and Research

A great majority of the European Countries show a medium-low profile in terms of I&R (one of the main themes of Lisbon) at national scale and a higher level at regional and sub-regional ones (Figs. 1, 2, 3).

**Figure 1:** Innovation and Research: composite index final values (CEIS, 2006)

### MAP IR 17 - Innovation and Research: Synthetic Spatial Composit Index

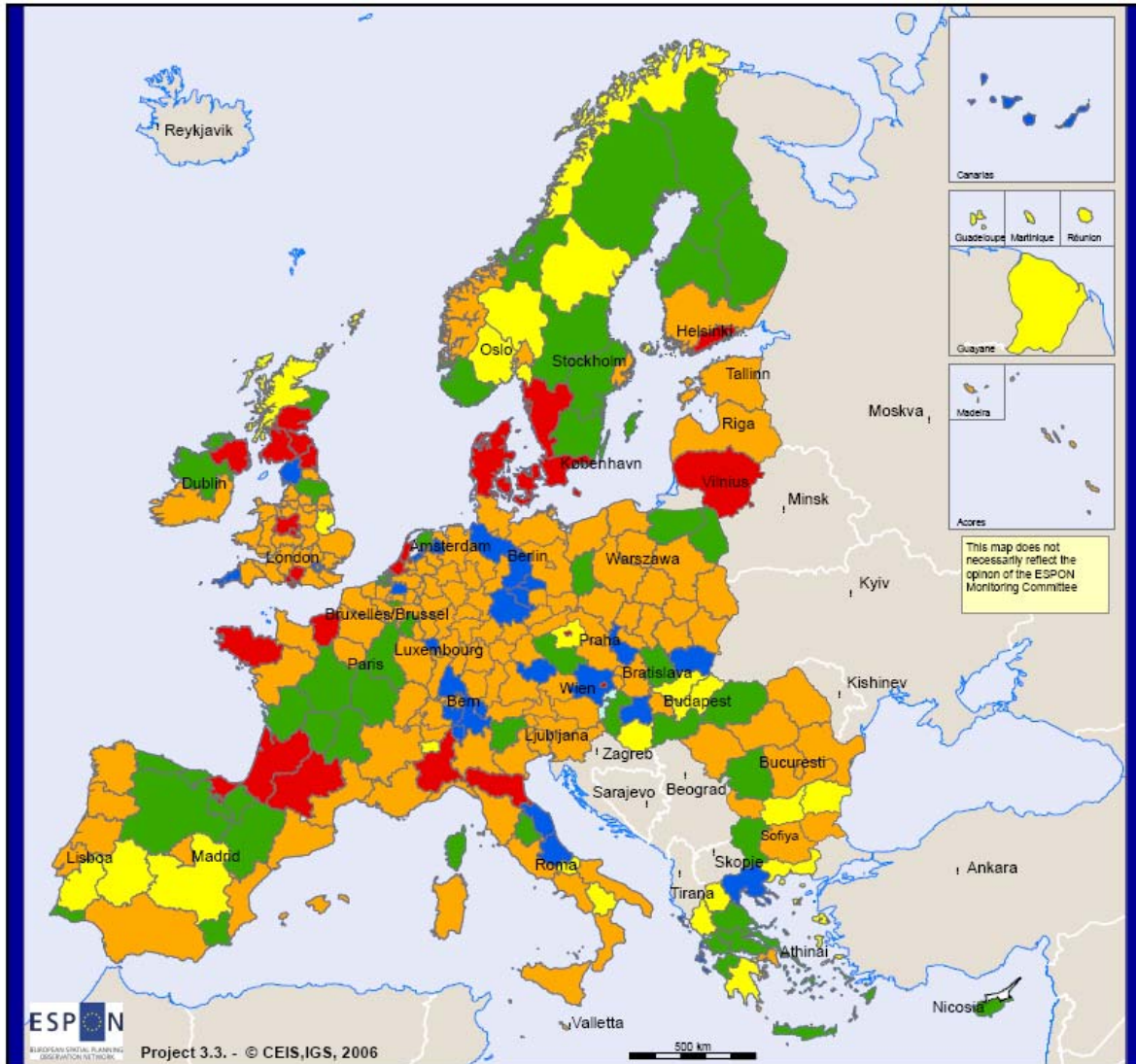


With respect to national policies, medium-high values can be found just in the “Pentagon” area and in Slovenia, while only some regional enclaves in the

Scandinavian Peninsula, in Great Britain, Netherlands, Italy achieved the goal fixed by Lisbon. In respect of territorialisation, differences result even more strongly and sharply, clearly highlighting the gap dividing Finland, Norway, Sweden (with a low population density) from France, Spain and Greece and the rest of Europe. From this point of view, it is necessary to develop targeted structural actions, concrete and operative, with the direct concourse of regional finance.

**Figure 2:** Territorial I&R: final values at NUTS2 (CEIS, 2006)

**MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2**



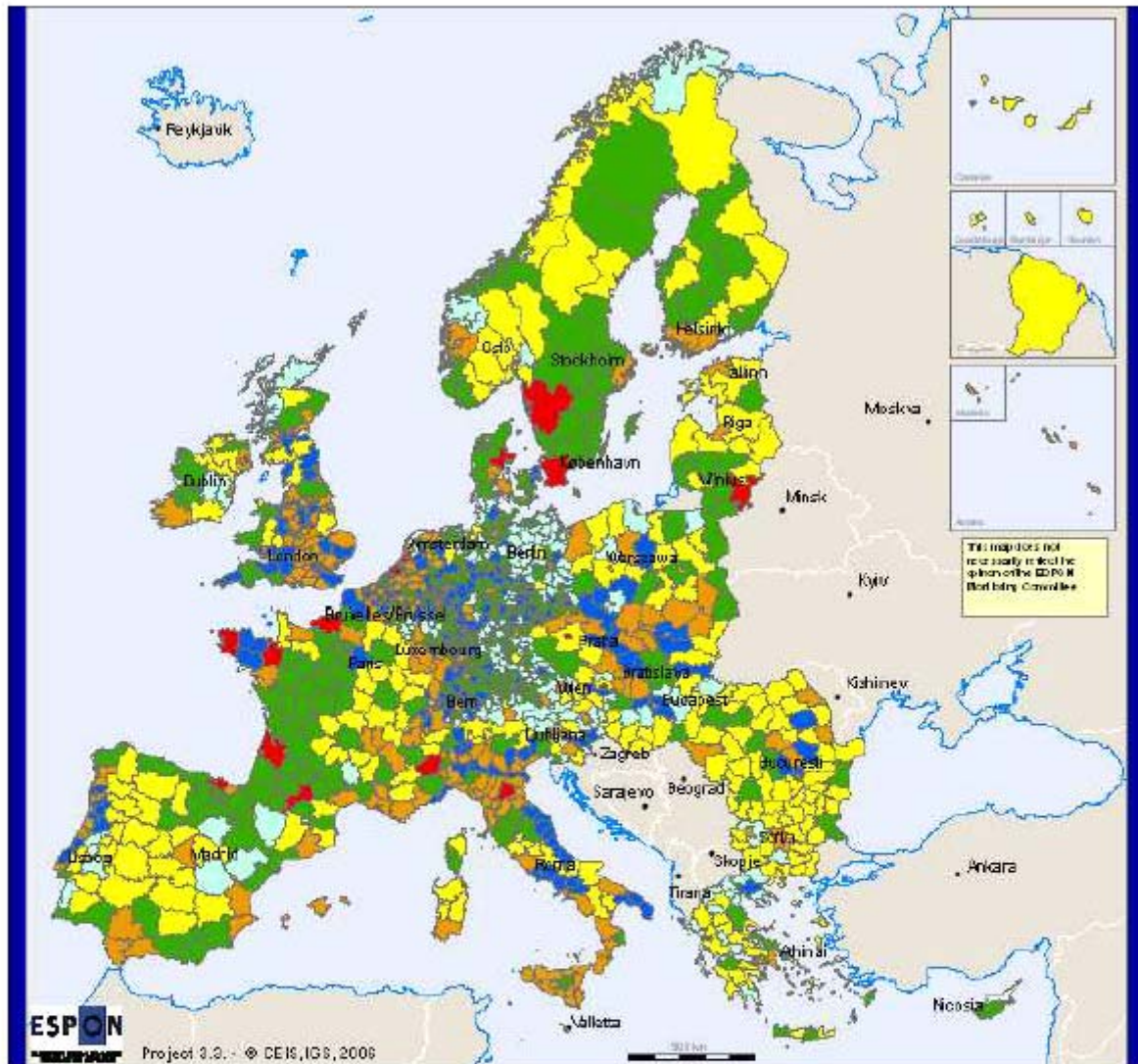
Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial tipologies at NUTS2

© Eurogeographics Association for the geographic boundaries  
Regional reference: NUTS3, 2003  
Origin of data: CEIS, CEG, 2006

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

**Figure 3:** Territorial I&R: final values at NUTS3 (CEIS, 2006)

**MAP IR 19 - Innovation and Research: Territorial Dimension at NUTS 3**



Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT3 - Territorial tipologies at NUTS3

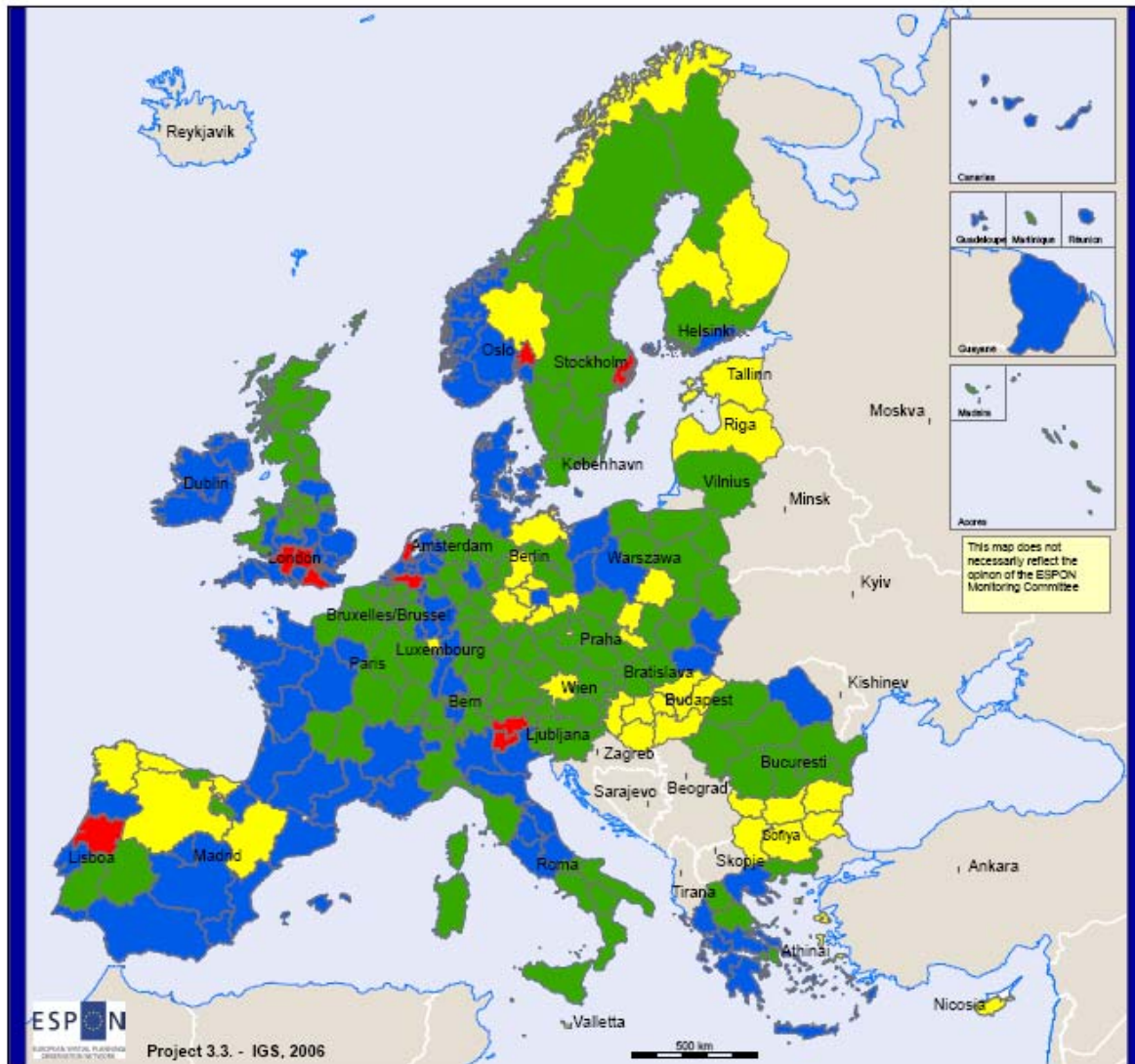
- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LDW
- VERY LOW

© Eurogeographical Association for the geographic coordinate ©  
Regional reference: NUTS3, 2003  
Origin of data: CEIS, CEIS, 2006

Global/Local interaction

Figure 4: Global/Local Interaction: composite index final values (CEIS, 2006)

MAP GL 42 - Global Local Interaction:  
Synthetic Spatial Composit Index



values obtained combining social cohesion reElaborations + risk of social exclusion and social wellness attitude

- High
- Medium high
- Medium low
- Low

© Eurogeographic Association for the geographic boundaries  
Regional reference: NUTS2, 2003  
Origin of data: CEIS, 2006

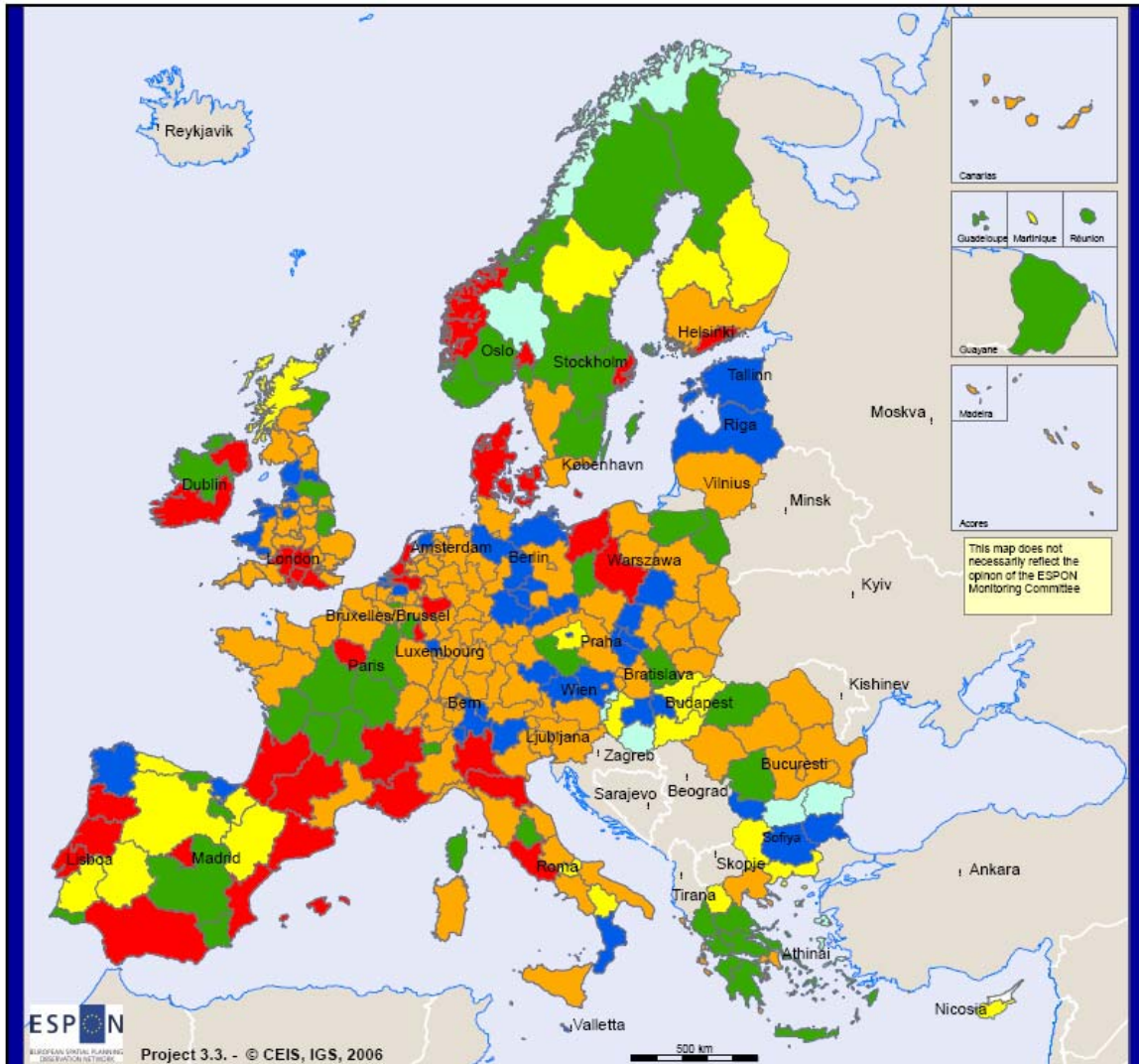
In summary, Global/Local interaction (Fig. 4) highlights just a few regional cases (capital regions) as positive balanced references to an EU regional benchmarking.

The positive references in respect of Global/Local interaction are even more evident looking at the territorialisation of the spatial values of the determinant synthesis (Figs. 5, 6), where the territorial concentrations with a true potential for sustaining virtuous outside relations are few, among whom are Lombardia, Emilia Romagna and Lazio in Italy, much more often corresponding with capital-regions: Ile de France in France, Inner London in Great Britain, Centro in Portugal, Madrid in Spain and the Helsinki Region in Finland.



**Figure 5:** Territorial G/L: final values at NUTS2 (CEIS, 2006)

**MAP GL 43 - TERRITORIAL Global Local Interaction**



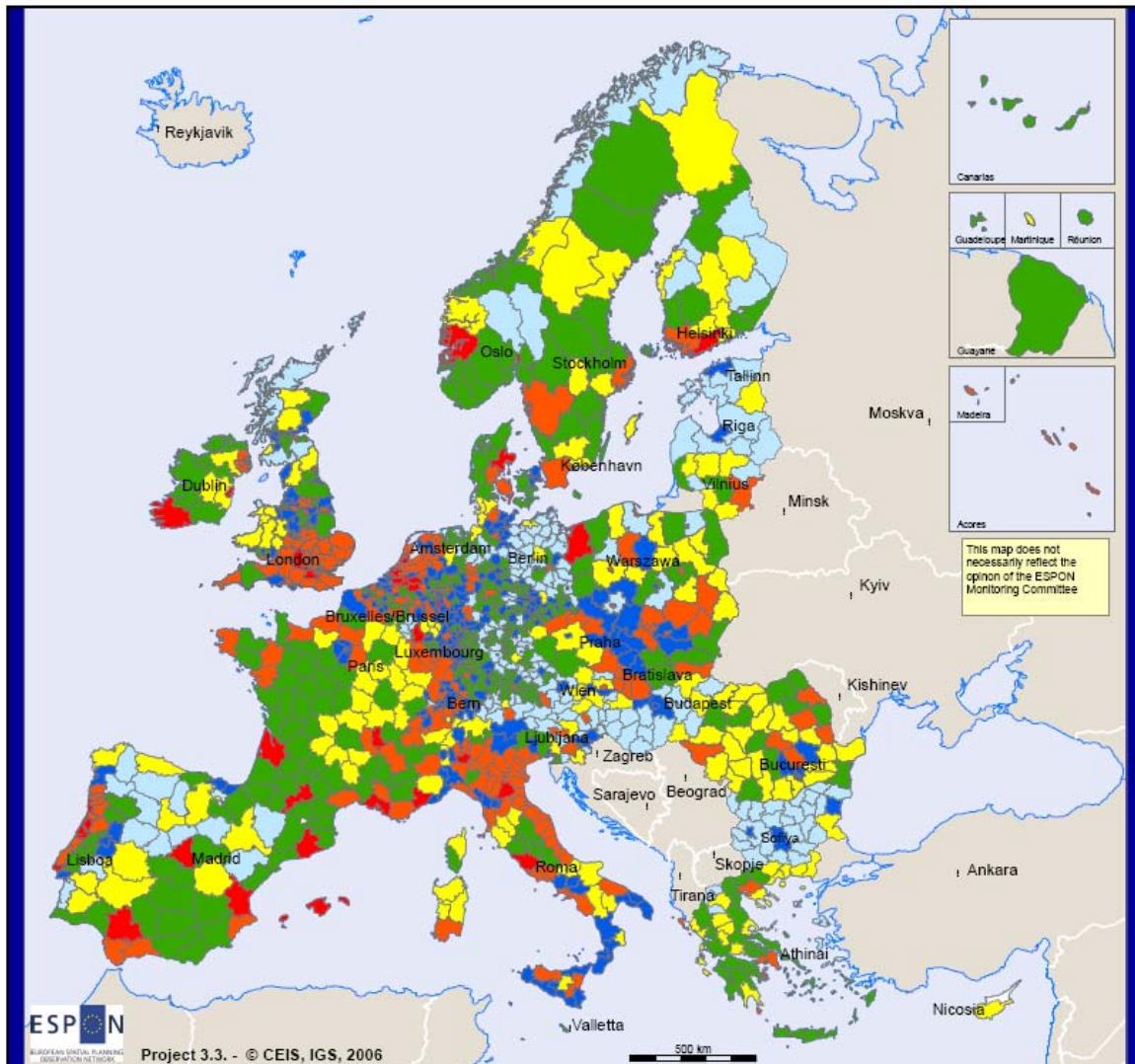
Values obtained combining Global Local:  
Syntetic Spatial Composit Index and TT2 -  
Territorial typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006

**Figure 6:** Territorial G/L: final values at NUTS3 (CEIS, 2006)

**MAP GL 44 - TERRITORIAL Global Local Interaction**



Values obtained combining Global Local:  
Syntetic Spatial Composit Index and TT3 -  
Territorial typologies at NUTS3

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© Eurogeographics Association for the geographic boundaries  
Regional reference: NUTS3, 2003  
Origin of data: CEIS, CEG, 2006

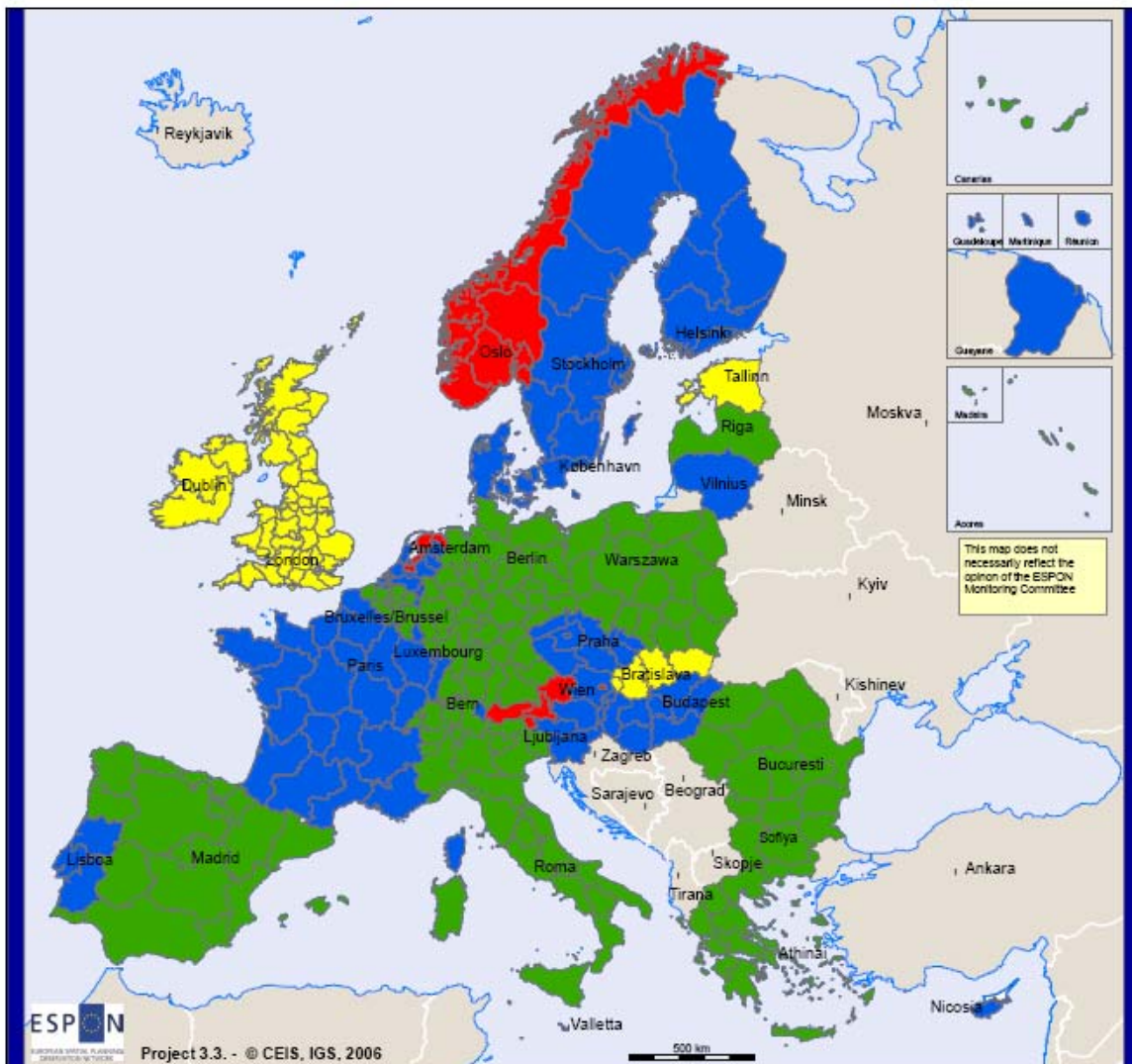
A high propensity towards interaction is measured as well in the Pentagon, in the frontier areas and in Central Italy, thus demonstrating: how European citizens are basically more interested in keeping and strengthening local relations, also through specific investment actions (considered as “marginal” in respect to the Lisbon/Gothenburg objectives) independently from the transnational relational

potential of the resources; how this depends, for enterprises too, upon an attitude to privileging endogenous cohesion (even through a strict relationship with the local government), more than upon an evaluation of the perspectives offered by the European market of transnational investments.

*Quality*

**Figure 7:** Quality: composite index final values (CEIS, 2006)

**MAP Q 44 - Quality: Syntetic Spatial Composiy Index**



Values obtained combining social quality and cohesion and status quo (quality)

- High
- Medium high
- Medium low
- Low

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Regional reference: NUTS2, 2008  
Origin of data: CEIS, 2006

In the perspective of a sustainable European policy, national and regional quality

must be considered an overriding and combined measure of phenomena, ranging from climatic change to deterioration and poverty (health, safety, quality of life), to the not self-sustainable economic and social systems in the great urban areas (irrational use of resources, waste of energy, waste management, noise pollution and air pollution due to traffic congestion).

It is necessary thus for the EU to give a uniform and balanced answer to the major issues involving the relations between infrastructure, environment, citizens' health and safety (exposure to electromagnetic fields, to noise pollution, to new integrated technologies of mobile telephony and to electric energy availability).

The new general policies will have to be the result of sectoral actions and policies directly connected to the territorial dimension of the development (Figs. 7, 8, 9).

The project registered, for instance, that in the future some cases of pollution could also take place in the regional economies with the highest per capita expense, where the use of appropriate technologies is still low.

To this end the concept of "territorial quality" has been interpreted in the project both as an economic process, and mostly as a *social cohesion process* leading to the definition of targeted actions and policies in order to build an efficient and effective regional economic system (solidarity, creativity and high life quality) to play an important role in territorial planning and social policies.

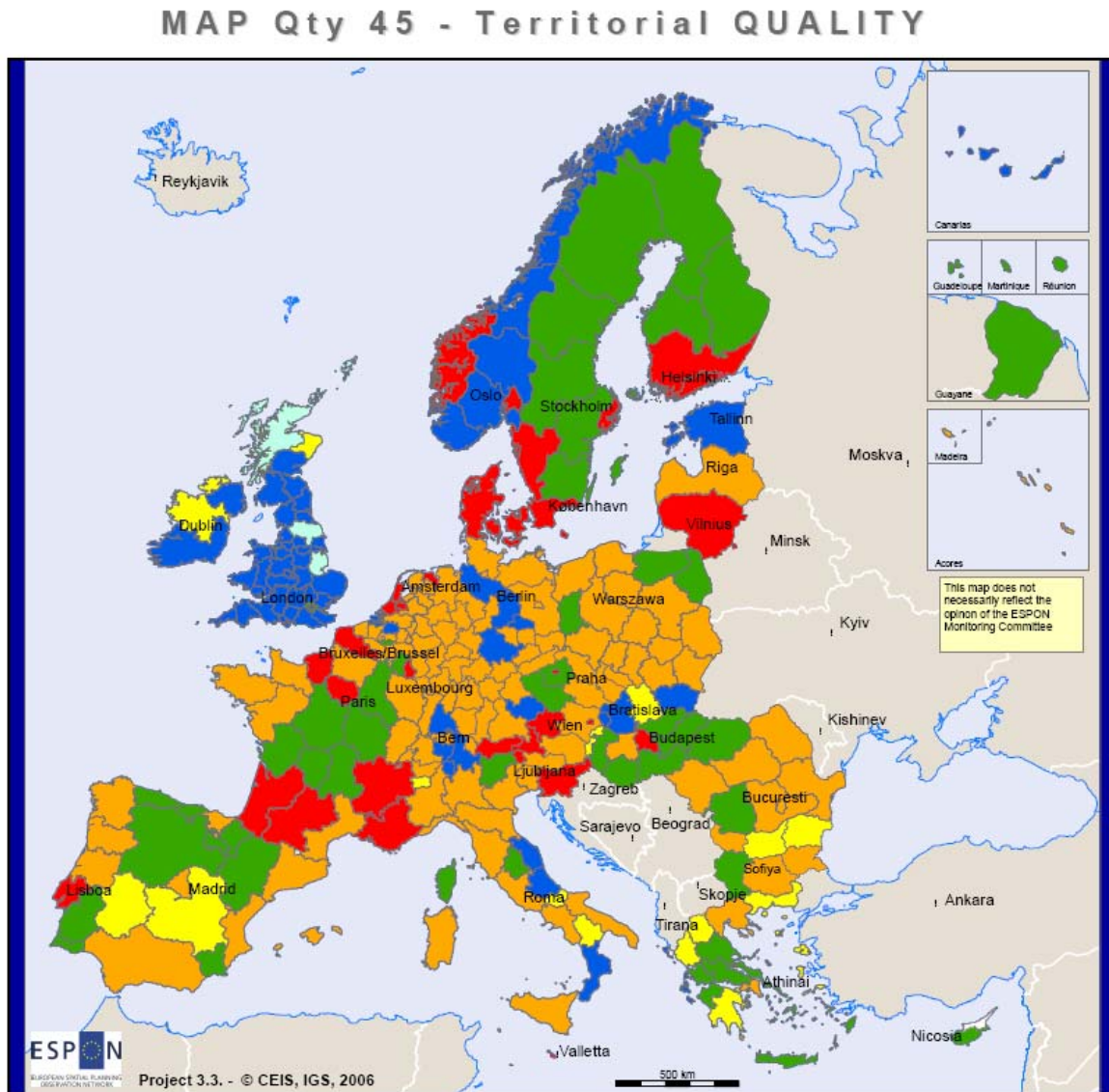
But all that is insufficient to grant a successful increase of territorial quality to support development. It is therefore necessary for the Union to institutionalise the concept of quality and permanently include it in the decision processes (institutionalised governance) so as to establish a connection between economic and social progress for a global development to be coherent and sustainable.

This is typified by the behaviour of the European enterprise, to whom the concept of territorial quality has become synonymous with success in competitiveness, as testified by the achievement of appropriate certifications (ISO or EMAS), followed by the expanded concept of social responsibility (i.e. Environmental Management more than Corporate Social Responsibility<sup>5</sup>) considered as a useful and necessary instrument of cohesion and competitiveness.

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<sup>5</sup> European Council of Lisbon, *Green Book*, on July 2001

**Figure 8:** Territorial Quality: final values at NUTS2 (CEIS, 2006)



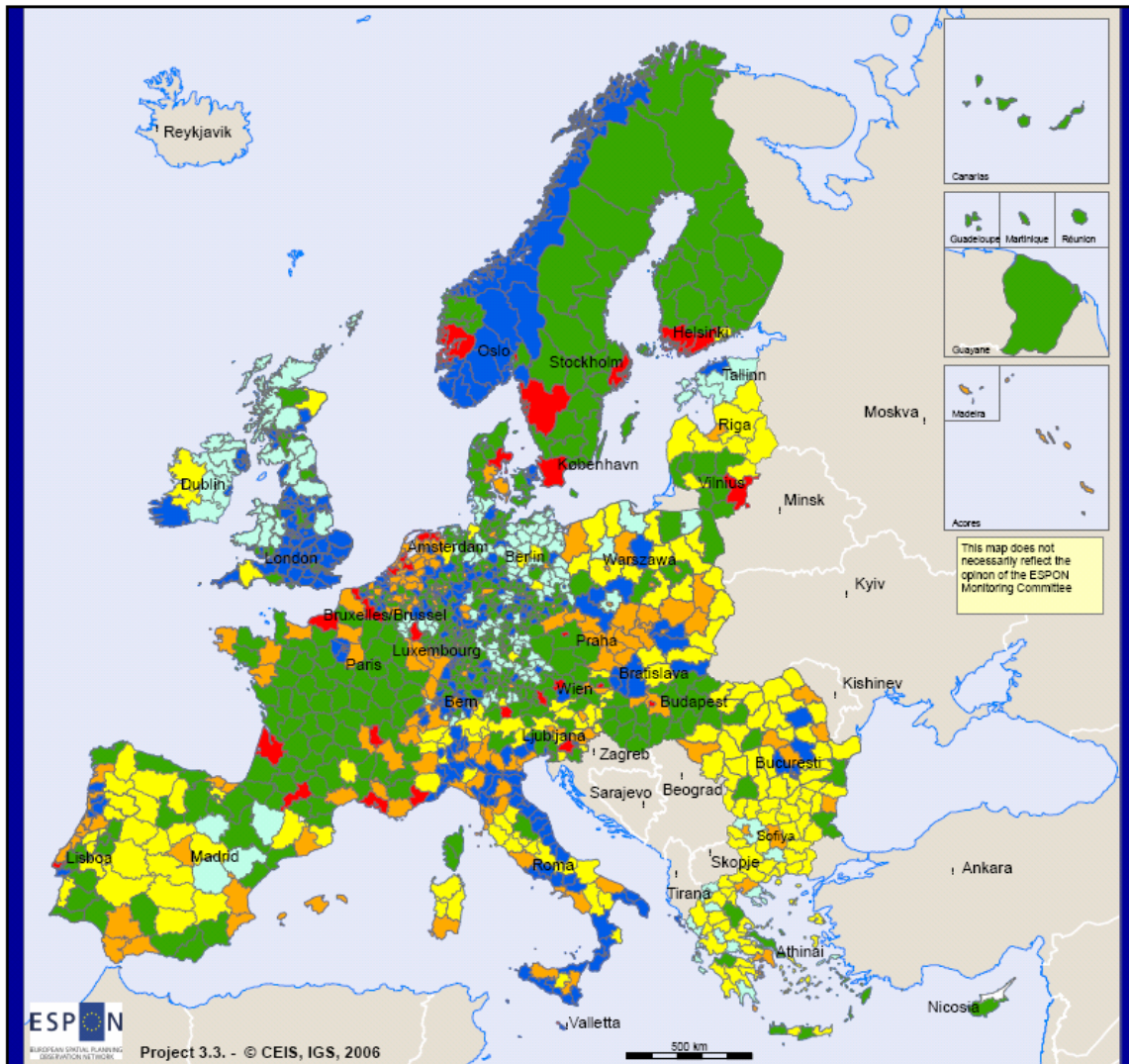
Values obtained combining Quality:  
Syntetic Spatial Composi Index and TT2 -  
Territorial typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© Eurogeographic Association for the geographic boundaries  
Regional references: NUTS2, 2003  
Origin of data: CEIS, CEIS, 2006

**Figure 9:** Territorial Quality: final values at NUTS3 (CEIS, 2006)

MAP Qty 45 - Territorial QUALITY



Values obtained combining Quality:  
Syntetic Spatial Composit Index and TT2 -  
Territorial typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006

The effects of an action in quality on European regions could inspire many variations:

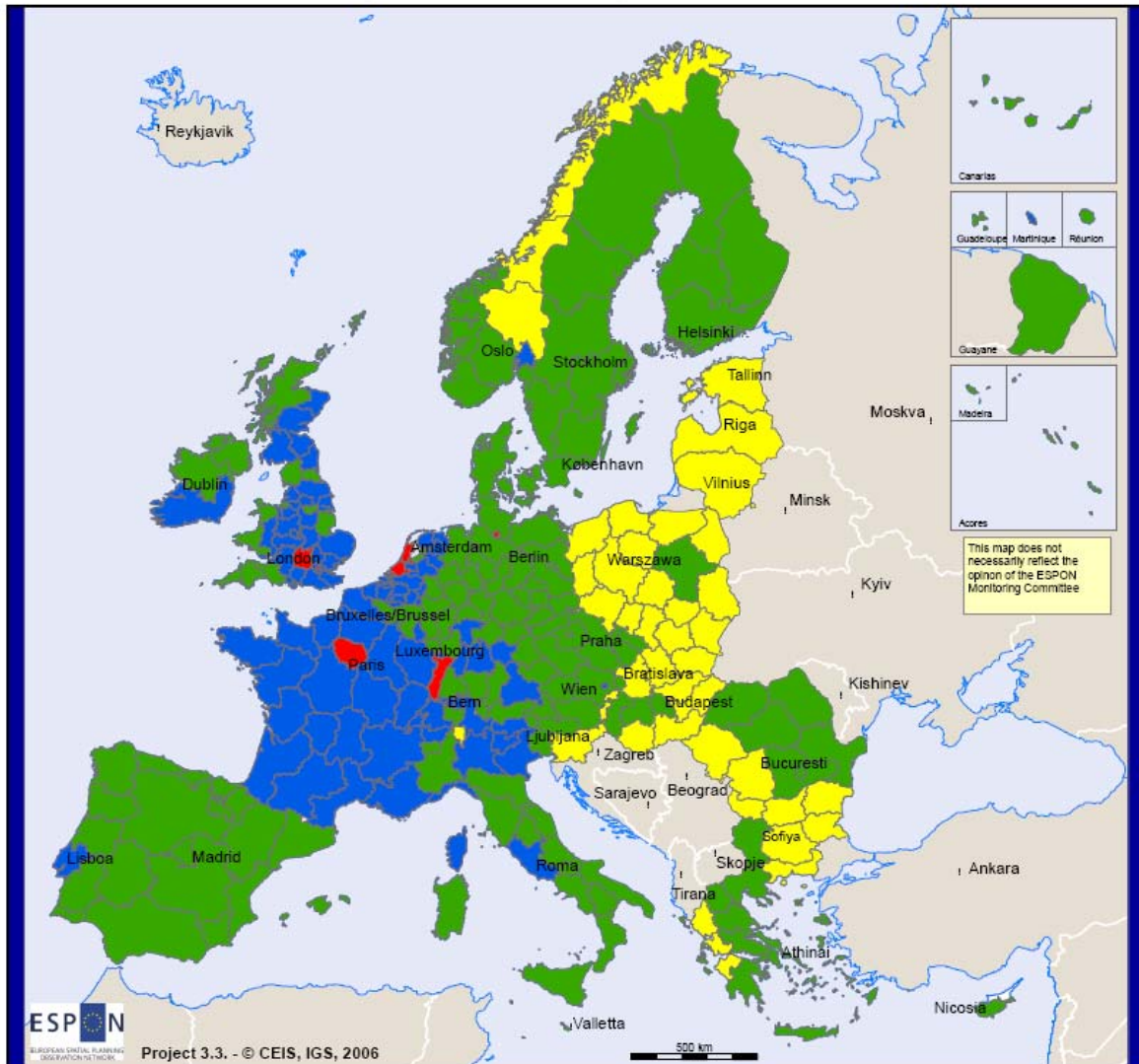
- broadening and strengthening the internal market
- ensuring open and competitive markets inside and outside Europe (trans frontier, trans-national and trans-regional cooperation policies)
- improving national European regulations
- widening and improving European infrastructure
- increasing and improving investments towards R&D
- simplifying innovation, TLC's adoption and a sustainable use of resources
- contributing to a steady European industrial common standard which would adopt certification systems and CSR as means of cohesion and competitiveness
- attracting a greater number of people to the job market and increasing job market flexibility
- increasing investments in human capital by improving education and expertise
- improving the preservation of public health and the environment in Community policies, in the promotion of sustainable development

### *Resources and funds*

What has been suggested previously is the starting point in linking the Lisbon/Gothenburg Strategy to the financial provision scheduled for the 2007-2013 Structural Funds. This requires a more focused attention to the models of economic and financial resource management, which are considered, sometimes wrongly, among the causes of hindrance for the social and economic development of the European regions, especially for those historically underdeveloped (such as Italy's Mezzogiorno). The evaluation of economic resource scarcity is nevertheless the subject that also catalysed attention from realities considered historically strong (as the Pentagon), attracting the attention of policy makers towards an optimal and effective allocation of resources.

**Figure 10:** Resources and Funds: composite index final values (CEIS, 2006)

**MAP RF 18 - Resources and Funds: Syntetic Spatial Composit Index**



Values obtained combining Use of Funds and Lisbon/Gothenburg Interventions

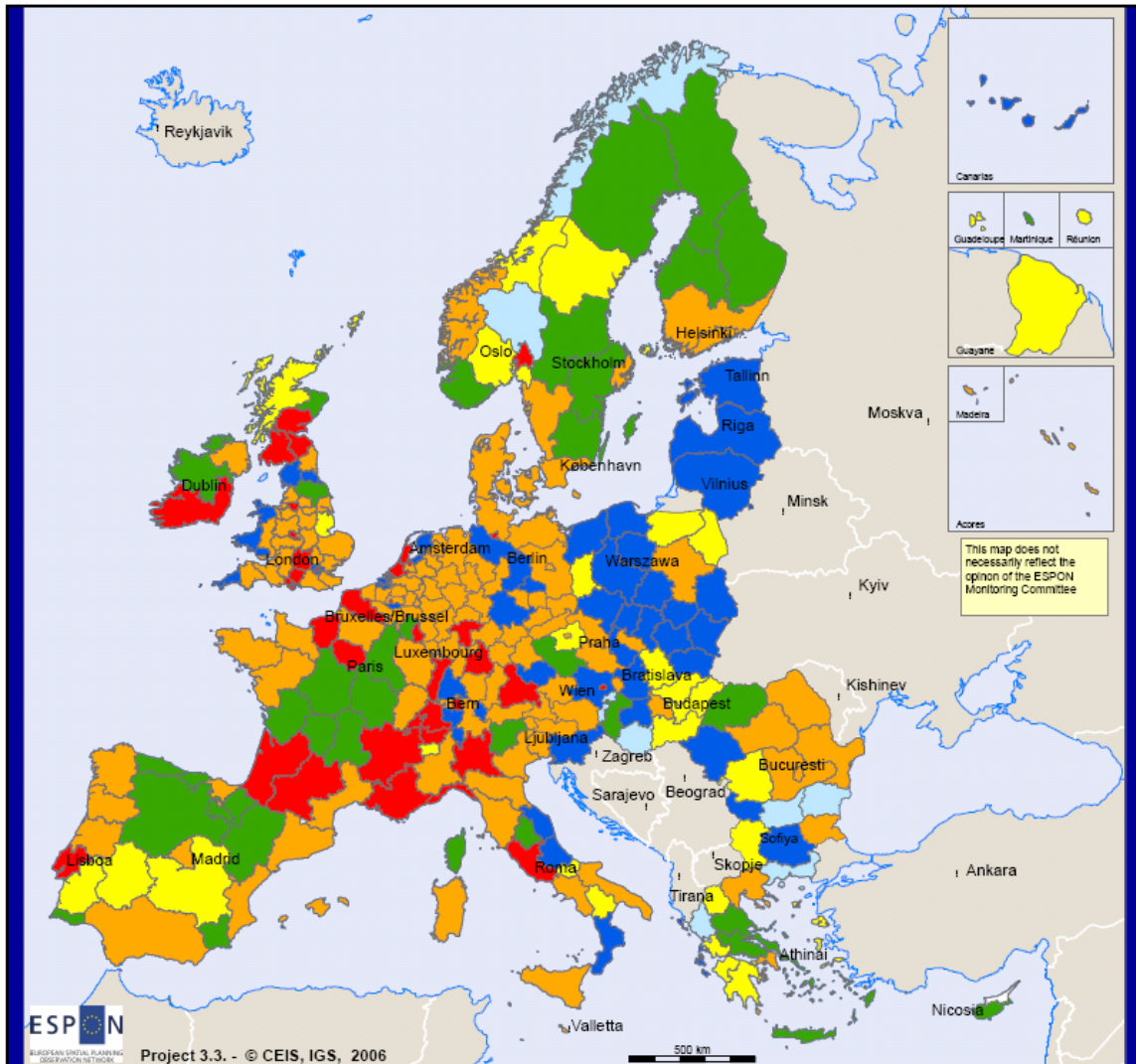
- High
- Medium high
- Medium low
- Low

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, 2006



**Figure 11:** Territorial R & F: final values at NUTS2 (CEIS, 2006)

**MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2**



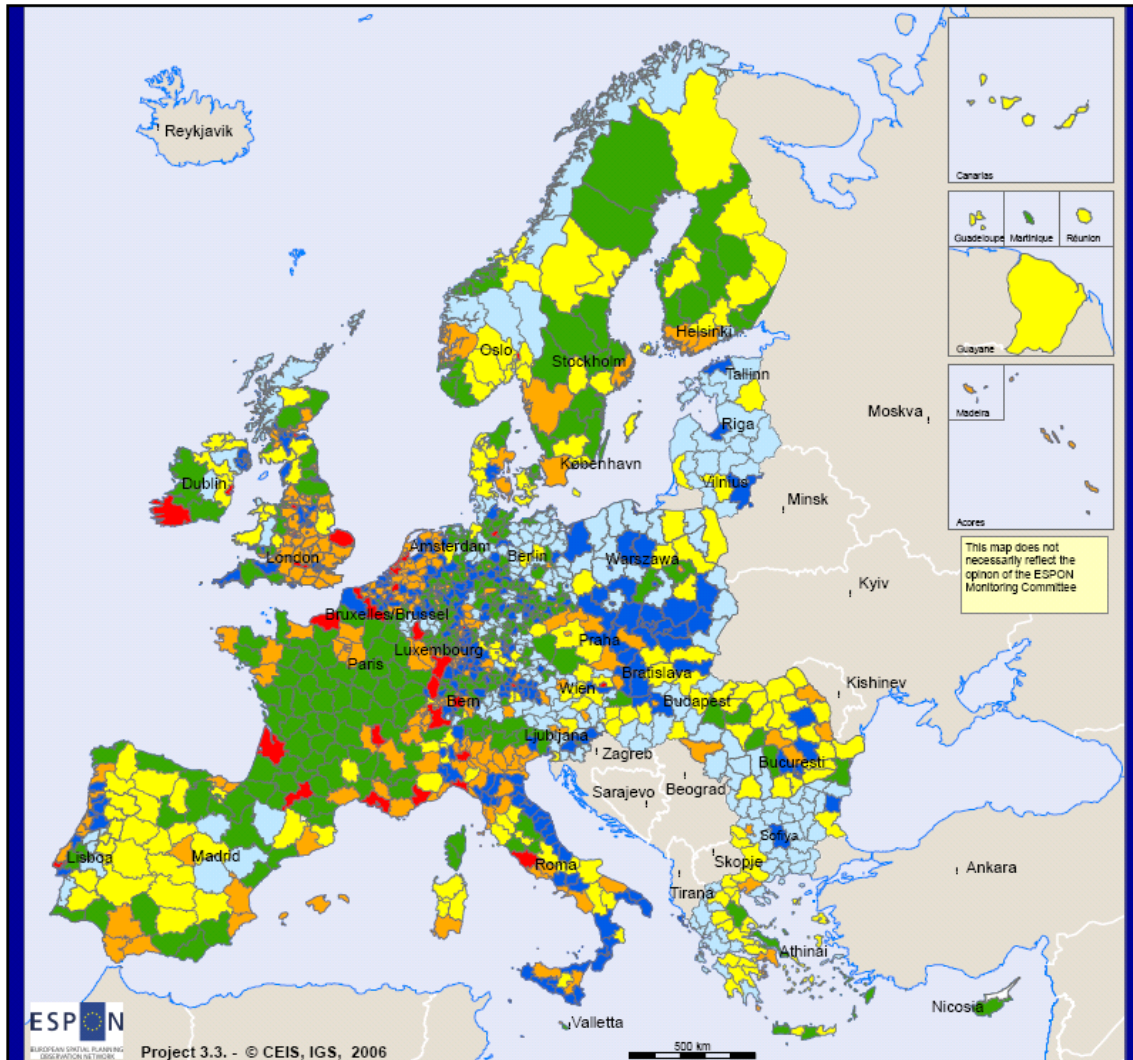
Values obtained combining Resources and Funds:  
Syntetic Spatial Composit Index and TT2 - Territorial  
typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006

**Figure 12:** Territorial R & F: final values at NUTS3 (CEIS, 2006)

**MAP RF 20 - Resources and Funds Interaction  
Territorial Dimension at NUTS 3**



Values obtained combining Resources and Funds:  
Syntetic Spatial Composi Index and TT3 - Territorial  
typologies at NUTS3

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006

For instance, the III Report on Social and Economic Cohesion linked the issue of the post-enlargement Union’s population growth to a considerable increase in the consumption of goods and services. Notwithstanding the many calls to think about the possibility of a change in the politico-economic European paradigm – from growth to sustainable development – most of the Union countries faced the issue of resources and funds in a traditional way (Fig. 10), writing their balance sheets

simply in terms of an efficient and effective use of those. That is why over the last year the Union has been pushing towards a greater control (evaluation processes) of the use of financial and economic means. However, the search for a territorial competitiveness (Figs. 11, 12) based on the Lisbon/Gothenburg parameters and on their strict connection with *structural fund programming* highlights how, as in the past, concentrating resources on the most underdeveloped countries doesn't mean they will achieve a reduction of their performance gap.

*The capability of being competitive in sustainability* of a given territory is then proposed by the project, as a substitutive measure for the traditional model of the growth towards development. This capacity is always increasingly based on endogenous factors, where aspects such as connection infrastructures, network services, reception structures, social organization and labour qualification, provide contexts favourable to the satisfaction of citizens' demands and constitute elements which are at the base of the competitive benefits of a territorial system. The analyses performed in the research show how the local systems, both the weakest and strongest, are in need of appropriate support policies.

Thus we suggest that the previously listed necessary actions won't be funded on one instrument only, but will be co-ordinated and integrated into combinations of different incentives (support to enterprises, to human capital education, to occupancy, etc.), in strict relation with regional policies dealing with appropriate interventions and infrastructures.

The European Union, aware of how important it is to measure the effective use of resources, will have to evaluate territorial competitiveness also in terms of effectiveness, promoting the consumption of resources within the bounds of 'renewable-ness' and long-term availability, especially in terms of energy.

In underlining the dynamics which, in terms of global competition, arrive at the definition of territorial systems which are 'competitive in sustainability', the determinant Resources & Funds performed the task of determining those regions which, sooner than others, are today or could shortly be on the sustainable development path.

The study of this particular determinant allows for a measure of the efficiency level of funds in employment in pursuit of the integral objectives of the Lisbon and Gothenburg Strategies, keeping in mind the main resources currently available for development:

- an economy based on knowledge and innovation;
- investments in human capital;
- social models opposing social exclusion, poverty and ageing;
- territorial governance models focused on environment preservation and public health as opportunities of sustainable development;
- an economic policy focused on trans-frontier cooperation.

Since the economic and financial resources used to pursue the integral objectives of Lisbon and Gothenburg can be included in synergic actions (unspecific but integrated interventions), the measurement has been made of the efficiency rate of economic and financial resources utilisation, with such indicators as public deficit, the debt/GDP report, inflation, usually considered as measures of the "good governance" of a country.

These quantities (generally measures of economic/financial stability) disclose only a partial view of the phenomenon. Willingness to achieve a measure of the “good use” of the economic and financial resources devoted to the Lisbon/Gothenburg objectives, the discussion in Europe will have to be directed towards a qualitative/quantitative evaluation of the phenomenon. In this direction we preferred, as has happened at the EU level for many years, an examination of the statistics on the use of structural monetary funds in terms of efficiency, developing a study/analysis path for achieving the measurement of the contribution of resources to territorial development.

### 1.2.2 The **B**-case: the 14 short list indicators

As appropriate to the ‘conventional and formal’ feeling of the Lisbon/Gothenburg process, a first strategic set of indicators to measure the progress of the agenda was been agreed upon between the European Commission and the European Council. Based upon this, a “short list” has been derived in order to allow for a more “concise presentation and a better assessment of achievements over time vis-à-vis the Lisbon Agenda”. The short list of indicators cover the five domains of employment, innovation and research, economic reform, social cohesion, the environment as well as general economic background. Most of the chosen indicators do not have territorial aspects as their main measurement objective, but a majority of them do have territorial implications. Six of them are available at the regional (R) level and seven only at the national (N) level. We have furthermore an estimated one – dispersion of regional employment rates – using as a proxy the dispersion of regional unemployment rates. The 14 short list indicators are thus as follows:

1. Gross Domestic Product per inhabitant (R)
2. Gross Domestic Product per employed person (R)
3. Employment rate (R)
4. Employment rate of older workers (R)
5. Gross domestic expenditure on research and development (R)
6. Youth education attainment levels (N)
7. Comparative price levels (N)
8. Gross Fixed Capital Formation/GDP (N)
9. At-risk-of-poverty rate after social transfers (N)
10. Dispersion of regional (un)employment rates (R)
11. Long-term unemployment rate (R)
12. Greenhouse gas emissions (N)
13. Energy-intensity of the economy (N)
14. Volume of freight transport relative to GDP (N)

A critical comment as to the choice of these indicators is that they are synthetic, but not analytical, rendering it difficult to draw any definite conclusions as to European territorial cohesion and related issues.

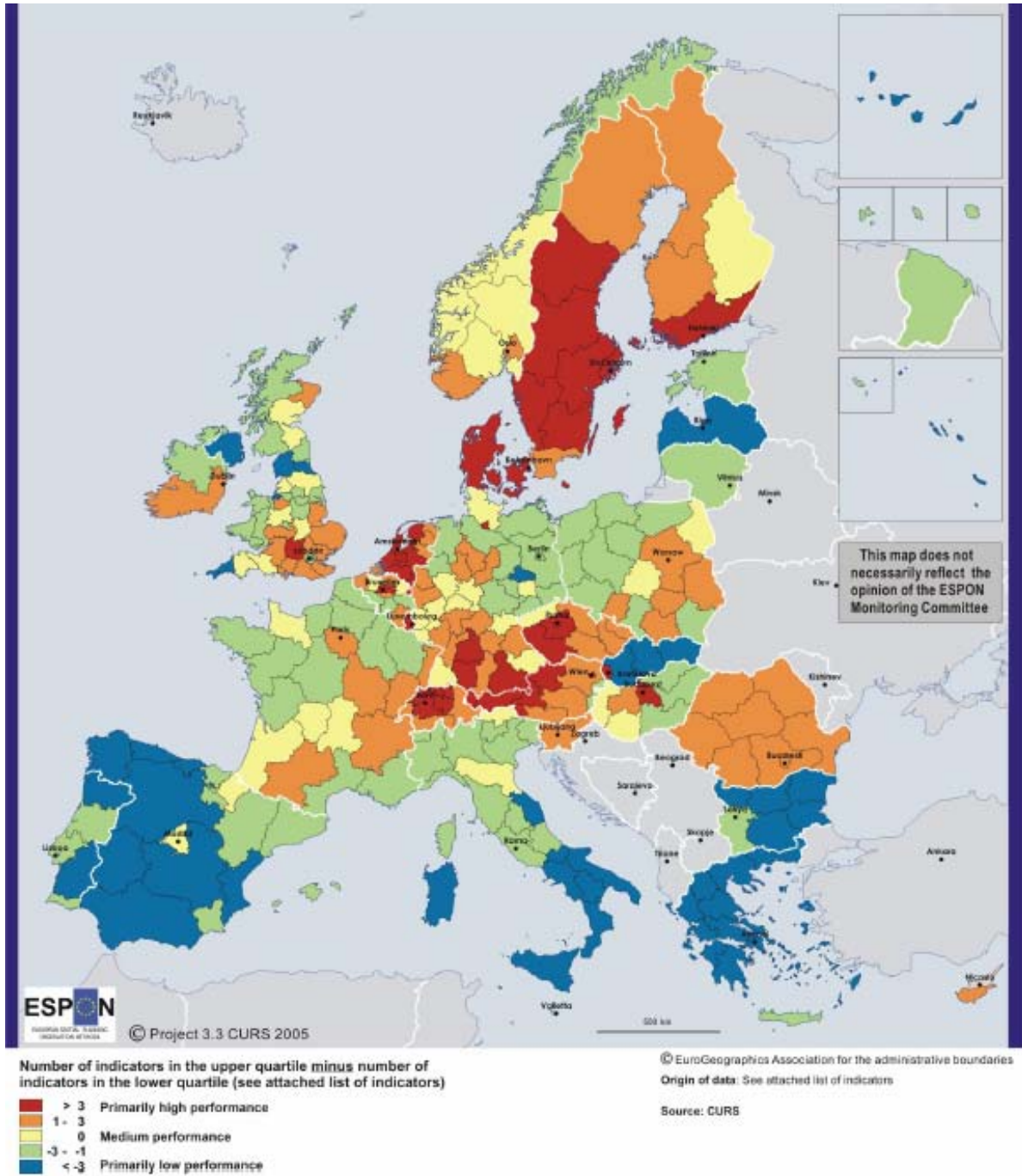
The B-case classified the fourteen indicators into three groups mirroring the “ESDP triangle” of economic (1-8), social (9-11) and environmental (12-14) sustainability, providing the three synthesis indicators where, within each theme, each of the separate indicators are weighed equally.

The eight *economic* indicators are to a large extent interlinked, i.e. they tend on the regional level to vary in correspondence with each other across the European

space. A clear core periphery pattern therefore emerges largely resembling e.g. GDP per capita. The European Pentagon including Switzerland and Rhone-Alpes in France as well as most regions in the Nordic countries constitute the economic stronghold of Europe, primarily scoring high on most of the indicators. Selected capital and other large city regions outside these countries (such as Lisbon, Madrid, Prague, Bratislava) stand out. The lowest scores on the economic axis are nearly exclusively in the new Member States or the so called cohesion countries, Cornwall in the UK and the French Reunion constituting the most prominent exceptions. However, as in the Czech Republic and Slovakia, as throughout Eastern Europe most capital regions display higher scores.

In the synthesis of three *social* indicators the variables do not relate to each other to any greater degree, although there is a slight correlation between those concerning the labour market, where high long-term unemployment rates are more common in regions with high internal disparities with regard to total unemployment. Thus the social synthesis map differs from the corresponding economic one. Apart from clearly discernible east-west differences, the dominance of the European core is downplayed in this respect. Furthermore, many capital regions such as London, Paris, Lisbon or Helsinki in the West, or Warsaw, Bratislava or Bucharest in the East display lower performances with regard to these social indicators than was the case with the corresponding economic ones. Much of Norway, the Netherlands or the Czech Republic on the other hand, perform better in this respect.

**Figure 13:** Regional performance of fourteen Lisbon Short List Structural Indicators. *For list of included indicators, see Scientific Summary and Annex III*



One tentative conclusion based on these two groups of indicators is that performances on the economic and social scale do not entirely walk hand in hand, although they are not necessarily mutually exclusive either.

Finally the synthesis (at the national level) of the *environmental* indicators on the short list shows that in general the three indicators correlate with each other. These indicators are by definition dynamic thus not taking into account the starting level, which explains the high performance of most transition countries.

Also, as GDP is a denominator in two of the three indicators, the rapid relative economic growth in these countries is mirrored in “reductions” on the other measures. The cohesion countries as well as Italy and Norway are the worst performers, scoring low on all three indicators.

Finally the performance on *all fourteen structural indicators* from the short list has been merged into one map. The over-representation (eight out of fourteen) of economic indicators is mirrored in the spatial patterns. Thus the hard economic core of Europe is clearly discernible, also encompassing much of the Nordic area.

Norway falls short though, primarily due to low “performance” on the environmental indicators, whereas the opposite holds true for e.g. Romania and eastern Poland due to better performance both on social and environmental indices.

The capital regions of Prague, Bratislava and Budapest are also among the top European performers in this respect. Territorial disparities are greatest in Slovakia basically dividing the country into the capital region on the one hand and the rest of the country on the other. The cohesion countries (apart from Ireland) as well as southern Italy do also stand out as low performers in this respect, scoring fairly low on all three sectors.

### 1.3 Key policy recommendations

The implications of policy aspects covered by the ESPON past work with regard to Lisbon/Gothenburg Strategy prove more problematic for working simultaneously towards the goals of competitiveness and sustainability. Transportation, for example, is particularly challenging the focus of conflict being related to fuel consumption. Here, compromises were found primarily in the desirability of modal shifts. Similarly with energy policy, diversification was promoted as the way forward. The issue of the changing demographic composition of the EU proved especially resistant to practical recommendations, particularly in terms of the realisation of the Lisbon Agenda.

The review of the ESPON programmes’ conclusions suggested to the 3.3 TPG a need to leave conventional trajectories for competitiveness, if a concurrent goal of achieving sustainable development is to be met.

In summary, the review reflected the fact that previous ESPON projects have not considered sustainability and competitiveness concurrently, or their implications for each other.

Policy recommendations derived from Lisbon, but applied to the each determinant and sub-category, have been developed according to both regional level (macro, meso or micro) and territorial dimension<sup>6</sup>. Here a summary of the

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<sup>6</sup> In the body of the report detailed recommendations for each determinant and typology are developed for each level of governance. The work is also presented in matrix summarised form for ease of access.

recommendations for the determinants of *innovation and research, global/local interaction, quality, and resources and funds* are applied to the main elements of the Lisbon and Gothenburg Agendas with a natural concentration on recommendations at the EU level, but an identification of which actions are better devolved down to lower levels of governance.



## a) The Lisbon Agenda

*Innovation and Research:* The application of the Lisbon plans to this determinant at the EU level suggest that the European Investment Bank should take a leading role in promoting the networks required for innovation and research across the European Union. The issue of up-take is a priority which needs to be co-ordinated from that level, but devolved to agencies below in terms of its micro management. The proposed European innovation scoreboard would be introduced to most effect at the national/transnational level, while it is at a regional level that 'innovation poles' should be established. In terms of support, a 'European Institute of Technology' could be set up at the EU level, but this and other European Technology Initiatives may be promoted by, and partnered with, industry and possibly higher education establishments.

*Global/Local Interaction:* With respect to this determinant, the coordination of the EU is required to ensure labour market requirements are met, with agreement on increasing the mobility of the workforce and migration. This would be assisted by the establishment of an European Higher Education Area. The much contested reform of the European social model promoted by the Lisbon Agenda, basing support on work and alleviating tax pressures on labour, would be difficult to enforce at the EU level given past failed efforts to develop a genuine European social policy. Consequently the national scoreboard approach to improving labour participation rates and maximising productivity are probably the most attainable means of challenging perceived inefficiencies in the model. Meanwhile regional variations in work, tax and income maintenance configurations may offer alternative solutions to mitigating market inequities whilst retaining economic efficiency.

*Quality:* Addressing the issue of life chances is a key part of this determinant. However, here Lisbon objectives are less specific, allowing future innovation in policy development at all levels. Suggestions include innovation in eco-technologies harnessed to enhancing quality of life and renewing neighbourhoods and introducing labour policies which address the conflicts arising from maintaining a healthy work/home life balance.

*Resources and Funds:* In this determinant there is again an emphasis on labour market and income maintenance policies. Given the nation state command of these areas the Commissions' targets for the increasing work force participation rates – by at least 9% - with particular emphasis on women and older workers, are appropriately devolved to the scoreboard approach as embodied in the National Plans recently submitted. More flexibility in labour market conditions with the extensions of freedom of movement may however help create the conditions for this. Measures may be enacted at both the national and the EU level to foster an encouraging environment for private research investment, R&D partnerships and high technology start-ups. These could be made more attractive by adjusting tax policies and providing appropriate support in the form of venture capital with EIB backing. Finally at the macro level too, a reform of Structural Funds to focus on local employment delivery and economic growth, have been a controversial, but fundamental pillar of the Lisbon Agenda.

## b) The Gothenburg Agenda

The policy recommendations derived from Gothenburg and applied to the determinants of project 3.3 fall even less easily into appropriate levels of governance. As typical with issues of sustainability there are a lot of more broad ambitions than specific recommendations and agreed responsibilities. Nonetheless the determinant *Innovation & Research* must by its very nature offer the most potential and the consensus here is that 'a substantial investment is required in order to fulfil the Sustainable Development Strategy', though who should undertake the investment is unclear.

More concrete proposals are found in the area of *Global/Local Interaction* where it is advocated that EU co-ordination in four key policy areas must be worked towards; climate change, natural resources, transport and public health. To complement this, pre-existent policy agreement on climate change must be implemented, and the contribution of renewable energy sources must be increased proportionately. Prices, it is suggested, should be linked to their environmental impact, especially in the field of transport. While these propositions would require interventions at the market and national level, EU action is essential to reform the Common Agriculture Policy which should demand more environmentally sustainable forms of production.

For the determinant *Quality*, specific EU wide measures are suggested; public health (including a European surveillance and early warning system on health issues) and the initiation of action on the problems relating to rising levels of traffic should take the form of EU policy on a sustainable transport system which includes greater investment in public transport and other actions to encourage a major modal shift.

Perhaps most pertinent to the Gothenburg goals, is the *Resources and Funds* determinant. However, in relation to this determinant, Gothenburg only specifically suggests EU level action in the sector of fishing where it is proposed that the Common Fisheries Policy must address the issue of over-fishing more pro-actively. The implementation of the EU Integrated Product Policy is urged though, in co-operation with business. Other than that, recommendations that new measures are implemented to maintain bio-diversity and preserve eco-systems and reduce the levels of waste produced in the EU are articulated.

Finally, as stressed in the Gothenburg Strategy, the ultimate way of reconciling environmental sustainability and global competitiveness is to develop some way of separating economic growth from resource use. But apart from that global challenge, the issue of regionally specific recommendations for action will now be addressed.

### 1.3.1 Specific policy recommendations arising from the projects' research findings

The application of the key elements of the specific work pioneered by the ESPON 3.3 team to the goal of effectively redistributing Structural Fund monies to particular regional needs, will now be presented. In order to assess the appropriate allocation of resources towards the ambitious goals of fulfilling the aims of the Lisbon and Gothenburg Agendas and balancing regional differences (see example of cooperation scenarios Fig. 14), it was necessary to distinguish between regional disparities (see example of sectoral regional gaps assessment, Fig. 15), which need

to be re-addressed, and regional diversities, which are considered as a key characteristic of Europe. Identifying these specificities, with a view to future policy direction was the focus of the work (see example in Fig. 16 and chap. ). The concentration on the regional level is also intended to offset the predominantly national orientation of much work in this area, characterised by the current preoccupation with the National Action Plans. Here though a summary of the key recommendations, organised by determinant, which combine the objectives of both Lisbon and Gothenburg is provided. These constitute the recommendations that are most relevant to 'territorial competitiveness in sustainability'.

*Innovation and Research:* At the meso level and in the majority of countries, national policies should be geared to increasing the general populations' access to the Information Society. This needs to be supported by telecommunication and education systems, organised at either national or regional level, which reach the most regions. In the latter case education ought to engage the middle-aged population in life-long projects which will enable a re-engagement in the productive system. Education policy at tertiary level requires 'actualisation' to international needs.

Specific measures, such as targeted sectoral investments, are recommended for countries with a low innovation and research profile as a priority in the new Structural Funds in Eastern countries, perhaps contingent on commitments in their financial plans. Also in Eastern and Mediterranean countries, an emphasis on firms' information access to enable a start-up to an intensification of internationalisation is suggested.

At the regional level, linking innovation and research to the local job market and introducing a major local dissemination of Structural Fund projects into the local/regional system is recommended. Collaboration between public and private enterprises and between firms, regional institutions and the education/research systems could be encouraged. Recommendations for specific regions are in the body of the report.

The majority of recommendations for this determinant are Lisbon oriented, but in their orientation - particularly with their focus on ICT, are compatible with the goals of the Gothenburg Agenda.

*Global/Local Interaction:* Recommendations specified under this determinant are more focused on Gothenburg and a combination of Lisbon and Gothenburg objectives. At the national and transnational meso level, but coordinated at the macro level, common procedures must be found to fix territorially sustainable limits regarding growth and investments. Similarly a common language regarding sustainability needs to be developed, which, together with a stress on transparency, may transform actions in the direction of 'virtuous behaviour', possibly along the lines of the benchmarking approach instigated for fulfilling the Lisbon goals.

At the regional level, the sustainable level of population development should be found in metropolitan areas and ESDP guided choices about settlement capacities and life quality made, re-launching the role of 'urban' and peri-urban areas. Hidden, but local potentialities should be the focus of new EU Structural Fund instruments which may be less competitive in the short term, but more sustainable and

cohesive in the long term. Strengthening links involved in tourism, youth mobility and exchange may be part of this process. Education and research forms of 'de-localisation' and measures for population mobility in borderline regions are stressed. Another measure which would usefully merge the Lisbon and Gothenburg goals would be to reinforce the regional stability pact by using the Cohesion regional funds to strengthen local social interaction using local trading and manufacturing activities for 'bottom-up- structural change in European economic activities.

The adoption and application of common environmental concerns should be integrated with more specific technological and enterprises and measures. This would benefit from the support of a text outlining plans which can be worked on collaboratively between regions, transnationally and internationally.

Finally, for working towards Lisbon as well as Gothenburg ends, there ought to be a homogenisation of regional fiscal pressures, by looking, for example, at attracting transnational investments in the medium term, and coordinating regional capabilities, whilst respecting the policy plans of local population enterprises. The role and performance of peripheral areas are likely to need particular attention in this regard.

*Quality:* At the national and transnational level a move away from traditional economic variables, such as GDP pps per capita, for measuring country positions is proposed. A range of new common European welfare indicators to create a significant and innovative measure of welfare efficiency are recommended. This may include a 'social wellness aptitude' and a way of assessing the results of Structural Fund interventions as well as a new dedicated Structural Fund for promoting equal opportunities. Priority projects for particular proposed transnational cooperation areas are outlined in the report, but suffice here to note that specific forms of productive de-localisation need to be looked at, especially in the new Eastern regions.

The completion of the network enabling physical accessibility and multimodal organisation encompassing peripheral areas and attention to horizontal TCL development are recommended, the latter using new and advanced technologies.

With regard to governance issues, at both national and regional level, the incorporation of the 2001 *Governance White Paper* is recommended. Subsidiarity should, in addition, be used to develop a bottom-up vision with national policies in harmony with regional and local ones helping to improve citizenship democratic confidence, which can also be accelerated by the development of communication systems outlining European issues and encouraging feedback.

Finally, with a view to uniting the Lisbon and Gothenburg objectives for this determinant the incorporation of 'Total Quality' environmental norms in territorial plans and as an integral part of the competitiveness model is advised.

*Resources and Funds:* One key recommendation here, applied from the macro to the regional level, is to prioritise the provision of higher order services to second and lower tier cities, ultimately to broaden the competitive position of the EU as a whole. In addition, building up the service sector in IT, telecommunications and other relevant Lisbon oriented areas to sustain more specific human capital

policies is suggested, with labour markets consciously becoming more inclusive of older workers. From a Gothenburg perspective, international exchange in relevant aspects of innovation and research and cross-border activities in pollution, risk prevention and the tackling of environmental problems is recommended, especially at the transnational level, aiming eventually at an equalisation in expenditure and coverage.

Also in the fulfilment of both agendas, the constitutional differences particularly at regional level, which permit the current differentiation and which play an important role in the application of the strategies needs to be confronted. Autonomous regional governments which represent a positive benchmark could be identified. Furthermore the different priorities expressed in different regional plans need to be open for examination and accessible for change if insufficient to meet obvious needs (for instance public health in Mediterranean regions and the polarisation of older female workers in Eastern areas). In general, the levels of public expenditure for both employment and natural resources which currently varies so markedly from the relatively high values of most old capital EU regions to medium to low elsewhere, needs to be re-balanced with the assistance of the new Structural Funds. Regional governmental priorities with respect to expenditure on, for example, poverty and ageing could be a condition of certain new project funds and contribute to cohesion and overcoming the north/south, east/west and centre/periphery divides.

### 1.3.2 GIS and results management

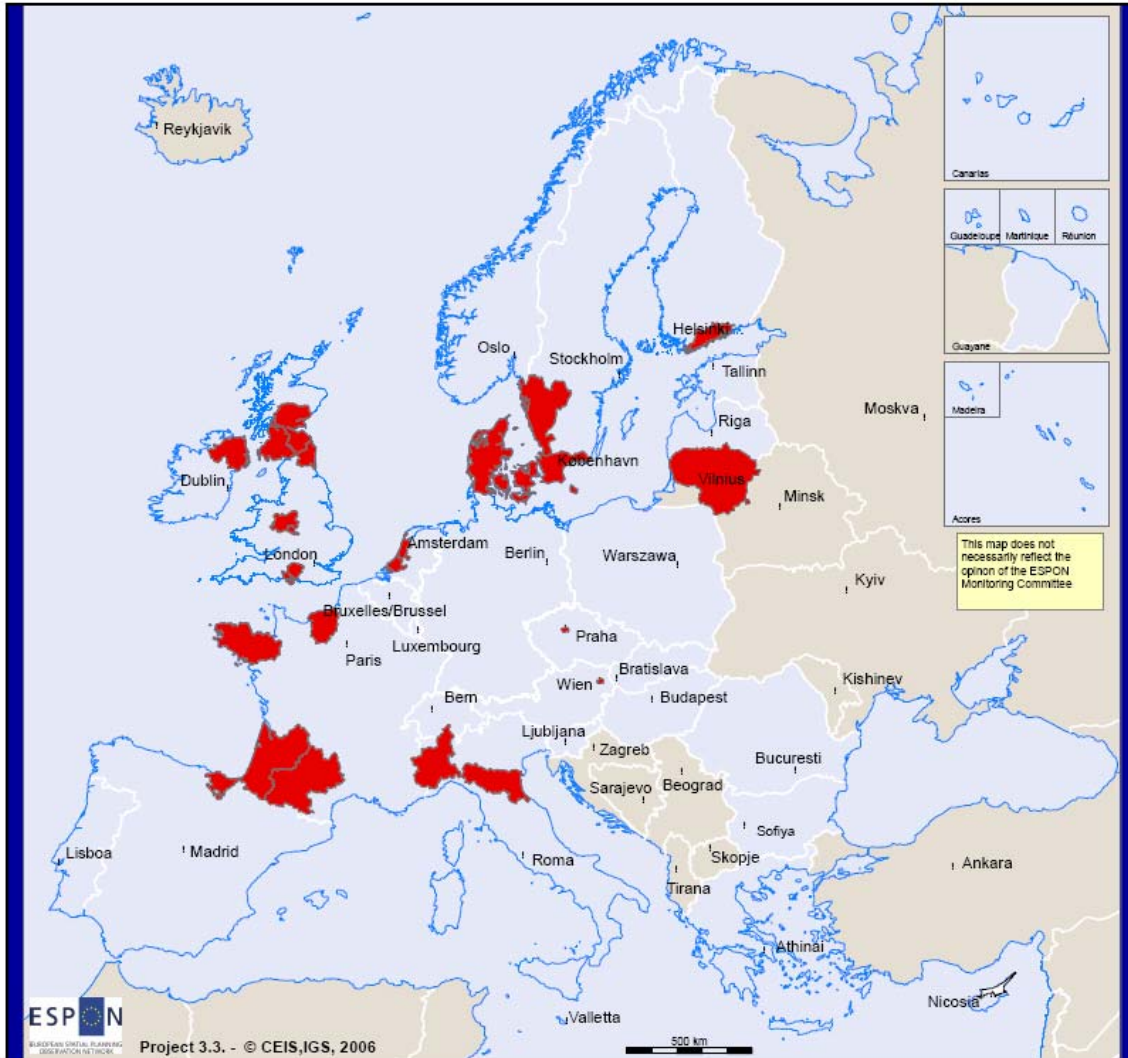
The 3.3 project was concluded with the production of a management toolbox. The theory behind this has been developed by the University of Rome "Tor Vergata", also responsible for testing and using it within the ESPON 3.3 project, and the software implementation by MCRIT (Barcelona).

The toolbox uses as reference data 3.3 project regional statistical indicators, aggregating them according to the network-like conceptual structures to be defined by the user, and provides, as a result, relative values for each region from the simple indicators up to the highest most abstract concepts.

3.3. GIS project can be used by both **EXPERT-USERS** (researchers, consultants, civil servants...), and **POLICY-USERS** (Fig. 15).

**Figure 14:** Potential regional leads in co-operative trans-national I&R, G/L, Quality, R&F projects

**MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2**



Values obtained combining Innovation and Research:  
Syntetic Spatial Composit Index and TT2 - Territorial  
tipologies at NUTS2

ABSOLUTE

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Regional reference: NUTS3, 2003  
Origin of data: CEIS, CEG, 2006

## MAP GL 43 - TERRITORIAL Global Local Interaction

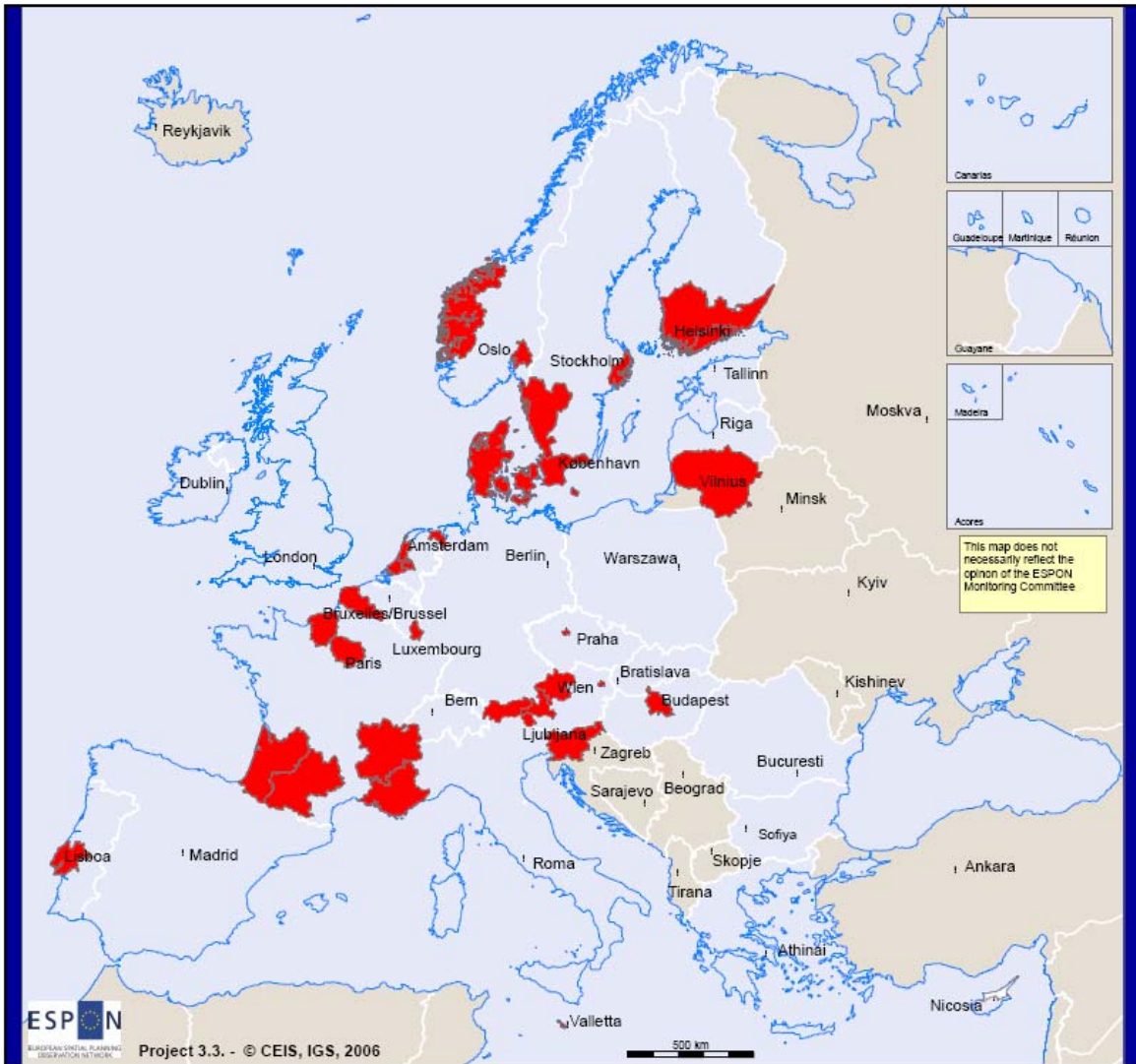


Values obtained combining Global Local:  
Syntetic Spatial Composit Index and TT2 -  
Territorial typologies at NUTS2

ABSOLUTE

© Eurogeographics Association for the geographic boundaries  
Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006

### MAP Qty 45 - Territorial QUALITY



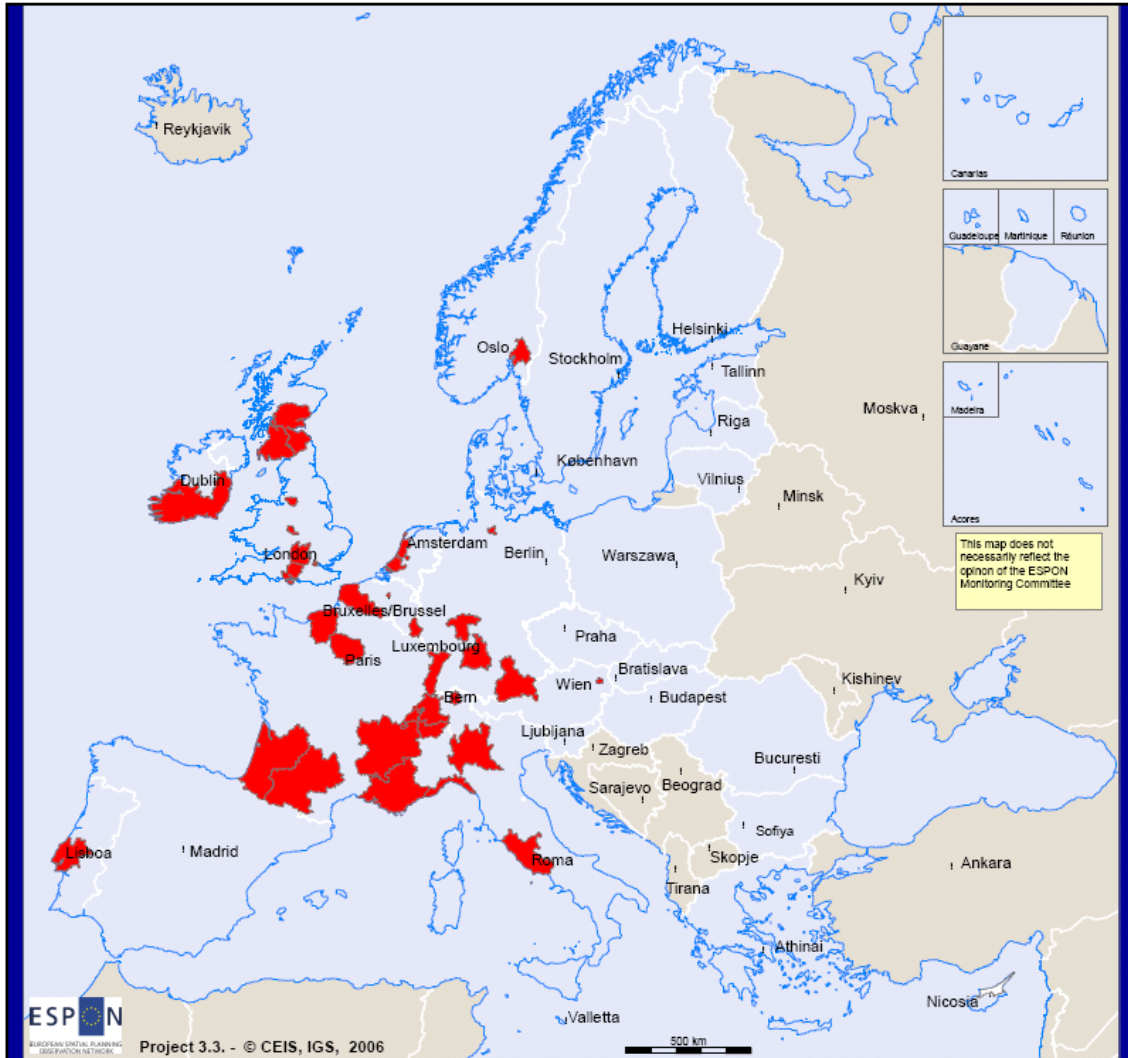
Values obtained combining Quality:  
Syntetic Spatial Composit Index and TT2 -  
Territorial typologies at NUTS2

■ ABSOLUTE

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006



## MAP RF 19 - Resources and Funds Interaction Territorial Dimension at NUTS 2



Values obtained combining Resources and Funds:  
Synthetic Spatial Composit Index and TT2 - Territorial  
typologies at NUTS2

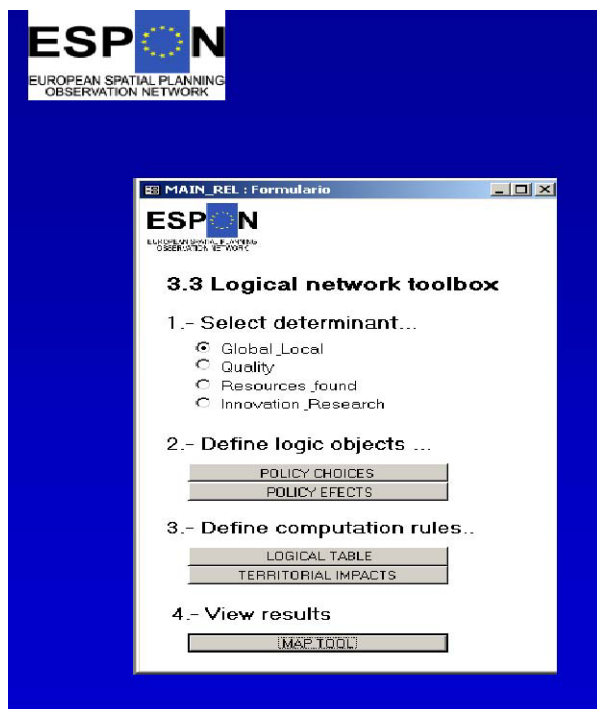
ABSOLUTE

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Regional reference: NUTS2, 2003  
Origin of data: CEIS, CEG, 2006

**Figure 15:** Example of ex ante values with regard to 3.3 indicators to assess sectorial regional gaps

N2_03	REGION_03	Territo	Q_GEC	Q_SEC	Q_ME	Q_P Tm	Q_E SSI	Q_FD lin	Q_Tig	Q_Tis	Tint	Int	ESSI & Int	Q_R DA	Q_V uln	RDA & Vuln	Q_L Tir	Q_FP	Q_LC	FP& LC	CS	SL	ESSI & Int & SL	Q_ME	Q_P Tm	PSI	EI
AT11	Burgenland	7	B	D	C	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	C	B	C	C
AT12	Niederösterreich	3	B	D	C	C	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	C	C	C	C
AT13	Wien	1	B	D	C	A	C	B	A	A	A	B	C	B	D	B	B	D	A	D	B	B	C	C	A	C	C
AT21	Kärnten	2	B	D	B	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	B	B	C
AT22	Steiermark	2	B	D	C	C	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	C	C	C	C
AT31	Oberösterreich	2	B	D	B	C	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	C	B	C
AT32	Salzburg	2	B	D	B	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	B	B	C
AT33	Tirol	2	B	D	B	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	B	B	C
AT34	Vorarlberg	3	B	D	B	C	C	B	A	A	A	B	C	C	C	C	B	D	A	D	B	C	C	B	C	B	C
BE1	Région de Bruxelles-Cap	1	A	C	C	A	C	A	A	A	A	A	C	A	D	B	B	D	A	D	B	B	C	C	A	C	C
BE21	Prov. Antwerpen	3	A	C	C	C	C	A	A	A	A	A	C	B	D	B	B	D	A	D	B	B	C	C	C	C	C
BE22	Prov. Limburg (B)	2	A	C	C	C	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	C	C	C	C
BE23	Prov. Oost-Vlaanderen	2	A	C	B	C	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	B	C	B	C
BE24	Prov. Vlaams-Brabant	2	A	C	C	A	C	A	A	A	A	A	C	A	D	B	B	D	A	D	B	B	C	C	A	C	C
BE25	Prov. West-Vlaanderen	2	A	C	B	C	C	A	A	A	A	A	C	C	C	C	B	D	A	D	B	C	C	B	C	B	C
BE31	Prov. Brabant Wallon	4	A	C	C	A	C	A	A	A	A	A	C	A	C	A	B	D	A	D	B	A	C	C	A	C	C
BE32	Prov. Hainaut	2	A	C	C	B	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	C	B	C	C
BE33	Prov. Liège	2	A	C	B	B	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	B	B	B	C
BE34	Prov. Luxembourg (B)	4	A	C	C	B	C	A	A	A	A	A	C	C	B	C	B	D	A	D	B	C	C	C	B	C	C
BE35	Prov. Namur	2	A	C	C	A	C	A	A	A	A	A	C	B	B	B	B	D	A	D	B	B	C	C	A	C	C
BG01	Severozapaden	6	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG02	Severen tsentralen	6	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG03	Severoiztochen	2	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG04	Yugozapaden	1	B	D	B	D	B	B	A	A	A	B	B	C	D	C	D	B	D	B	C	C	B	B	D	B	B
BG05	Yuzhen tsentralen	2	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG06	Yugoiztochen	5	B	D	A	D	B	B	A	A	A	B	B	C	D	C	D	B	D	B	C	C	B	A	D	B	B
CH01	Région lémanique	1	B	C	B	A	C	A	B	A	B	A	C	C	C	C	C	D	B	C	C	C	C	B	A	B	C

**Figure 16:** 3.3 logical network or tree by STeMA



## 2. Scientific Summary

In the study of the Lisbon/Gothenburg Strategy, the 3.3 project has developed a dedicated part of the model named STeMA for the calculation of the territorial capability to be competitive in sustainability; in order to apply the 'revisited' Lisbon/Gothenburg Strategy at European regional level, this procedure can help European policy makers to take appropriate decisions with regard to the new Structural Funds regional distribution.

### 2.1 Introduction and main concepts

In order to obtain both the Lisbon/Gothenburg territorial objectives and a sustainable vision of competitiveness, we need to perform an act of planning. That is to say building a 'machine' or 'process' (which produces TIA as well) that can be used to assess, in a territorial dimension, the current and future regional capability to be competitive in sustainability.

This process has been standardised to a specific methodological approach, *Sustainable Territorial Environmental Management Approach - STeMA*<sup>7</sup>, and transformed into logical passages (steps), so that it can be applied at the national (macro), regional (meso) and sub-regional (micro) scales of the Lisbon/Gothenburg scopes, as the ToR asked.

In order to make this procedure smoother and *user-friendly*, it was useful to list clearly some *axioms* that explain because STeMA is the better approach to analyse the "competitiveness in sustainability" perspective proposed and shared in the 3.3 TPG. Below, they are briefly recalled:

- STeMA is (and Lisbon/Gothenburg territorial strategy needs) a multidisciplinary and interdisciplinary methodology, therefore it requires support from a number of disciplines and a knowledge that is larger than that of traditional studies about competitiveness and sustainability;
- STeMA (and also Lisbon/Gothenburg territorial strategy) 'works' according to a systemic-qualitative and quantitative logic, and in a perspective of 'total quality management';
- STeMA (and also Lisbon/Gothenburg territorial strategy) integrates competences, knowledge and languages by using the tools of complex knowledge;
- STeMA (and also Lisbon/Gothenburg territorial strategy) pursues strict adherence to both the objective of sustainability and territorial 'bottom-up' development;
- STeMA (and also Lisbon/Gothenburg territorial strategy) allows for continuous adaptation and the up-dating of data.

Since, at the moment, to be competitive in sustainability is a voluntary and proactive choice, implications and responsibilities are evident from the political-administrative point of view (Lisbon and Gothenburg Strategy). So STeMA can assist policy makers to choose appropriate regional policies (through the Structural Funds), assessing these choices *ex ante*.

In order to plan an assessment of the capability to be competitive in sustainability, in the 3.3 project STeMA:

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<sup>7</sup> STeMA was conceived by Maria Prezioso in 1983 and for the first time formalised at regional scale in 1995. At this moment, it is *All copyright reserved*.

- fixed and shared a common lexicon (common language, see Glossary);
- defined the modalities of the acquisition of certified data at national, regional and sub-regional levels;
- established a new list of Lisbon/Gothenburg Strategy indicators and the territorialisation procedure of statistical data;
- set the general architecture to apply the systemic method, fixing the contents and procedures to express the ex ante judgement;
- defined the contents of the territorial policies applied to Structural Funds planning;
- designed the TIA starting from a SEA experience and inserted it in the architecture of the information and management system, to express the ex post judgement through a dedicated GIS project.

The comparison of the regional backgrounds - to enable the design of the new Structural Funds' Plan - was also necessary to build a conceptual scenario. It had to be conceived according to both European directives and through the definition of the indicators and determinants. The selection of indicators and determinants was based on criteria and parameters assigned in order to calculate their functionality towards the objectives of this project.

Each determinant outlines the logical procedure of the information and judgements.

Indicators and determinants express judgements by sending 'messages' that reverberate on their initial territorial dimension.

This permitted a read-out of the indicators and determinants to be obtained, in terms of the minimum mapping unit expressed by the geographical scale of the phenomenon (NUTS2 and NUTS3).

In the STeMA approach, the ex ante assessments are defined by a set of indicators that concur with the definition of the determinant, as described in the "logical procedure" (see Fig. 17).

The regional level (NUTS2) is the territorial domain of interaction (or inter-relation) between indicators and defines the "playground" for every Lisbon/Gothenburg indicator or determinant.

Among the territorial typologies produced by the ESPON thematic projects, the choice that appeared to be the most suitable for our territorialisation approach is presented in this report.

Through the connection of the determinants to the territorial typologies - that comes, in turn, from a specific weighing process - it has been possible to specify the Territorial Capability to be Competitive in Sustainability, as explained in the Scientific Summary.

The particular final capability result of a region is not considered in absolute terms by STeMA, but rather as relative to the SF with regard to Lisbon/Gothenburg objectives.

The choice of the indicators for each determinant is driven by environmental/territorial, technical, social and economic criteria. The first ones reflect physical/natural aspects; the latter parameters, instead, depend on the type of plan to be carried out (in this case the Lisbon/Gothenburg Strategy). In general, they are conditioned by the objectives and the design standards that the plan requires.

The *Structural Funds plan's actions* are identified, quantified and correlated with the 2005 EC Proposal and the managerial assessment that makes them feasible.

The recognition of the effects potentially generated by the Lisbon/Gothenburg

plan's actions is a core issue. The value of the impact is measured by the effects of the designed plan's actions.

STeMA assesses:

- the difference (correlation matrices) between initial and final states of regional capability;
- the improvement in performance and competitiveness produced by the actions scheduled in the Structural Funds plan.

The choice of the policy alternative is drawn to policy makers' attention through logical and deductive criteria, using systems that describe the considerations made on the various problems that determined the choice at regional level.

This *phase* of STeMA procedure ends in the formulation of the scenarios of reference, to define the whole field of relation within which the various hypotheses relating to the development of the territory and the possible alternative political choices can be taken into consideration.

For the formulation of the scenarios it was necessary to refer to a given historical moment (time  $t_0$ ), when it was possible to detect the state of all the indicators considered.

At this final stage, the functionalities and the sub-objectives that constitute the procedure were identified; each of these functionalities was measured depending on its localisation (territorialisation), since it is susceptible to acquiring different aspects and values.

In this type of procedure, the hierarchical, vertical classification of the problems, and the increasing number of functionalities analysed at the low levels of the structure (Indicators) determine a graph with a characteristic *upside-down tree* configuration.

The basic indicators were defined, as well as the corresponding possible connections of mutual relation.

Then, the results of the study of the indicators (first step) were correlated with the best achievement level of the Lisbon/Gothenburg objectives (i.e. the implementation - or not - of the initial resources level).

Regarding the subject of the *generation of policy alternatives*, the operational procedure, embodied through a GIS, enables the policy makers to choose the desired objectives of the Lisbon/Gothenburg Strategy. Therefore it is able to optimise and highlight the various alternatives that can be proposed depending on the problems related to European regional structure.

To be able to confront the problem in practice, STeMA allows the comparison of one or more alternatives within every determinant, intended as one of the elements that contribute to the generation of possible scenarios and, therefore, also as an intermediate check. Some indicators and objectives of the former aspect can be used in the latter, creating the relationship needed to make each one of the Lisbon/Gothenburg determinants as a design variable of the other. It will be possible to compare two or more determinants by correlating them both at the stage of the synthesis, and at the most adequate intermediate levels.

The application of this procedure implied the realisation of an *appropriate GIS* in order to collect, process and communicate the information, starting from the acquisition of data.

Another issue was to make the monitoring *durable*, because a plan can have effects in the short, medium and long term. The Structural Funds plan has a 2007-2013 duration, thus the need to create a continuous up-dating architecture of the GIS in order to overcome this problem.

Therefore, the objective that can be pursued by the ESPON database is the constitution of a *general informative system* that, covering the whole EU regional territory, builds the scenario onto which the objective selection of the indicators is based, contemplating and classifying also those indicators that are not directly involved in the SF or in the Lisbon/Gothenburg hypotheses.

STeMA implies continuous confrontation and updating to increase the levels of awareness and participation to the development choices.

To achieve this, STeMA:

- defines the “playground” for every indicator/determinant of the Lisbon/Gothenburg Strategy and contributes to determining some *judgements*<sup>8</sup>, to calculate their state;
- applies a SEA/TIA procedure to calculate the risk of compromising the system/determinant with respect to the Structural Funds plan and Lisbon/Gothenburg policies;
- selects the trans-national/regional zones for a co-operative use of the new Structural Funds.

In order to attain that, it is fundamental to understand the answer that is brought about by the indicator (aiming at the best possible significance) or, in other words, to define exactly the phenomenon that has to be explained by the indicator. We built up four synthetic indicators that answer the Lisbon question; *if and how a given territory is able to generate/develop competitiveness*, not in absolute terms but relatively to what Amartya Sen calls “**capabilities**”. In our case, they become **territorial capabilities**. This type of approach has two fundamental points of strength:

- the initial resources play a role in that a lesser handicap is imposed on those countries that have less of them;
- the concept of capability can be connected to that of “use function/functionality” that allows an estimation of the realizations achieved and also to carry out a monitoring over time.

The theoretical choices and methodological approaches discussed below are strongly dependent on the previous points and the results try to combine a rather simple procedure with the complexity of the topic. This required the TPG to make an acceptable compromise between more advanced and sophisticated procedures (also in the statistical and mathematical instruments involved) and a methodological approach concerning a sufficient scientific agreement, innovative in some parts, but, once more, at the same time easy to run.

In the following section the purpose is to explain the steps involved in the construction of the STeMA towards the definition of the *Territorial Capability of Competitiveness in Sustainability Composite Index* (thereafter TC of CiS CI) (Carbonaro, 2006).

The aim was to construct a measure established on the basis of an ordinal scale. These conditions identify what we previously named competitiveness in sustainability.

To achieve this goal there is the need for a synthetic measure (technically a composite index) that moreover would be:

- tailor-made for the specific question regarding the distribution of new Structural Funds;

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<sup>8</sup> Status Quo is the state of the determinants (the critical elements to be competitive) and is defined by state indicators. Vulnerability is the description of the effects of the determinants and is defined by process indicators.

- inserted in the general framework of a wider interconnection and integrations between territories;
- devoted to preserve the richness of territorial heterogeneity, but at the same time with a strong purpose of a common convergence towards higher L/G levels;
- and, last but not least, easy to handle for decisional purposes and, therefore, generated from a very pragmatic operative approach.

The TC of CiS CI is determined by the occurrence that several elements (“driving forces”) can contribute to the territorial capability of competitiveness in sustainability, but, at the same time, they can be grouped into four fundamental aggregate sets (in our language determinants), which are in turn generated by the combination of other less aggregate sets, in accordance with a hierarchical structure: determinants from typologies, typologies from sectors, sectors from categories, to end with the elementary information, or indicators, that generate categories.

The determinant takes a value through ‘messages’ from its indicators that reverberate on the state of the system and on the domain (national or regional) of their relations.

The interactions between indicators, in synergy or in reciprocal prevalence, define a ‘domain of interaction’ that allows every competitiveness component or determinant to be defined, and to then assess the potential impact that could come from the realization of the new SF plan, or part of it.

This framework is largely adopted in the literature concerning the development of aggregate indices that summarise the information contained in different elementary indicators. What differs from the usual methodology for producing aggregate indices are the aggregation process and the introduction of an innovative territorialisation procedure (outlined in more detail below), to stress the similarity/diversity of the European regions in respect to their capability for competitiveness in sustainability (including the factors creating it).

The strength of this methodology can be seen in its capacity to combine very different elementary information (quantitative, qualitative - the latter also transformed into quantitative) and in referring to phenomena (economic, social, environmental etc.) that could hardly be treated with an identical model.

A weak point can be located in the aggregation process and the ranking choice that allows “pair to pair comparisons” to be made between indicators. Anyway, limitations and criticism would have accompanied the choices as to an aggregation function and a weighing scheme in the alternative to a more conventional methodology.

To give a comparison of the various indicators into determinants, STeMA provides *the construction of several qualitative interaction matrices* that, on the basis of reliable scientific theories or of reasonable demonstrations, given the value of a single indicator ( $I_1$  or  $I_2$ ), and returns the qualitative value of the corresponding synthetic/composite indicator ( $I_x$ ).

An example of qualitative interaction matrix is the following:

**Table 3:** Example of qualitative interaction matrix between indicators

<b>I<sub>2</sub></b> <b>I<sub>1</sub></b>	a	b	c	d
A	Aa	Ab	Ac	Ad
B	Ba	Bb	Bc	Bd
C	Ca	Cb	Cc	Cd
D	Da	Db	Dc	Dd

with

Aa>Ab>.....>Ba>Bb>.....>Dd

and rearranging the RESULTS (I<sub>x</sub> values) in the following way

I<sub>x</sub> = Aa, Ab = high value = A

I<sub>x</sub> = Ac, Ad, Ba, Bb, Bc = medium high value = B

I<sub>x</sub> = Bd, Ca, Cb, Cc, Cd, Da = medium low value = C

I<sub>x</sub> = Db, Dc, Dd = low value = D

Each indicator is combined with another to answer specific questions presented by the European documents (ICT, R&D, Innovation, Human capital, Age, Poverty, Climate, etc.).

The approach to combining heterogeneous indicators has been a mix of matrix ranking and weighted performance analysis.

On the base of the scientific cross between the selected indicators, the project calculated for each determinant:

- the *status quo* and *vulnerability judgements*, e.g. the state and the risk of a wrong access to the Structural Funds plan;
- the territorial base, using some typologies extrapolated from ESPON results (U/R typologies + MEGA + FUA);
- the *capability to be competitive in sustainability* at sub-regional, regional and national levels;
- the assessment of this territorial capability to correctly decide and choose the policy sectors which appropriately may use the European Fund;
- a different involvement of the 14 "Spring Report" indicators

At the moment, the number and the "recipe" of indicators' combination is completed with the NUTS2 mapping.

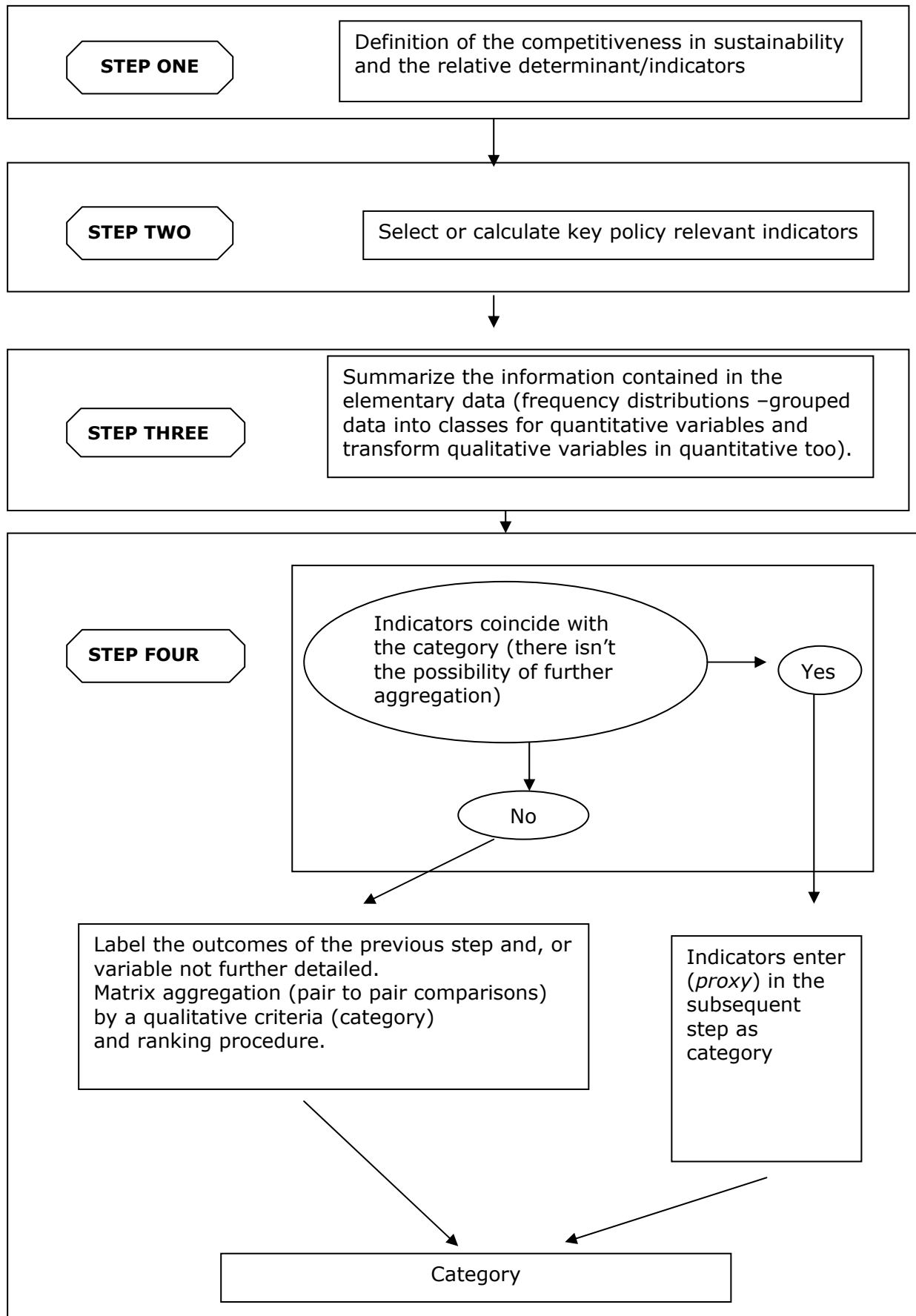


The mapping covers the countries of the EU 25 plus Norway, Switzerland, Bulgaria and Romania; although we must remember how it is often challenging to find comparable information and data for all these countries. Nevertheless, the project has always covered all 29 countries and, only where there is a clearly justifiable exception, proposes a different coverage.

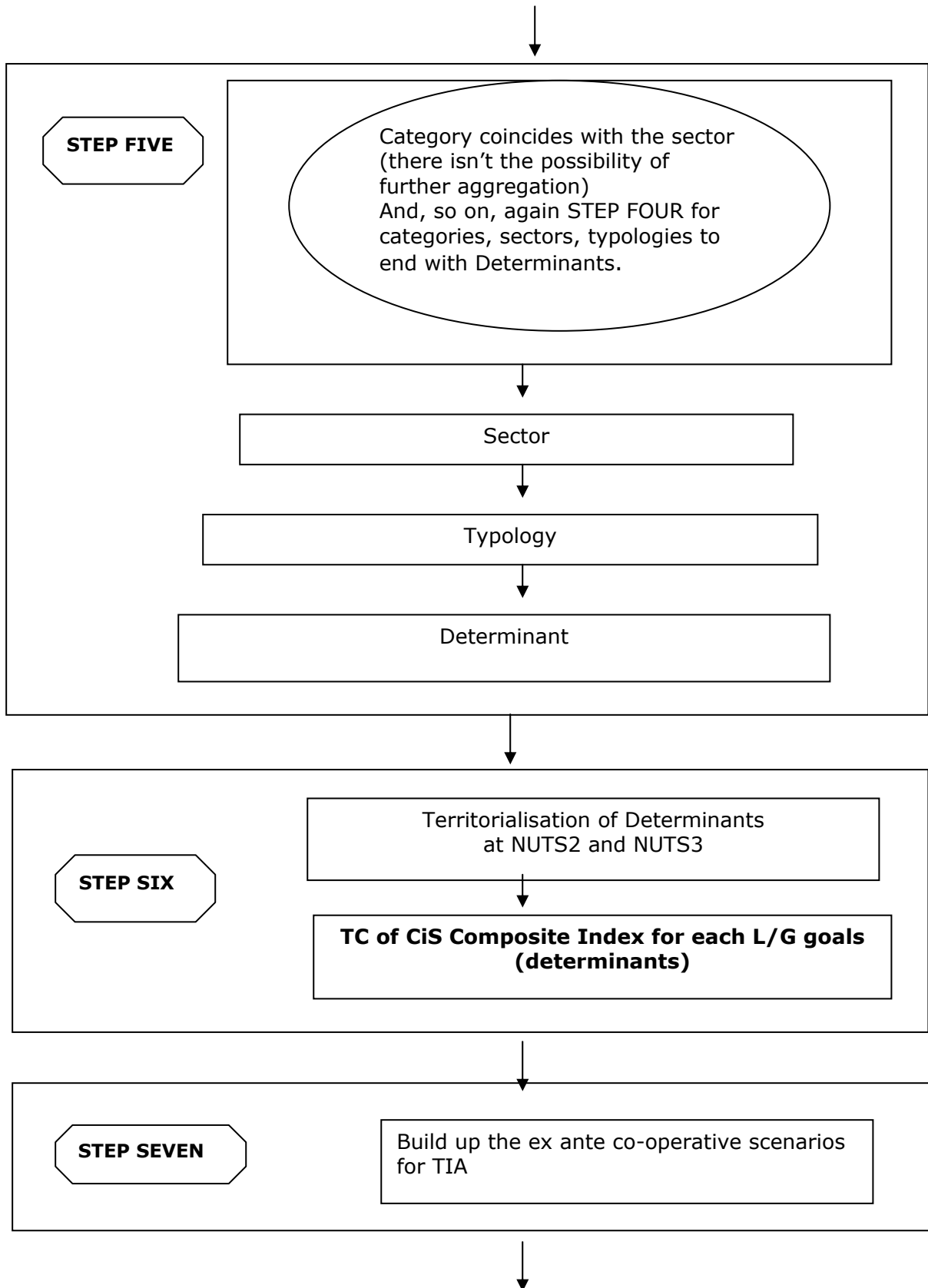
Several steps are needed to obtain the requested measure, beginning with the proposal of our “core” indicators, to persist with grouping the data, and, to complete with the definition of aggregation criteria (in conjunction with a special kind of weighted scheme) concerning the link between the different subdivisions in order to define the next level (category, sector, typology, determinant). Finally, the definition of the territorialisation procedure, and of the rule capable of comparing the performances (*ex ante* and *ex post*) complete this methodology.

The steps, nine overall, are linked to each other, so that the previous enters as input in the subsequent. They are illustrated in Figure 17. It shows the relation between the components (that is indicator → categories → sectors → typologies → determinant - from the lower to the higher level -) and outlines when the aggregation process, territorialisation procedure and policy choices occur (see also the software application, named the toolbox, described later).

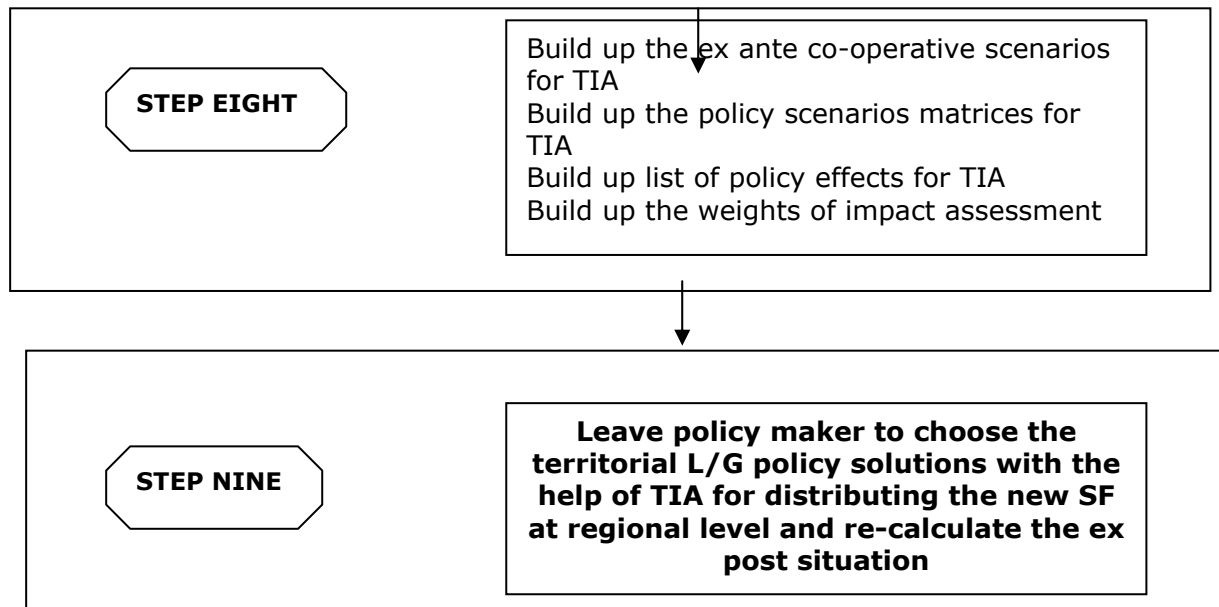
**Figure 17:** STeMA process and work steps



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In this approach, that faces the challenge of adding the “territorial dimension” to peculiarly economical-political objectives (competitiveness and sustainability), the main operational problem was that a large part of the indicators describe socio-economical phenomena that are not completely “territorialized” because of the statistical relevance of the data themselves, both in terms of the modality of the survey and of the geographical level of detail.

In this particular case, the great majority of data needed to build from the indicators up to the determinants, are currently available mainly at national (NUTS0) and regional (NUTS2) level.

From our point of view, the most appropriate territorial levels on which the analysis of the competitive process should be addressed are NUTS2 and NUTS3. In fact, the readout of the programmatic demand – to which the SF policy should provide a consistent offer – is best performed at these levels of subsidiarity.

This problem was solved by taking advantage of the work made by those ESPON projects which provided territorial typologies of various kinds, namely, a major part of the thematic projects. Most of them, or at least the ones that are more closely related to our framework, have in fact geographically referred to the NUTS2 and NUTS3 administrative levels.

The territorial typology helps by providing a way to “project” onto a more detailed reference data that are generally assigned to a much wider boundary. On the other hand, this allowed the retaining of a source of information that is geographically more detailed, even when combined with less detailed ones.

The theoretical bases on which our approach is founded guarantee the significance of this sort of projection, that was also used in previous ESPON-related studies<sup>9</sup> and that is included in the studies under ESPON Project 2.4.2 “Zoom in” too.

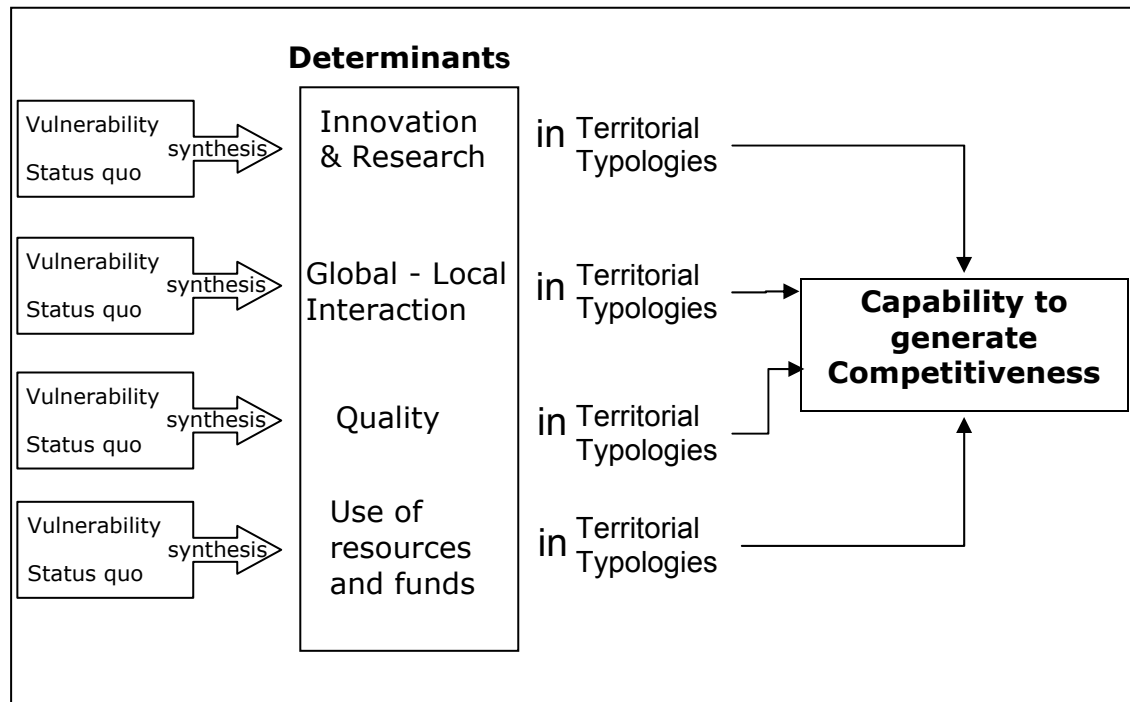
Moreover, this point of view is also consistent with the application of the vertical

<sup>9</sup> See for instance SPESP 1999, Final Report of the working group on Cultural Heritage.

subsidiarity principle within European States/regions.

Through the connection of the determinants to the territorial typologies – that comes, in turn, from a specific weighing process - it was possible to specify the Territorial Capability to be Competitive in Sustainability (Fig. 18).

**Figure 18:** The connection of the determinants to the territorial typologies



To consider the value of the indicators and determinant, after two different mapping exercises (Equal and Quartile, see TIR), the quartiles one was preferred.

The final step of the 3.3 methodological process is the recognition of the effects potentially generated by policy actions. This question was solved linking the *capability to generate competitiveness in sustainability* with the policy recommendations coming from other ESPON projects and new EU programmatic documents.

This process can be considered as evolution of an economic/territorial/environmental impact assessment (SEA DIR CE/42/2001); it becomes a first example of Territorial Impact Assessment (TIA). The value of impact is in fact produced by the effects of the policies on the indicators, using *correlation matrices* to assess the degree of risk of overtaking the carrying capacity threshold and the improvement in performance and competitiveness.

After the end of this phase, it is possible to start the one consisting of building the scenarios of Structural Funds allocations, according to the indications provided by the Capability Framework.

STeMA faced some issues that became operational steps, to contextualize (territorialisation) the measurement in order to compare the different territorial dimensions of the Lisbon/Gothenburg Strategy. STeMA solved this problem after having obtained the determinants values, linking those to regional typologies and building qualitative relations matrices to get a weighed value.

This project suggests (as added value) improving and pursuing the means of “Better Regulation”. This way was already anticipated in 2005 by the European Commission, who started several formal and informal initiatives. Among them was an **Impact Assessment proposal as a new method** for introducing a common support *within the framework of the Better Regulation package and the European Sustainable Development Strategy*. This proposal aroused great interest, since it could orientate further policy goals and choices differently. In fact, the Impact Assessment (of which the STeM Approach can represent an anticipation of in respect to the territorial dimension of Lisbon/Gothenburg Strategy) introduced a new method since 2002, integrating and replacing previous single-sector types of assessment.

*Impact assessment (IA) is a process aimed at structuring and supporting the development of policies. It identifies and assesses the problem at stake and the objectives pursued. It identifies the main options for achieving the objective and analyses their likely impacts in the economic, environmental and social fields. It outlines advantages and disadvantages of each option and examines possible synergies and trade-offs.*

**Impact assessment is an aid to political decision, not a substitute for it.** *It informs decision-makers of the likely impacts of proposals, but it leaves it up to them to take the decisions.*

This approach is particularly important if it is really aimed at carrying on a sustainable economic territorial growth, scheduled at 1,7-2% for 2006 and 2,5% for 2007 (the starting date of the new Structural Funds season). Of course, it requires the European Union to accept sustainability as a political stance permanently, as a principle for the period 2007-2013 and as an orientation for local/global (regional/national) European competitiveness<sup>10</sup>.

In particular, the *Territorial Impact Assessment (TIA)* could be an immediate and appropriate regulative instrument for introducing the territorial dimension and its cohesive potential into the Lisbon/Gothenburg Strategy. In fact, faced with the challenge of enlargement and increasing regional disparities, the European Commission proposed a restructuring of cohesion policy in order to adapt it to current needs.

To have knowledge of real current needs is made possible by the TIA (also seen in this context as a SEA evolution), because it helps both to identify the problems faced by cohesion policy, in the light of the financial perspectives too; and assess the coherence of the proposed reforms with regard to current and future challenges; and with the Lisbon and Gothenburg objectives. (European Parliament, 2005, *Adaptation of Cohesion Policy to the Enlarged Europe and the Lisbon and Gothenburg Objectives- Provisional Study*, Brussels).

On the other hand, the TIA, seen as a regulated aspect of the Open Co-ordination Method, could encourage new regions towards a greater commitment to increase competitiveness, and towards representing a greater consistency of their different competitive measures at European, national and regional levels. In fact the Lisbon priorities ought not to be identified entirely with those of the single countries or

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<sup>10</sup> During the last year, this topic has been discussed from 3.3 LP in several occasions (also some Espon seminars), to demonstrate that, if sustainable development is a long-term strategy and the deadline originally set for the Lisbon agenda is confirmed at 2010, it is possible to achieve both dimensions at EU level.

regions (European Parliament, 2005, p. iii), and this may not mean a leakage of competitive capability and cohesive vision.

The TIA could have another function from the European point of view: it allows the realisation of a mid-term review (after four years) in order to re-balance the Community's priorities and the regional strategies in the light of progress made or problems incurred by the use of the new Structural Funds. At the moment, it could seem hazardous to compare old and new Member States to predict their social and economic developments by access to the new Structural Funds: *"Increase conditionality on the results of structural interventions instead of on macro-economic developments, which do not necessarily bear any relation to programmes"* (European Parliament, 2005, p. iv).

## 2.2 Methodology for the final choice of project: the "A" case

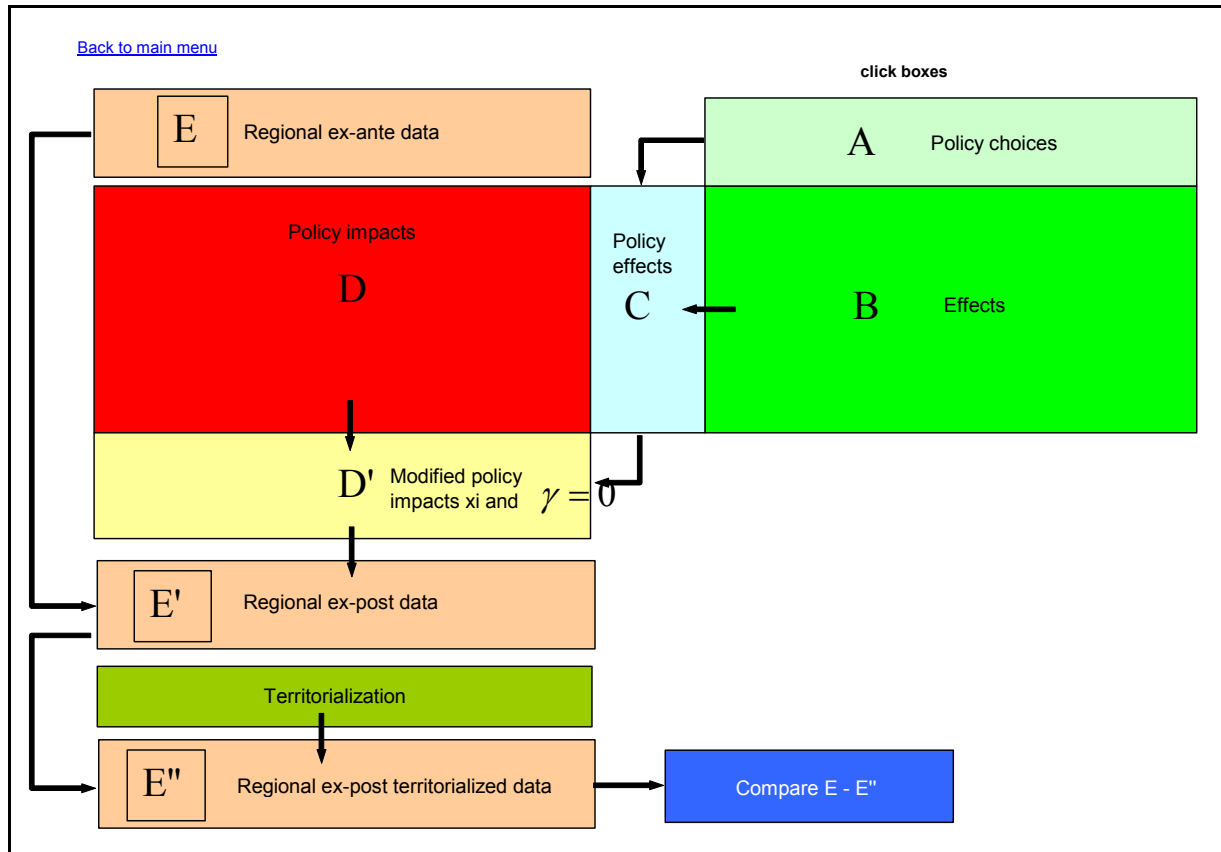
TIA is already an assessment procedure built into STeMA. Through the 3.3 GIS project and some special/dedicated coaxial matrices (Fig. 20) - one for each determinant of the Lisbon/Gothenburg Strategy - STeMA provides for:

- connecting the different calculations of the territorial dimension of the Lisbon/Gothenburg Strategy, weighing indicators and their combinations;
- completing the calculation of the territorialised synthetic index (territorial initial value of capability - TIVc) for each determinant (see Scheme in Figure 19, zone 'E').

Then:

- from the ESPON and EU projects analysis, a list of general and sectoral policy recommendations is built and introduced in four matrices (see Scheme in Figure 19, zone 'A'), one for each determinant;
- each policy list is weighed (gravity value) introducing these values in relationship with the single determinant (i.e., I&R, G/L Interaction, etc.) into a dedicated matrix (see Scheme in Figure 19, zone 'B');
- for each determinant a list is built of positive effects that the Lisbon/Gothenburg Strategy should produce. This list, different for each determinant, is introduced into single appropriate matrices (see Scheme in Figure 19, zone 'C');
- each single effect is weighed in relation to the determinant/indicators (quality value) to fix the desired policy (see Scheme in Figure 19, zone 'D') and calculate the relative impact (or territorial final value of capability - TFVc).

**Figure 19:** TIA matrix scheme of correlation (The design of the toolbox and the theory behind has been developed by the University of Rome “Tor Vergata”, also responsible for testing and using it within the ESPON 3.3 project; the software implementation is by MCRIT - Barcelona)



- A = list of *policies/actions*.  $a = 1, \dots, h, \dots, l$ . This list covers all the actions that a policy maker could follow in relation to Lisbon/Gothenburg strategies. This list is the same for each of the four determinants (matrices)
- B = contribution of the single action to obtain the correlated effect (the actions contribute with different weights; it could be that some actions don't contribute to produce a certain effect)
- C = list of *policy effects*. This list covers the effects correlated to different determinants. This list is different for each determinant (matrix)
- D = impact of the effects on the indicators
- E = list of *indicators*. This list contains the indicators used to calculate the determinant ex ante (E) and ex post (E') value and new territorialisation (E'')



**Figure 20 – Example of TIA Matrix for I&R Determinant**

Region Value (ex ante)		Lisbon / Gothenburg Agenda - Policies for:																																											
		Innovation				R&D		Human Capital		Age			Economic development			Employment		Transport/network		Natural Resources		Climate		Public Health																					
		Bridging digital divide	Technological/innovative dissemination for the enterprises and institutions	Support to transregional cooperative projects	Use/development of environmental friendly technologies	Policy coordination and assessment tools	R&D infrastructures	Support to E&T	Development of recycling technologies of waste	Supply of education	Human capital internationalisation	Reinvolvement of ageing people	Support leisure	Social integration	Child protection	Poverty reduction	Policy dissemination for inclusivity and affinity of handicapped	Cultural integration	Support Local productive identity	Promotion of a global enterprise culture	New business service instruments	Inflation control	Internationalisation of good and services	Homogenisation of enterprise costs	Support enterprise creation	Support employer mobility	Support equal opportunities	Development of telecommunication networks	Development of energy networks	Increase of physical accessibility	Use of renewable resources	Active Protection of Natural Resources	Reduction of Natural Resources consumption	Natural hazard prevention	Energy policies	Flexible Mechanisms	Climate Active Protection	Social Programme Financing	Safety	Support Welfare					
	Effects																																												
	population increase 'surfing in the web'	●	■	■	▲			■		■	■	▲	▲			▲	▲		▲	▲							■																		
	process/product innovation	■	●	▲				●	●	●	■		▲				▲	■	▲	■	▲				■			●			●	■	■	■	■	●	●	●				■			
	increase the access to the university education	■			●			■	■	■	▲																																		
	increase the access to the secondary education	▲			■	■		●	▲																																				
	increase of life-long learning	■	▲	▲		■		●	■	●	▲					▲																													
	reduce of social-exclusion risk (poverty)	■	■	■				■		■	●	●	■			■	■	■																							■	■	■		
	increase of relation infrastructures	■			●		■			■		●							■					■				●		●															
	increase level of aid to business creation		●	■	▲		■	●	■	■	■	■	■			■			■	■	■	■	■	■	■	■	■	▲	▲	■	■				▲				■						
	increase of cohesion between firms, institutions, population	▲	▲	■						▲	▲	▲	●	▲	●	●	●	■																									■	■	●
	increase of productivity		■	■	▲		■	●	■	■	■	■				●			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	sustainable technological change	■	●	▲	●	●	■	●	■	■	■	■	■			■			■	■	■	■	■	■	■	■	■	■			■	■	■	■	■	■	■	■	■	■	■	■	■		
Innovation & Research																																													
		Virtual Society				Knowledge Innovative Structures				Innovation Status quo																																			
	Internet Users	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
	Firm with internet access	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	available e-government services	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	universities students	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	Innovative dependency index	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	population with tertiary education	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	population in life-long learning	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	Science Parks that are members of the ISAP	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
	Business Innovation Centre	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	Universities and High Level Research Centres	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	ICT technologies	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	New technologies	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		




Then:

- the policy makers can choose the Lisbon/Gothenburg sectoral or general policy (one or more) that they feel as appropriate to apply this Strategy;
- STeMA, by GIS, calculates the effects and the impacts with regard to this choice and can suggest and sustain the final decisions about the use of Structural Funds;
- some territorialized scenarios (maps) of these future hypothetical choices will help policy makers to better examine the results.

In the following section the TIA procedure followed by STeMA is explained in detail.

### *Symbology*

We denote with different colours and geometric figures to indicate three weights that are preliminarily assigned to policies (B) and impacts (D) into matrix.

-  Low value = 1
-  Medium value = 2
-  High value = 3

The values in the matrices are to be considered as a starting point.

### *Operational procedures*

Below, we present the operational procedure applied to each matrix for building up the TIA process.

#### **Step 1**

Calculating in the matrices (Figs. 8, 9, 10, 11) the 'B' area

$\forall j$

$$\sum_{k=1}^m b_{jk} = B_j$$

with:

$B_j$  = the sum of values for each row, corresponding to red, blue, green symbols and related values for the whole of the policy choices;

$j$  = policy choice (0 = non choice; 1 = choice)

Red= 3

Blue= 2

Green= 1

**Example:** with regard to the first line of the R&D matrix for effect "Innovative capability improvement". In this case, if a policy maker should choose all defaults for obtaining this effect,  $b_j$  (with  $j = 1 \dots n$ ) should be:  $6 \times 3 (= 18) + 4 \times 2 (= 8) + 2 \times 1 (= 2) = 28$

Put  $28 = 100\% =$  maximum effect potential if our policy-maker should choose all the policies in the list for having that effect.

## **Step 2**

The choice of actions:

A button was created to let the policy maker choose the actions ( $a_h$ ) s/he wants. If the policy maker would like to choose only some policies, the formula that GIS must use is the one at STEP 3.

## **Step 3**

So it is possible to use only the formula into STEP 3 in each case.

In fact if a policy maker would like to choose only 2 policies (e.g. "Bridging digital divide" and "Supply of education"), their potential effect should be  $=3 + 3 = 6$ , and the sum into STEP 3 should be  $= 6$

Taking into account only the actions ( $a_h$ ) chosen, now you have to calculate

$\forall j$

$$\sum_{k=1}^m b_{jk} = B'_j$$

Note that  $B'_j \leq B_j$

## **Step 4**

This formula permits the policy maker to calculate the impact of the chosen policies.

Example from STEP 3:  $100/28 \times 6 = 21,43 \%$ . This the real effect

$$c_i = \frac{100}{B_j} B'_j = \%$$

## **Step 5**

Go to the left part of the matrix and look at the indicator column, for example the "R&D expenditure". In this case the sum of red, blue and green values in the column must be made, because each column represents the sum of the impact of each effect on the indicator (without territorialisation, to simplify the operational procedure). Then only put the indicators at the base of the matrix.

**Example:** The "R&D expenditure" indicator receives the 1 effect "Innovative capability improvement" at 100% if the policy maker has chosen all the recommended policies.

$\forall q$

$$\sum_{p=1}^t d_{pq} = D_q$$

## **Step 6**

If the policy maker has chosen only to realise the effect in the previous example ( $= 21,43\%$  for one line, but it must have made this calculation for all lines effects), we will have the situation that the values of red, blue, green reduce their initial value in percentage terms (according to the value of  $c_i$ ).

Then:

$$d'_{pq} = d \times c_i \text{ (or } c_i/a_h \text{ as you have called } c_i \text{)}$$

STeMA called the columns red, blue, green symbols **D**

### **Step 7**

Now, make the sum of all  $d'_{pq}$  of the column;

$$\forall q$$

$$\sum_{p=1}^I d'_{pq} = D'_q$$

Note that  $D'_p \leq D_p$

This is the sum of potential decrements in column for each indicator.

**Example:** if  $c_i = 21,43\%$  and  $d=3$ ,  $d'_{pq} = 0,6432$

### **Step 8**

Now it calculates how this new value is moved away in % from the total decrement calculated in the original matrix (the values that it puts on the left part)

Use the following formula:

$$x_i = \frac{100}{Dq} D'_q = \%$$

**Example:** if  $Dq$  was 14 (as initial total value),  $x_i = \frac{100}{14} 1,6432 = 83,17\% = +3$

### **Because:**

$$\gamma = 0 \text{ if } 0 \leq x'_p \leq 24$$

$$\gamma = +1 \text{ if } 25 \leq x'_p \leq 50$$

$$\gamma = +2 \text{ if } 51 \leq x'_p \leq 75$$

$$\gamma = +3 \text{ if } 75 \leq x'_p \leq 100$$

**where**  $+\gamma$  is the increment that the indicator assumes for (positive) effect of policy choice.

**Example:** if your determinant final value for region AT11 Burgerland is C, C+3 is > than A (max limit) and the policy maker must choose minus policies (see STEP 9).

### **Step 9**

Now you look at the initial value of indicators ( $e_u$ ). This value comes from the ex ante calculation (see DBF files that we need to map).

This original value  $e_u$  will change according to the effect of the previous calculated impacts and it will begin  $e'_u$ .

The indicators initial (ex ante) values are A, B, C, D, and so their final values will be:

$$e'_u = e_u + \gamma$$

with

$$\gamma = 0 \text{ if } 0 \leq x'_p \leq 24$$

$$\gamma = +1 \text{ if } 25 \leq x'_p \leq 50$$

$$\gamma = +2 \text{ if } 51 \leq x'_p \leq 75$$

$$\gamma = +3 \text{ if } 75 \leq x'_p \leq 100$$

All the theoretical possible combinations are presented as follows:

D+3=A D+2=B D+1=C	C+3=more than A <b>(choice minus policies)</b> C+2=A C+1=B	B+3=A2 <b>(policy not needed)</b> B+2=A1 <b>(policy not needed)</b> B+1=A	A+3=A3 <b>(policy not needed)</b> A+2=A2 <b>(policy not needed)</b> A+1=A1 <b>(policy not needed)</b>
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That is, if  $e_u = D$  and  $\gamma = +2$  so  $e'_u = D+2 = B$ .

If the impact overcomes the A value

that is, if  $e_u = B$  and  $\gamma = +2$  so  $e'_u = A1$ .

GIS included a pop-up comparing the old and new values of each indicator underlying those that overcome the A value.

### **Step 10**

Re-calculate the determinant value (according to the old matrices and process)

### **Step 11**

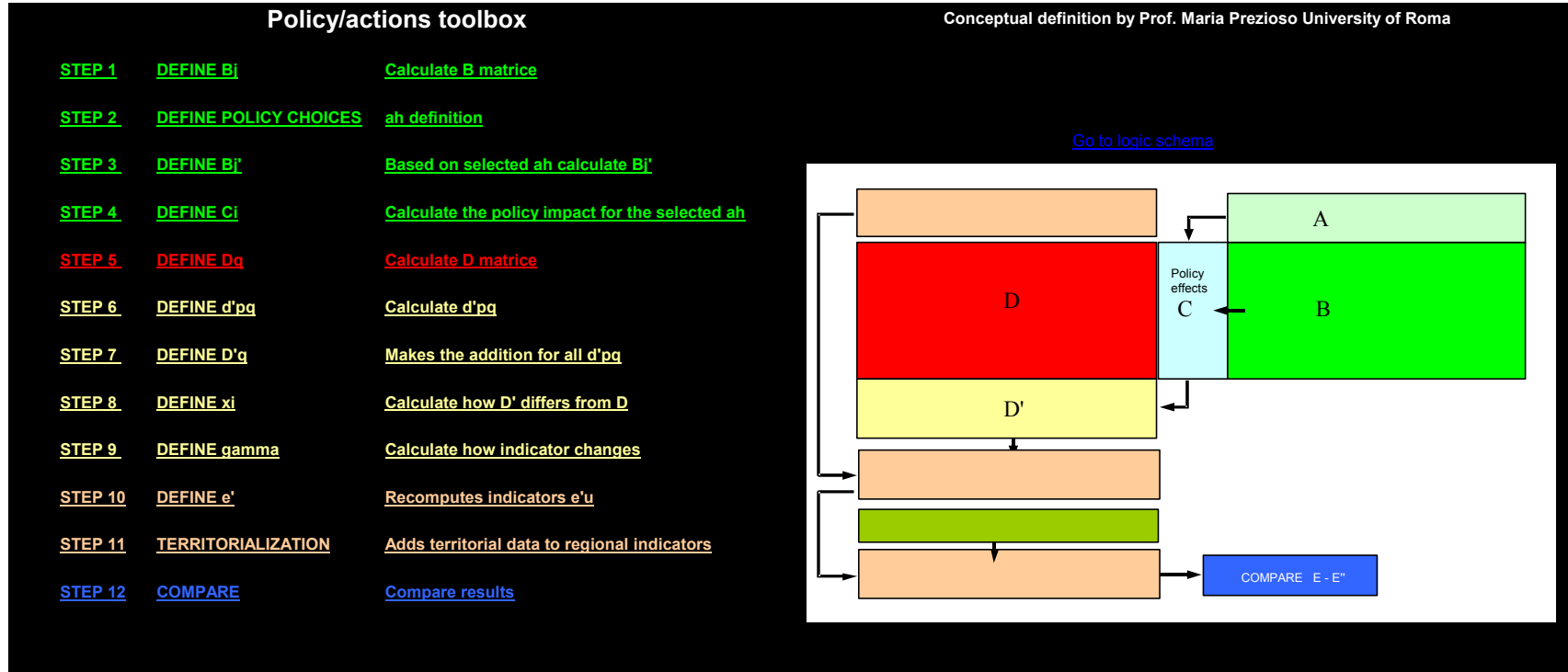
Territorialize this new determinant value (see territorialisation Table 12). Please note that it has to use the matrix in the same way that you used the matrices to calculate the determinant value.

### **Step 12**

Insert a pop-up comparing the old and new values for each determinant

Now you can play the TIA game changing the policy value from 1 to 0

Figure 21: 3.3 final TIA toolbox



To see the whole regional list of ex ante, ex post, spatial, territorial data and values and the list of policies, please, open the following EXCEL files

[TIA I&R.xls](#)

[TIA G&L.xls](#)

[TIA Quality.xls](#)

[TIA R&F.xls](#)

## 2.2.1 Territorialisation typologies of the “A” case at NUTS2 and NUTS3

In order to assess the spatial impacts of different sectorial policies, relevant for the implementation of the Lisbon/Gothenburg Strategies, it was necessary to define a territorial typology for STeMA (see Fig. 1, STEP SIX, territorialisation). Building on this approach has permitted the verification of the application of the territorial development policy framework, as formulated in the ESDP (especially with regard to the concepts of *polycentricism*, *urban-rural relations* and *accessibility*) and their contribution to *spatial cohesion* in Europe.

In order to respond to the above mentioned objectives, both assessing the territorial dimension of the Lisbon/Gothenburg Strategies and identifying the extent to which the policy framework as defined in the ESDP has been integrated, we followed a series of relevant criteria (Tab. 4), as given below:

- i) to secure the ‘representability’ and geographic diversity of the EU;
- ii) to take into consideration a variety of spaces, keeping in mind:
  - a. the population structure and its incidence in areas with urban and rural characteristics (via typologies referring to the Functional Urban Areas and to urban-rural relationships);
  - b. the relationships between urban and rural areas via the typology referring to urban-rural relationships);
  - c. the cities’ growth dynamics (via the typology referring to the Functional Urban Areas/MEGAs);
  - d. accessibility/connectivity, introducing a dimension of territorial integration that deals with spatial integration capacity (via the typology referring to the Functional Urban Areas/MEGAs);

As the 3.3 Tender pointed out, the sample of proposed regions was selected as a function of the typologies of regions developed within the ESPON Programme, specifically those from Project 1.1.1. – “The role, specific situation and potentials of urban areas as nodes in a polycentric development” (2002-2004) and Project 1.1.2. – “Urban-rural relations in Europe” (2002-2004).

- iii) to secure a multi-level approach. A multi-level approach allows for an assessment of whether or not a polycentric spatial organisation exists, and in what way this organisation contributes towards the increase of economic competitiveness in such spaces. In that case it was important to create the conditions for an analysis of the level of trans-national or trans-border **integration/co-operation**, thus illustrating the importance of the EU INTERREG III Initiative (in domains such as infrastructure, support for economic activity, rural development, etc.) in the increase of spatial cohesion.



**Table 4** - Summary of criteria for the selection of typologies case studies

<b>Criteria</b>
i) Geographic representatively of the EU
ii) Variability of spaces considering different economic, social and settlement structures
iii) Multi-level analysis (NUTS2 and NUTS3) and Multi-regional scope (trans-national and trans-border regions)

This facet is particularly evident in the larger FUA, where the phenomenon of metropolisation is directly linked to territorial and spatial competitiveness, with a variety of implications for cohesion and sustainability. In this sense, it appears pertinent that the EU regions should fit into an approach engendered by multidimensional spatial principles that must take these three fundamental objectives/principles into account.

*Brief overview of the typologies presented in the ESPON Programme*

Of the series of typologies presented in the ESPON Programme, two stand out for their evident spatial dimensions: Project 1.1.1 and Project 1.1.2. For this reason, they were chosen as the starting point in the territorialisation study.

ESPON Project 1.1.1 identifies 1595 Functional Urban Areas (FUAs) with more than 50,000 inhabitants, of which 149 are metropolitan areas and 76 were classified as *Metropolitan European Growth Areas (MEGAs)*. The *Pentagon*, defined as the centre of Europe (delimited by London, Hamburg, Munich, Milan and Paris), is part of these MEGAs.

**Table 5:** Classification of the 76 MEGAs (source: ESPON Project 1.1.1)

<i>MEGA Global Nodes</i>	<i>Category1 European Engines</i>	<i>Category 2 Strong MEGAs</i>	<i>Category 3 Potential MEGAs</i>	<i>Category 4 Weak MEGAs</i>
<b>London Paris</b>	Amsterdam Barcelona Berlin Brussels Copenhagen Frankfurt Hamburg Madrid Milan Munich Rome Stuttgart Zurich	Athens Cologne Dublin Düsseldorf Geneva Gothenburg Helsinki Manchester Oslo Stockholm Vienna	Aarhus Antwerp Bergen Edinburgh Glasgow Birmingham Palma de Mallorca Bern Bilbao Bologna Bratislava Bremen Budapest Lille Lisbon Luxembourg Lyon Malmö Marseille Nice	Bordeaux Bucharest Cork Gdansk-Gdynia Genoa Katowice Krakow Le Havre Ljubljana Lodz Naples Porto Poznan Riga Seville Sofia Southampton Szczecin Tallinn Timisoara

			Prague Rotterdam Toulouse Turin Valencia Warsaw	Turku Valetta Vilnius Wroklaw
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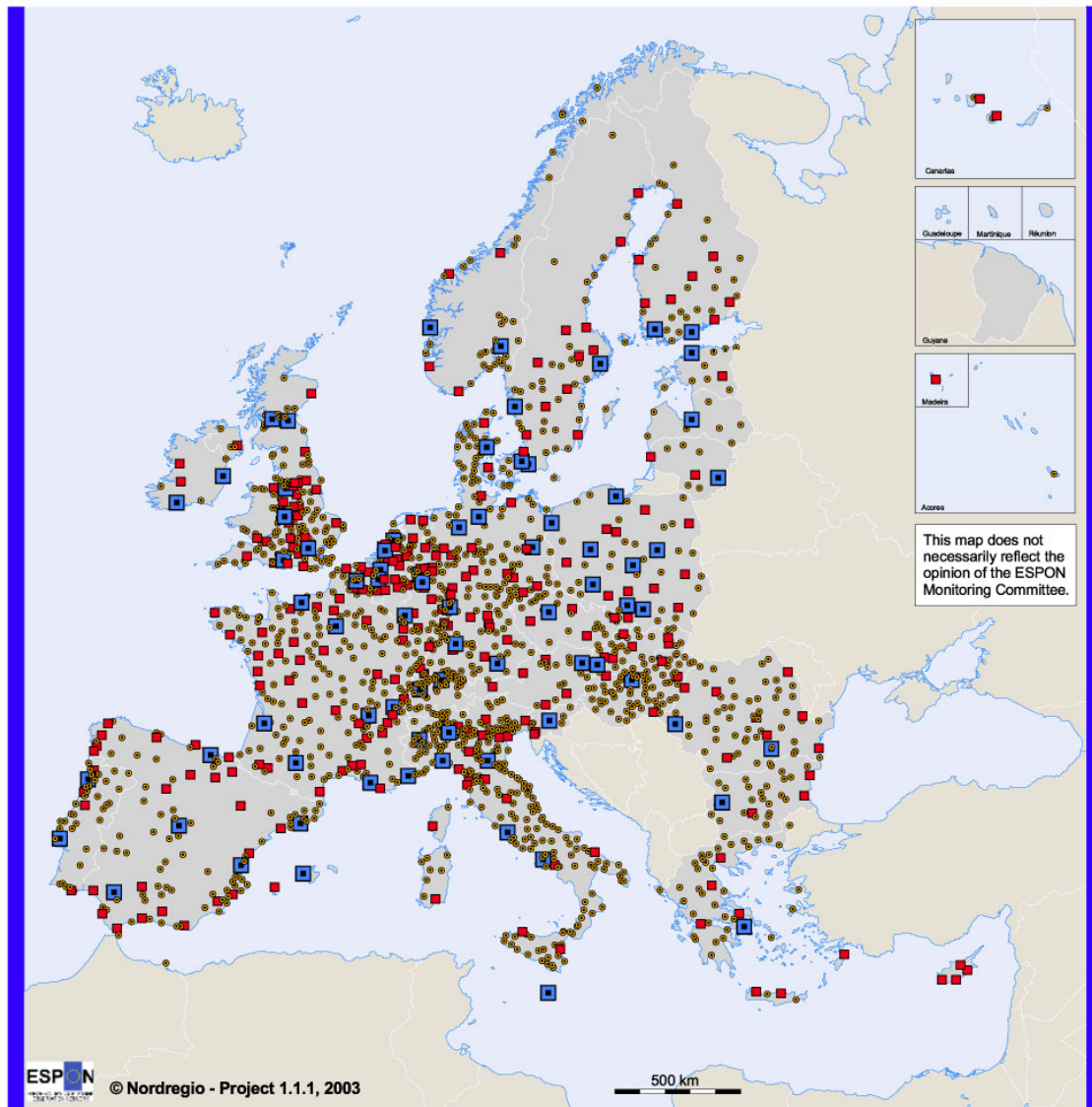
The 76 MEGAs can be grouped into five categories, which in their totality comprise the **urban system at the European scale**:

- Global nodes (2 MEGAs) – include the largest and most competitive urban systems with high connectivity;
- European Engines (13 MEGAs) – correspond to large, highly competitive cities, possessing strong human capital and good accessibility;
- Strong MEGAS (11 MEGAs) – include cities that are relatively large, competitive and often possessing strong human capital;
- Potential MEGAS (26 MEGAs) – smaller, with lower competitiveness, more peripheral and weaker human capital;
- Weak MEGAS (24 MEGAs) – usually small, less competitive, more peripheral and with lower human capital figures than Potential MEGAs.

This MEGAs typology includes a group of regions outside of the *Pentagon* possessing development potential and that, because of this, are capable of contributing towards the construction of a more polycentric European urban system. We are referring to some “Strong MEGA” and some “Potential MEGA”, which were included in the typologies case studies sampling (Fig. 22).

**Figure 22:** Typology of Functional Urban Areas  
 (Source: Project 1.1.1. – “The role, specific situation and potentials of urban areas as nodes in a polycentric development (2002-2004)”, Final Report, p. 10)

**Typology of Functional Urban Areas (FUAs)**



- Metropolitan European Growth Areas (MEGAs)
- Transnational / national FUAs
- Regional / local FUAs

Geographical Base: Eurostat GISCO  
 Origin of data: EUROSTAT, National Statistical Offices, National experts

Source: Nordregio

Along with the MEGAs typology that characterises the urban system at the European scale, a second index **was related** to this that measures the potential for polycentricity based on morphological proximity, by identifying territories referred to as *Potential Urban Strategic Horizons (PUSH)*<sup>11</sup>.

In defining the typology presented in Project 1.1.2 (Fig. 23), the following two dimensions of analysis were taken into consideration:

<sup>11</sup> For each FUA, the area reached within 45 minutes by car from a FUA centre was calculated (travel time).

- the ***degree of urban influence***<sup>12</sup>, defined according to population density and status of the leading urban centre of each NUTS3 area;
- the ***degree of human intervention***<sup>13</sup>, measured by the relative share of land cover according to the main land cover classes of the CORINE data set (artificial surfaces, agricultural areas and residual land cover).

According to their urban-rural characteristics, the following six different regional types were identified:

1. High urban influence, high human intervention;
2. High urban influence, medium human intervention;
3. High urban influence, low human intervention;
4. Low urban influence, high human intervention;
5. Low urban influence, medium human intervention;
6. Low urban influence, low human intervention.

The **classification** took these six regional categories into consideration, as they portray differentiated facets of organisation and land use and, therefore, contribute towards a response to questions such as: i) how to confirm the importance of small and medium-sized cities in peripheral regions as anchors of regional competitiveness and instruments of spatial cohesion (in their urban-rural relationships); ii) how to characterize the dynamics of competitiveness and cohesion in regions with a sprawling urban population system; or iii) how to assess the importance of connectivity/accessibility in spatial integration at various geographical scales.

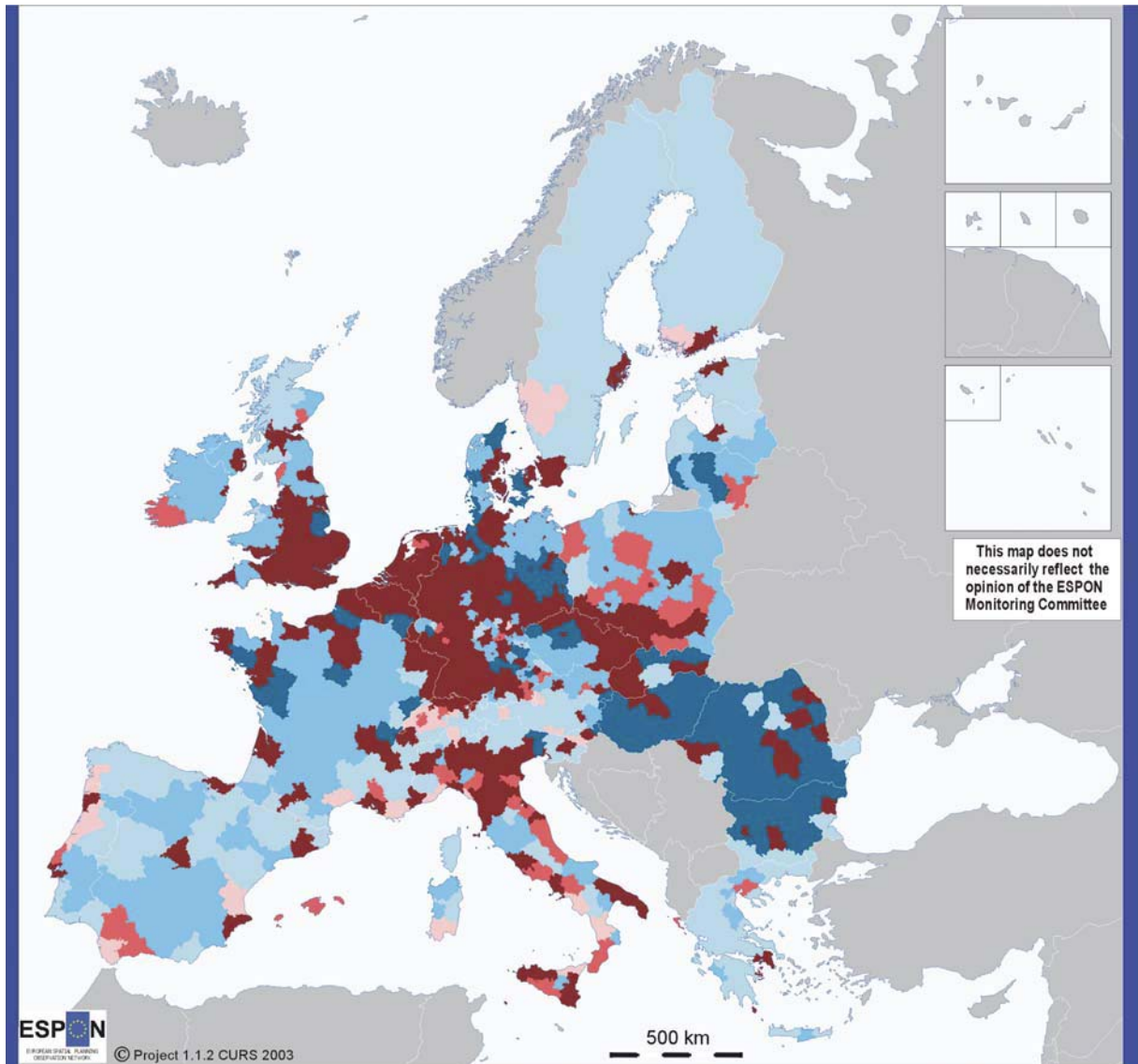
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<sup>12</sup> *Degree of urban influence*: population density above EU 25+4 average and/or at least a European Level Functional Urban Area according to ESPON 1.1.1. typology.

<sup>13</sup> *Degree of human intervention* was determined by the relative share of land cover according to the main land cover classes of the CORINE data set. The main classes are *artificial surfaces*, *agricultural areas*, and *residual land cover*. The European average of *artificial land cover* is 3.48 percent of the total land cover. The corresponding figure of *agricultural land* is 50.36 and of the *residual group* it is 46.16. The classes are:

- "*High human intervention* corresponds to a situation where the share of artificial surfaces (and possibly one of the two other land cover categories) is above the European average;
- *Medium human intervention* equals the cases where the share of agricultural land (and possibly the share of residual land cover) is above the European average;
- *Low human intervention* concerns all cases where only the share of residual land cover is above the European average".

**Figure 23:** Urban-Rural Typologies (Source: Project 1.1.2. – “Urban-Rural Relation in Europe (2002-2004)”, Final Report, pp. 29)



**Urban-rural typology, based on population density, FUA ranking and land cover**

- High urban influence, high human intervention
- High urban influence, medium human intervention
- High urban influence, low human intervention
- Low urban influence, high human intervention
- Low urban influence, medium human intervention
- Low urban influence, low human intervention

The criteria for urban influence:

- Population density above the average (107 inhabitants/km<sup>2</sup> in EU25+4)
- And/or at least a European level functional urban area (based on typology made by ESPON Action 1.1.1)

Degree of human intervention is estimated through the average shares of land covers (in EU23+3, no data on Cyprus, Malta and Norway):

- High human intervention: at least the share of artificial surfaces above average (3,48%)
- Medium human intervention: at least the share of agricultural land above average (50,36%)
- Low human intervention: only the share of residual land use above average (46,16%)

© EuroGeographics Association for the administrative boundaries

Ranking of Functional Urban Areas (FUAs):  
Origin of data: EUROSTAT, National Statistical Offices, National experts  
Source: Nordregio, ESPON Data Base

Population density:  
Origin of data: EU15 and CC's: Eurostat  
Norway and Switzerland: National Statistical Offices  
Time reference: 1999

Land cover types:  
Origin of data: EEA, Corine Land Cover 90

Source: ESPON Data Base

**Table 6:** Examples of regions in the Typology of urban-rural relations (Source: **adapted from** Project 1.1.1. – “The role, specific situation and potentials of urban areas as nodes in a polycentric development” (2002-2004), Final Report)

Typology of urban-rural relations	Examples of regions
<b>High urban influence, high human intervention</b>	Benelux countries, a huge part of western Germany, most of England, most of northern Italy and parts of middle and south of Italy constitute a strong line of high urban influence and human intervention stretching from the west of Germany through the east to southern Poland, northern Czech Republic down to the west of Slovakia and Hungary. Scattered areas are to be found around the national capitals in particular and some of the seashores of the Mediterranean and the Atlantics.  E.g. CATALUNHA, EAST DERBYSHIRE, EAST LOTHIAN AND MIDLOTHIAN, EAST MERSEYSIDE, EAST OF NORTHERN IRELAND, EAST RIDING OF YORKSHIRE, EAST SUSSEX CC, GENOVA, GENT (ARRONDISSEMENT), LEUVEN, MADRID, MILANO, NOORD-DRENTHE, NOORD-FRIESLAND, NOORD-LIMBURG, RHONE, VENEZIA, GRANDE LISBOA
<b>High urban influence, medium human intervention</b>	BALEARES, FERRARA, LUZERNA, MALAGA, PESCARA, ZUIDWEST-FRIESLAND
<b>High urban influence, low human intervention</b>	North (Finland and Sweden), the alpine countries (Austria, Switzerland) Portugal and the Mediterranean countries (Spain, France, Italy)  E.g. BAIXO MONDEGO, BERCHTESGADENER LAND, BERN, CADIZ, CAGLIARI, VALENCIA
<b>Low urban influence, high human intervention</b>	Lithuania (KAUNO (APSKRITIS)) former GDR, Hungary, Romania, Bulgaria Parts of Denmark and France (BASTOGNE)
<b>Low urban influence, medium human intervention</b>	Part of Portugal, Spain, part of France  E.g. ALTO ALENTEJO, ALTO TRAS-OS-MONTES, HAUTE-MARNE, HAUTE-SAONE, HAUTE-VIENNE, PERUGIA, PIACENZA, SEGOVIA
<b>Low urban influence, low human intervention</b>	Finland and Sweden in the north, Ireland in the west and Greece in the southeast  E.g. DOURO, GIRONA, HUELVA, EVROS, EVRYTANIA, L'AQUILA, PYRENEES-ORIENTALES, BRATISLAVSKÝ, AALAND

*The selection of a territorial typology useful for the territorialisation of spatial data*

The analysis took into account the differences between “Regional/Local functional areas” and “No special function areas”, and, in addition, the fact that more depopulated areas are separated from rural areas where we can find medium-sized cities with regional/local economic bases.

Reminded of that, we also considered the following questions of contention:

- to identify the more competitive and dynamic territories based on knowledge and innovation and to relate them with urban and regional characteristics;
- to find out if urban centres and metropolitan agglomerations play a crucial role in providing the framework conditions for a knowledge-based economic development;

- to understand the polycentric model at different scales, including the dynamics of urban growth centres and linking peripheral and disadvantaged areas with urban centres (ESPON, Terms of Reference, 2004)

Considering these three main arguments, the TPG has chosen a significant set of typologies of territories for the Lisbon/Gothenburg Strategy territorialisation (to calculate the territorial dimension of the project).

In order to provide a territorial typology, it considered:

- the population structure and its incidence in areas with urban and rural characteristics (via typologies referring to the Functional Urban Areas and to urban-rural relationships);
- the relationships between urban and rural areas (via the typology referring to urban-rural relationships);
- cities' growth dynamics (via the typology referring to the Functional Urban Areas/MEGAs) and accessibility/connectivity. This typology shows also the spatial integration capacity (via the typology of FUA) that represents different competitiveness profiles and distinct patterns of social cohesion and environmental sustainability.

The classification of territories was developed in different steps, starting with the crossing of the urban-rural typology and the FUA.

The urban-rural typologies took into account 6 different regional types:

1. High urban influence, high human intervention;
2. High urban influence, medium human intervention;
3. High urban influence, low human intervention;
4. Low urban influence, high human intervention;
5. Low urban influence, medium human intervention;
6. Low urban influence, low human intervention

Concerning the functional urban areas, they took into account 4 classes:

0. No special function
2. Regional/Local
3. Trans-national/National
4. MEGA

These two typologies give quite a complete picture of European territorial diversity in four dimensions that include settlement structure and the urban level of development. Because they are "composite" indicators, they also "integrate" the concept of accessibility (especially in the 1.1.2. typology) and the economic performance/agglomeration effects (especially in the 1.1.1. typology).

After combining these two typologies, we got a third classification that gives a new territorial typology that covers the territorial diversity of Europe in the four 'pointed' dimensions.

**Table 7:** Number of NUTS3 according to the crossing of the two typologies

URBAN-RURAL TYPOLOGY	FUA Typology				Total NUTS3
	0. No special function	2. Regional/ Local	3. Trans-national/ National	4. Mega	
1. High urban influence, high human intervention;	241	256	129	66	692
2. High urban influence, medium human intervention;	15	31	7	6	59
3. High urban influence, low human intervention;	4	15	14	4	37
4. Low urban influence, high human intervention;	36	67	28		131
5. Low urban influence, medium human intervention;	57	111	29		197
6. Low urban influence, low human intervention	63	99	43		205
Total of NUTS3	416	579	250	76	1321

Nevertheless, the implementation of this methodology (combining the 1.1.1. and 1.1.2. typologies) has a problem that must be pointed out. The unavailability of information for the new accession countries (namely more specific indicators, time series and different NUTS levels), and from some other countries has been solved by choosing alternative indicators as a proxy, that could represent the same phenomena of the 1.1.1. and 1.1.2. typologies (population density, accessibility index and urban network, indicators available in ESPON database).

Table 6 shows 24 different classes, 21 with statistical units and 3 empty ones, which have, by necessity, had to be aggregated to a smaller number.

A third different aggregation was made in order to highlight the real difference between the “regional/local areas” and the “no special function areas”.

**Table 8:** The final choice in 7 classes

URBAN-RURAL TYPOLOGY aggregation	FUA_TYPO			
	0. No special function	2. Regional/Local	3. Trans-national /National	4. MEGA
1,2,3	241	256	129	66
	15	31	7	6
	4	15	14	4
4,5,6	36	67	28	
	57	111	29	
	63	99	43	



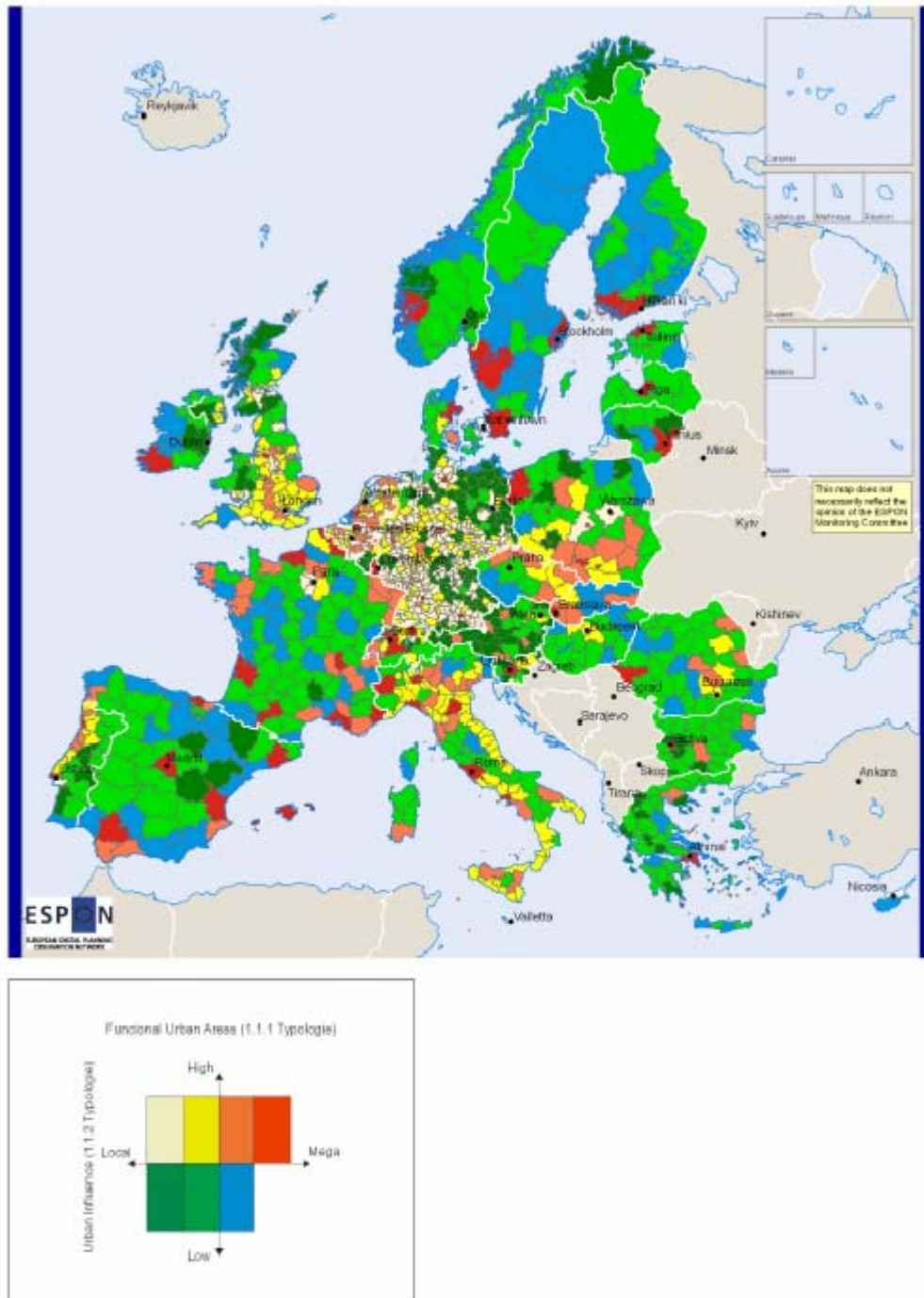
This classification resulted in 7 classes:

- Class 1 - High urban influence, with MEGA functions
- Class 2 - High urban influence, with Trans-national or National functions
- Class 3 - High urban influence, with Regional/Local functions
- Class 4 - High urban influence, with no special function
- Class 5 - Low urban influence, with Trans-national or National functions
- Class 6 - Low urban influence, with Regional/Local functions
- Class 7 - Low urban influence, with no special functions

**Table 9:** The 7 classes' classification

URBAN-RURAL TYPOLOGY aggregation	FUA_TYPO			
	0. No special function	2. Regional/ Local	3. Trans-national /National	4. MEGA
1,2,3	High urban influence with No special function	High urban influence with Regional/Local functions	High urban influence with Trans-national or National functions	High urban influence with Mega functions
4,5,6	Low urban influence with No special function	Low urban influence with Regional/Local functions	Low urban influence with Trans-national or National functions	

**Figure 24:** Territorial base at NUTS3



The main differences from other hypotheses (see T.I.R.) are:

- Class 3 and 4, that distinguish the situation of urbanised territories with or without functional roles, which gave different types of territories:
  - a. Class 3 – urbanised areas with small and medium-sized cities;
  - b. Class 4 – urbanised territories where urban agglomerations have no special functional role – sprawl settlement under other territorial influence, namely related with the “metropolisation” process (under the influence of MEGAs) and with a smaller area (like Val d’Oire, Essonne near Paris, Solihull near Birmingham, East Merseyside and Sefton near Liverpool, Potsdam near Berlin

or Zasavska near Ljubljana or Peninsula de Setubal near Lisbon).

- Class 6 and 7, that distinguish the situation of low urbanised territories with or without functional roles, which gave different types of territories:
  - a. Class 6 – underlining the role of small and medium-sized cities in low density areas with several examples in Spain (Caceres, Badajoz, Toledo), Portugal (Baixo Alentejo - Beja, Alentejo Central - Évora), France (Ardennes – Reims) or Italy (Siena or Bari)
  - b. Class 7 – corresponding to low density areas.

### *Typology of territories at NUTS2*

This part is linked to the **methodological steps of NUTS3 choice**:

1. Departure information: in 7 classes that reflect the criteria of NUTS3 classification proposed in this work (see TIR, the Hypothesis C) that links two main classifications:
  - the population structure and its incidence in areas with urban and rural characteristics (via typologies referring to the Functional Urban Areas and to urban-rural relationships); the relationships between urban and rural areas via the typology referring to urban-rural relationships);
  - cities' growth dynamics (via the typology referring to the Functional Urban Areas/MEGAs) and accessibility/connectivity, introducing a dimension of spatial integration that deals with spatial integration capacity (via the typology of FUA) that represents different competitiveness profiles and distinct patterns of social cohesion and environmental sustainability,
2. Identification of all NUTS3 (Group) that are included in each NUTS2;
3. In each Group, choice of the maximum value of "FUA Typology" and the minimum value of "Urban-rural typology"; subsequent choice of the distribution of values in the 7 previously determined classes of NUTS3.

**Table 10:** Example of territorial typologies

NUTS3	URBAN_ RURAL_ TYPOLOGY	FUA_ TYPO	Final Class of Hypothesis C	NUTS2	URBAN_ RURAL_ TYPOLOGY	FUA_ TYPO	Final Class of Hypothesis C
BE211	1	4	1	BE21 Antwerp	1	4	1
BE212	1	2	3				
BE213	1	0	4				
ES511	1	4	1	ES51 Cataluña	1	4	1
ES512	6	2	6				
ES513	6	2	6				
ES514	5	3	5				
IT601	5	2	6	IT6 Lazio	1	4	1
IT602	6	2	6				
IT603	1	4	1				
IT604	2	2	3				
IT605	2	2	3				

4. This method assumes that the NUTS2 level is hierarchical above NUTS3, which means that NUTS2 should reflect more the important characteristics of the territories. Thus if one NUTS2, includes one NUTS3 with a “MEGA” (Functional Urban Areas Typology) and a very “High urban influence, high human intervention”, we choose those characteristics to represent **all the NUTS2**. This shows that we necessarily lose information (namely the information of the other NUTS3), but at the same time, guarantee that in the conversion process we highlighted the more important level characteristics.
5. Two main aspects for this methodological approach were highlighted and taken into account in the analysis of the determinant results:
  - First of all, the heterogeneity of NUTS2 physical dimension, that introduces problems of interpretation of data (e.g. Density) or geographical units (e.g. Compare German regions with Spanish one’s);
  - Second, the typology of NUTS2, presented in this exercise could be interpretive in a “political dimension”, which means that, despite the differences between NUTS3 classified in the same class, the political and financial intervention, namely supported by structural funds, reflects NUTS2 organization.

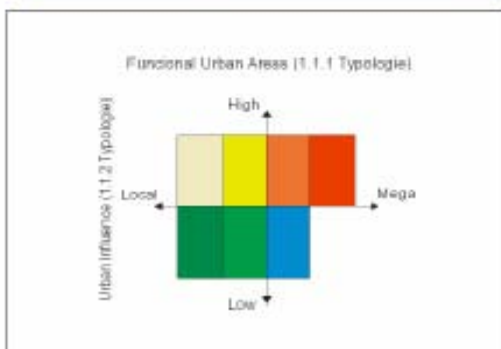
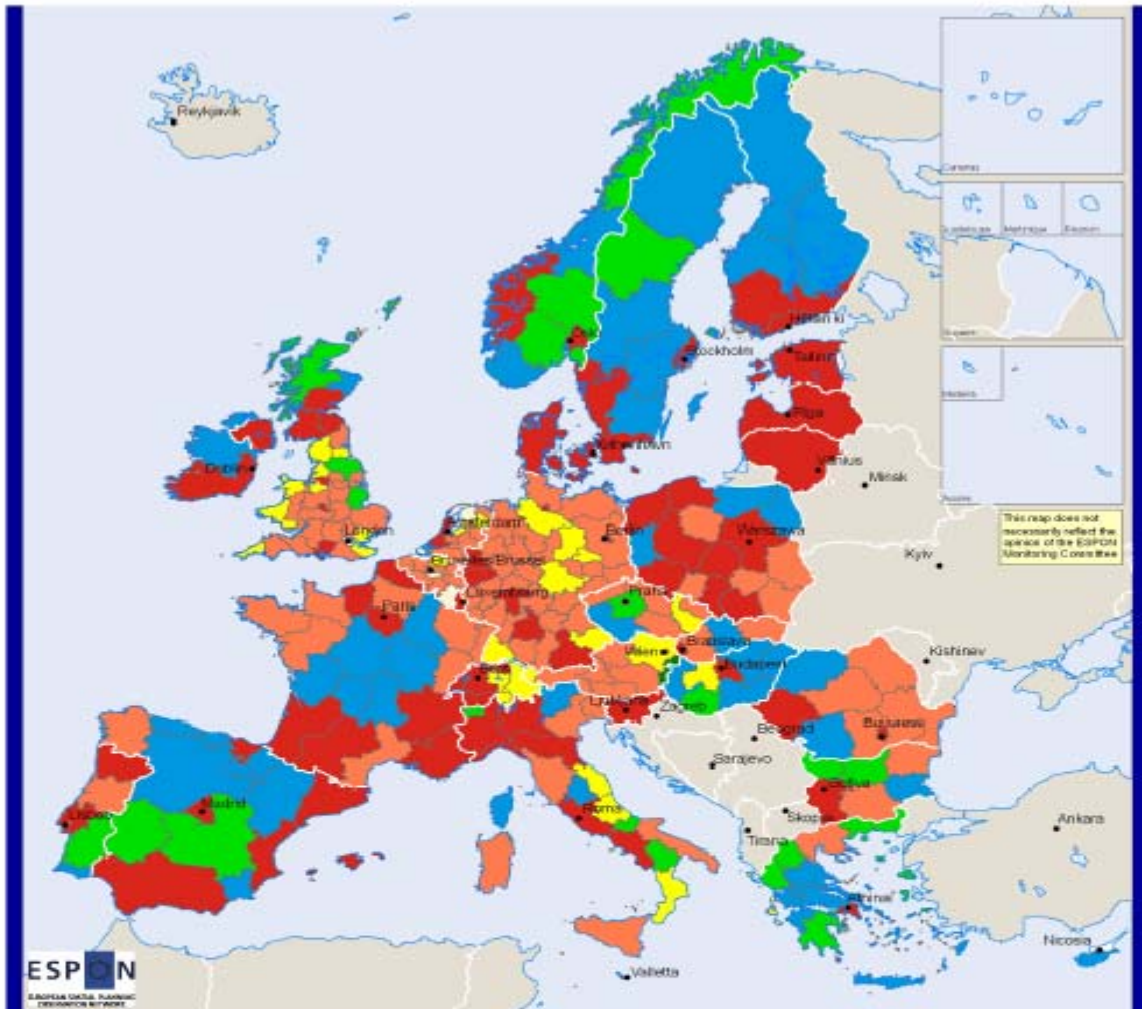
**Table 11:** Variation Coefficients defining typologies

	Variation Coefficient By NUTS2 of Urban-Rural classification	Variation Coefficient By NUTS2 of Urban-Rural classification
	<50%	>=50%
Class 1 - High urban influence with MEGA functions	1	2
Class 2 - High urban influence with Trans-national or National functions	3	4
Class 3 - High urban influence with Regional/Local functions	5	6
Class 4 - High urban influence with no special function	7	-
Class 5 - Low urban influence with Trans-national or National functions	8	-
Class 6 - Low urban influence with Regional/Local functions	9	-
Class 7 - Low urban influence with no special functions	10	-

This type of approach allows one to construct an indicator which includes not only the information on the current situation according to its own specificities, but also on the real dynamics of the actions that enable a given goal to be reached: in this case we turn from simple territorial competitiveness to the capability to generate territorial competitiveness in sustainability.

The correlation matrices between territorial basic typologies and indicators/determinants is shown and described below in Table 12.

**Figure 25:** Territorial base at NUTS2



**Table 12:** Interaction matrix between indicator and Territorial typologies

Determinant	Value	1 High urban influence with MEGA functions (A1)	2 High urban influence with Trans-national or National functions (B1)	3 High urban influence with Regional/Local functions (C1)	4 High urban influence with No special function (D1)	5 Low urban influence with Trans-national or National functions (E1)	6 Low urban influence with Regional/ Local functions (F1)	7 Low urban influence with No special function (G1)
		I & R	A	A	A	B	B	C
	B	A	B	B	C	D	D	E
	C	B	B	C	D	D	E	F
	D	C	C	C	D	E	F	F
G/L	A	A	A	B	B	C	C	D
	B	A	B	B	C	D	D	E
	C	B	B	C	D	D	E	F
	D	C	C	C	D	E	F	F
Q	A	A	A	B	B	C	C	D
	B	A	B	B	C	D	D	E
	C	B	B	C	D	D	E	F
	D	C	C	C	D	E	F	F
R & F	A	A	A	B	B	C	C	D
	B	A	B	B	C	D	D	E
	C	B	B	C	D	D	E	F
	D	C	C	C	D	E	F	F

cross values

A	absolute
B	very high
C	high
D	medium low
E	low
F	very low

### 2.2.2 *The G.I.S. as a "toolbox" to manage the process and data*

The logical network toolbox (provisional name), is an easy and intuitive instrument to define and compute regional determinants and policies for a more competitive and sustainable development of Europe.

#### Understanding policy-concepts

The concept of "territorial competitiveness", in policy terms, is a highly abstract concept, and has an elusive meaning. Its better understanding requires its decomposition into determining factors, or Determinants (e.g. "Efficient use of resources"...), that should be further decomposed in typologies, sectors and categories; the latter can, finally, be somehow "explained" by quantitative indicators, built up from indexes or more simple statistical descriptors. While determinants, typologies and sectors are composite elements, categories are, instead, synthetic. Too often, for operational reasons quantitative indicators (such as GDP/capita gaps) are used to illustrate policy-concepts (such as economic development) without a systematic in depth analysis of the concept. This is one of the main causes of misunderstanding between scientists and policy-makers. The next graphic illustrates the network-like structure of concepts of different level of abstraction lying behind a policy concept such as "territorial competitiveness" (or "territorial cohesion", "sustainable development"...).

#### Objective of the toolbox: a policy-support tool

*The toolbox is a software application that provides for a systematic procedure to define highly abstract concepts (e.g. "sustainable development", "territorial cohesion"...) as a combination of more concrete concepts and specific statistical indicators (e.g. GDP/capita, number of firms with Internet access, CO<sub>2</sub> emissions...) and calculate them for pre-selected territorial units (e.g. European regions).*

The predefined conceptual levels are:

- Indicators (e.g. Population with tertiary education)
- Categories (e.g. "Human capital")
- Sectors (e.g. "Innovative human capital")
- Typologies (e.g. "Knowledge innovation structures")
- Territorial Determinants (e.g. "Innovation and research capability")

The Territorial Determinant aims to integrate the most policy-relevant information in relation to each region in order to support a policy decision-making process; therefore, "Policies" are included as the most abstract concepts (e.g. "Progressive reduction of Structural Funds"). Depending on the relative values of the Territorial Determinants, specific policies may be suggested. Because of that, *the toolbox can be considered as a policy-support tool that helps policy-analysts to make explicit and communicate their reasoning in a more effective way.*

#### Development of the toolbox

The design of the toolbox and the theory behind it has been developed by the University of Rome Tor Vergata, also responsible for testing and applying it within

the ESPON 3.3 project; the software implementation has been accomplished by MCRIT (Barcelona).

The toolbox uses ESPON regional statistical indicators such as reference data, aggregates them according to the network-like conceptual structures to be defined by the user, and provides as a result relative values of each region from the simple indicators up to the highest and most abstract concepts.

#### Software platform

The software platform selected to implement the toolbox is *Visual Basic* on *Microsoft Access*. The toolbox uses *Geomedia Viewer*, a royalty-free desktop mapping application by *Intergraph*, to display results graphically, and it can be easily linked to any other standard Desktop mapping or GIS application such as *Mapinfo* or *Arcview*.

#### Rules of aggregation

- The regional values for logical objects (from Indicators to Determinants) are categorised in four *classes* (A, B, C, D).
- The aggregation rules between classes across levels are defined qualitatively.
- The qualitative aggregation is successively made *pair to pair*, starting by the one with less relative importance.
- There is a *table of qualitative addition* that translates pair of values into single ones (e.g. A+A=A, A+B=A, A+C=B, etc.)
- The table is unique, and is applied to all levels.
- The user of the toolbox, concerning the aggregation process, can only modify the table of qualitative aggregation.

#### User Guide

##### Main interface

The main interface is organised according to the five successive steps needed:

- Logic objects included in each level (Indicators, Categories, Sectors, statistical Typologies, Determinants and Policies).
- Logical relations between objects (e.g. which Indicators form each Category, which Categories form each Sector, which Sectors each Typology and which Typologies each Determinant)
- Definition of Computation rules (to categorize quantitative indicators in qualitative groups, to aggregate values across levels, to aggregate determinants, to derive policy recommendations from determinants)
- Application of rules to obtain all values for every region.
- Results analysis, as a table (integrating all values for every region) and as a regional map (using *Geomedia Viewer*).



### Use of the application

The application is extremely user-friendly. The user will click one by one the buttons in the list shown in the main interface, and fill in the tables. Then he will click the RUN button and see the results as a table and a map (using the *Geomedia viewer* included in the CDROM, or importing the *Microsoft Access* table in any other standard Desktop mapping software).

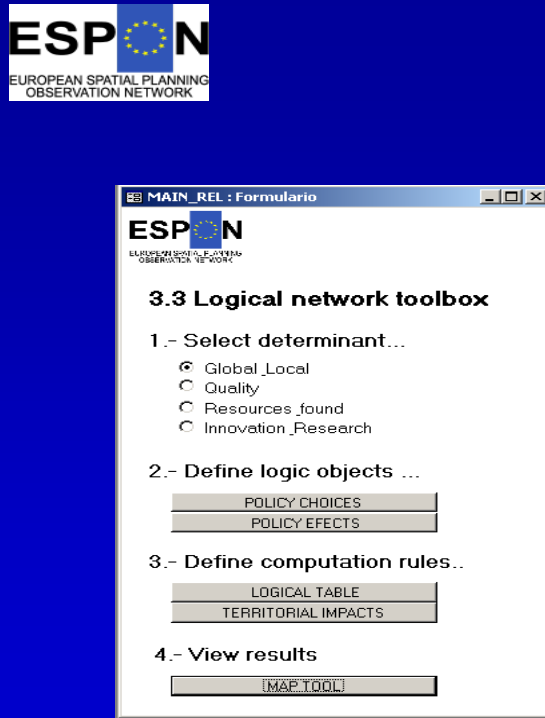
There are two types of users:

a) **EXPERT-USERS** (researchers, consultants, civil servants...).

b) **POLICY-USERS**

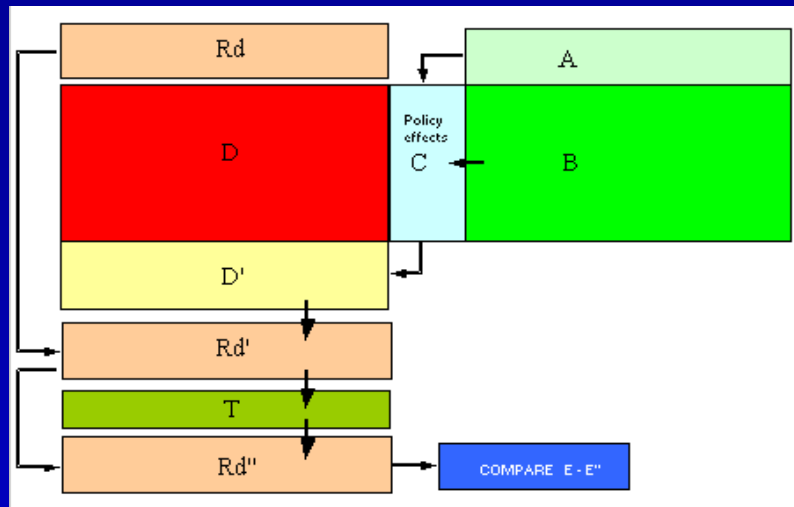
LP and MCRIT decided to develop a website to publish the toolbox user-guide in 2007.

In the following pages an example of application and its contains (metadata, data, etc.) is shown.



The toolbox is a software application that provides for a systematic procedure to define highly abstract concepts (e.g. "sustainable development", "territorial cohesion"... ) as a combination of more concret concepts and specific statistic indicators (e.g. GDP/capita, number of firms with Internet access, CO2 emissions...) and calculate them for preselected territorial units (e.g. European regions).

The software platform selected to implement the toolbox has been Visual Basic on Microsoft ACCESS. The toolbox uses Geomedia Viewer, a royalties-free desktop mapping application by Intergraph, to display results graphically, and it can be easily linked to any other standard Desktop mapping or GIS application such as Mapinfo or ArcGIS.



The design of the toolbox and the theory behind has been developed by the University of Rome “Tor Vergata”, also responsible for testing and using it within the ESPON 3.3 project, and the software implementation by MCRIT (Barcelona).

The toolbox uses as a reference data ESPON regional statistical indicators, aggregates them according to the network-like conceptual structures to be defined by the user, and provides as a result relatives values of each region from the simple indicators up to the highest more abstract concept. .



Global/Local G&L

Global & Local																																																	
EI & FI & ICE														Social Interaction (SI)																																			
EI & FI													International Coop. on Envir. (ICE)																																				
Economy interaction (EI)										Financial Interaction (FI)				Population Mobility (PM)																																			
ESSI & Int & SL										Productive system identity (PSI)																																							
ESSI & Int					Strategic Localization (SL)					TI & CE																																							
Internationalization (Int)				RDA & Vuln		Costs (CS)			Tourism (TI)						Cultural Exchange (CE)																																		
		Trade Integration (Tint)				FP & LC			Credit&Insurance attitude (C&IA)						Researcher mobility (RM)		Student mobility (SM)																																
Energy self-sufficiency Index		Foreign Direct Investments Intensity		trade integration of goods		trade integration of services		R&D Accessibility		Vulnerability		Long term interest rate		Fiscal pressure		Labour Cost		Manufacturing enterprise		Product trademarks		Credit Institutions		Insurance Companies		Stock Market Capitalisation		Companies		General environment concerns		Specific environment concerns		Active population		Population change		Tourism Inbound		Tourism Outbound		Researcher Inbound		Researcher Outbound		Student Inbound		Student Outbound	
Q_ESSI	Q_FDIn	Q_Tig	Q_Tis	R&D A	Q_Vuln (NH)	Q_LTr	Q_FP	Q_LC	Q_ME	Ptm	Q_Bank	Q_InsC	Q_STM	Q_BC	Q_GEC	Q_SEC	Q_ApP	Q_PCh	Q_InT	Q_OutT	Q_InRes	Q_OutRes	Q_InStud	Q_OutStud																									

Table with indicators at base level. Aggregation procedure computes the determinant, which is at top level.

Global/Local G&L

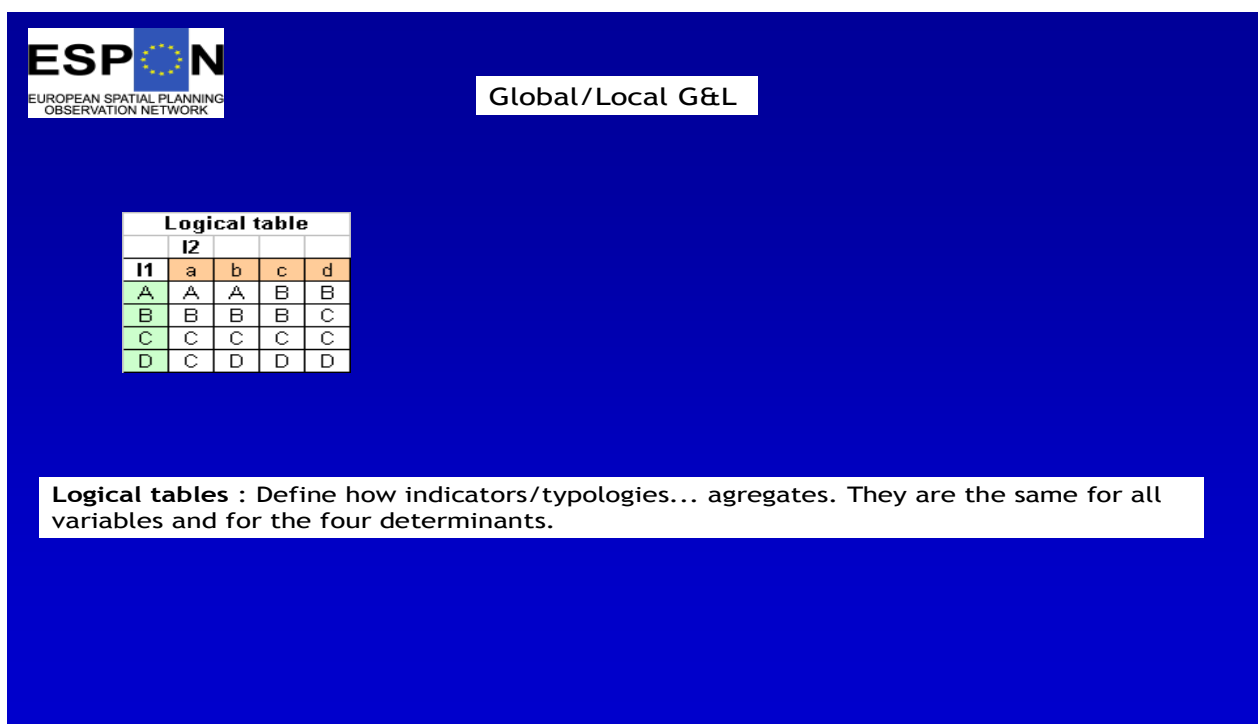
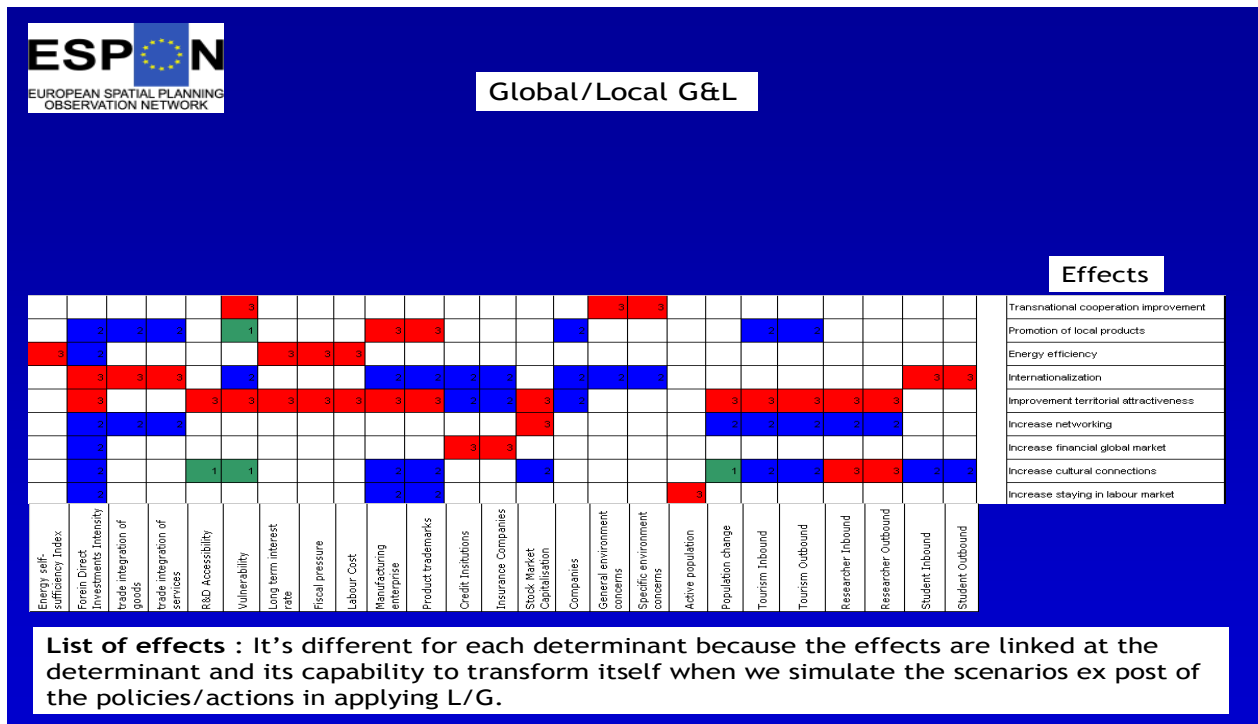
DEFINE POLICY CHOICES

Employment	Homogenisation of enterprise costs	<input type="checkbox"/>
	Support enterprise creation	<input type="checkbox"/>
	Support employer mobility	<input type="checkbox"/>
	Support equal opportunities	<input type="checkbox"/>
Transport/network	Development of telecommunication networks	<input type="checkbox"/>
	Development of energy networks	<input type="checkbox"/>
	Increase of physical accessibility	<input type="checkbox"/>
Natural Resources	Use of renewable resources	<input type="checkbox"/>
	Active Protection of Natural resources	<input type="checkbox"/>
	Reduction of Natural Resources consumption	<input type="checkbox"/>
	Natural hazard prevention	<input type="checkbox"/>
Climate	Energy policies	<input type="checkbox"/>
	Flexible Mechanisms	<input type="checkbox"/>
	Climate Active Protection	<input type="checkbox"/>
Public Health	Social Programme Financing	<input type="checkbox"/>
	Safety	<input type="checkbox"/>
	Support Welfare	<input type="checkbox"/>

**Policies and actions :** Houses the list of the all possible policies and relative actions included in the Lisbon/Gothenburg strategy and that the Structural Funds can finance to realise this strategy. Policies and actions are the same for all the four determinants

Global/Local G&L

				Lisbon / Gothenburg Agenda - Policies for:																
				Employment				Transport/network			Natural Resources			Climate		Public Health				
				Homogenisation of enterprise costs	Support enterprise creation	Support employer mobility	Support equal opportunities	Development of telecommunication networks	Development of energy networks	Increase of physical accessibility	Use of renewable resources	Active Protection of Natural resources	Reduction of Natural Resources consumption	Natural hazard prevention	Energy policies	Flexible Mechanisms	Climate Active Protection	Social Programme Financing	Safety	Support Welfare
Effects	Ci	Bj*	Bj																	
Transnational cooperation improvement	0.00	0	18					1				3	3	3	3	3	3			
Promotion of local products	0.00	0	16	2	2			1	2			3	3	3						
Energy efficiency	0.00	0	11			2				3		3			3					
Internationalization	0.00	0	4			1														
Improvement territorial attractiveness	0.00	0	25			3	1			3	3	3		2	2	3	3		2	3
Increase networking	0.00	0	10				1			3		3								
Increase financial global market	0.00	0	5		2					3										
Increase cultural connections	0.00	0	7					1	1		2						3			



Global/Local G&L

		Territorial typologies: Hypothesis C						
		1 High urban influence with Mega functions (A1)	2 High urban influence with Transnational or National functions (B1)	3 High urban influence with Regional/Local functions (C1)	4 High urban influence with No special function (D1)	5 Low urban influence with Transnational or National functions (E1)	6 Low urban influence with Regional/Local functions (F1)	7 Low urban influence with No special function (G1)
		1	2	3	4	5	6	7
Determinant R & F	A	A	A	B	B	C	C	D
	B	A	B	B	C	D	D	E
	C	B	B	C	D	D	E	F
	D	C	C	C	D	E	F	F

**Territorialization tables** : Define how indicators/typologies... territorialize. They are the same for all variables and for the four determinants.

Global/Local G&L

N2_03	REGION_03	Territo	Q_GEC	Q_SEC	Q_ME	Q_P Tm	Q_E SSI	Q_FD lin	Q_Tig	Q_Tis	Tint	Int	ESSI & Int	Q_DA	Q_V uln	RDA & Vuln	Q_L Tir	Q_FP	Q_LC	FP & LC	CS	SL	ESSI & Int & SL	Q_ME	Q_P Tm	PSI	EI
AT11	Burgenland	7	B	D	C	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	C	B	C	C
AT12	Niederösterreich	3	B	D	C	C	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	C	C	C	C
AT13	Wien	1	B	D	C	A	C	B	A	A	A	B	C	B	D	B	B	D	A	D	B	B	C	C	A	C	C
AT21	Kärnten	2	B	D	B	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	B	B	C
AT22	Steiermark	2	B	D	C	C	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	C	C	C	C
AT31	Oberösterreich	2	B	D	B	C	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	C	B	C
AT32	Salzburg	2	B	D	B	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	B	B	C
AT33	Tirol	2	B	D	B	B	C	B	A	A	A	B	C	C	B	C	B	D	A	D	B	C	C	B	B	B	C
AT34	Vorarlberg	3	B	D	B	C	C	B	A	A	A	B	C	C	C	C	B	D	A	D	B	C	C	B	C	B	C
BE1	Région de Bruxelles-Cap	1	A	C	C	A	C	A	A	A	A	C	A	A	D	B	B	D	A	D	B	B	C	C	A	C	C
BE21	Prov. Antwerpen	3	A	C	C	C	C	A	A	A	A	A	C	B	D	B	B	D	A	D	B	B	C	C	C	C	C
BE22	Prov. Limburg (B)	2	A	C	C	C	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	C	C	C	C
BE23	Prov. Oost-Vlaanderen	2	A	C	B	C	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	B	C	B	C
BE24	Prov. Vlaams-Brabant	2	A	C	C	A	C	A	A	A	A	A	C	A	D	B	B	D	A	D	B	B	C	C	A	C	C
BE25	Prov. West-Vlaanderen	2	A	C	B	C	C	A	A	A	A	A	C	C	C	C	B	D	A	D	B	C	C	B	C	B	C
BE31	Prov. Brabant Wallon	4	A	C	C	A	C	A	A	A	A	A	C	A	C	A	B	D	A	D	B	A	C	C	A	C	C
BE32	Prov. Hainaut	2	A	C	C	B	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	C	B	B	C
BE33	Prov. Liège	2	A	C	B	B	C	A	A	A	A	A	C	B	C	B	B	D	A	D	B	B	C	B	B	B	C
BE34	Prov. Luxembourg (B)	4	A	C	C	B	C	A	A	A	A	A	C	C	B	C	B	D	A	D	B	C	C	C	B	C	C
BE35	Prov. Namur	2	A	C	C	A	C	A	A	A	A	A	C	B	B	B	B	D	A	D	B	B	C	C	A	C	C
BG01	Severozapaden	6	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG02	Severen tsentralen	6	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG03	Severozitochen	2	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG04	Yugozapaden	1	B	D	B	D	B	B	A	A	A	B	B	C	D	C	D	B	D	B	C	D	B	A	D	B	B
BG05	Yuzhen tsentralen	2	B	D	A	D	B	B	A	A	A	B	B	D	D	D	D	B	D	B	C	D	B	A	D	B	B
BG06	Yugoiztochen	5	B	D	A	D	B	B	A	A	A	B	B	C	D	C	D	B	D	B	C	C	B	A	D	B	B
CH01	Région lémanique	1	B	C	B	A	C	A	B	A	B	A	C	C	C	C	C	D	B	C	C	C	C	B	A	B	C

**Regional ex-ante data** : Indicators and agregattions by Nuts2 previous to apply policies.



EUROPEAN SPATIAL PLANNING  
OBSERVATION NETWORK

**Global/Local G&L**

N2_03	REGION_03	Territory	Q_G EC	Q_S EC	Q_ME	Q_P Tm	Q_E SSI	Q_F Din	Q_Tig	Q_Tis	Tint	Int	ESSI & Int	Q_R DA	Q_V un	RDA & Vun	Q_L TII	Q_FF	Q_L LC	FP& LC	CS	SL	ESSI & Int & SL	Q_ME	Q_P Tm	PSI	EI	Q_B ank	Q_In sc	C&IA
AT11	Burgenland	7																												
AT12	Niederösterreich	3																												
AT13	Wien	1																												
AT21	Kärnten	2																												
AT22	Steiermark	2																												
AT31	Oberösterreich	2																												
AT32	Salzburg	2																												
AT33	Tirol	2																												
AT34	Vorarlberg	3																												
BE1	Région de Bruxelles-Ca	1																												
BE21	Prov. Antwerpen	3																												
BE22	Prov. Limburg (B)	2																												
BE23	Prov. Oost-Vlaanderen	2																												
BE24	Prov. Vlaams-Brabant	2																												
BE25	Prov. West-Vlaanderen	2																												
BE31	Prov. Brabant Wallon	4																												
BE32	Prov. Hainaut	2																												
BE33	Prov. Liège	2																												
BE34	Prov. Luxembourg (B)	4																												
BE35	Prov. Namur	2																												
BG01	Severozapaden	6																												
BG02	Severen tsentralen	6																												
BG03	Severozitochen	2																												
BG04	Yugozapaden	1																												
BG05	Yuzhen tsentralen	2																												
BG06	Yugoiztochen	5																												

**Compare ex ante & ex-post terr:** Table comparing the old and new values for each determinant.

	no changes
	changed before territorialization
	changed after territorialization

EUROPEAN SPATIAL PLANNING  
OBSERVATION NETWORK

**Global/Local G&L**

**Mapping tool**

a ) **EXPERT-USERS** (researchers, consultants, civil servants...).

- 1) Open the EXCEL file of each determinant (Quality...)
- 2) Change the policy check list or any other parameter in the simulator
- 3) Import the datasheet "Regional ex-post territorial" into ArcGIS 9.0 or other GIS tool
- 4) Make any mapa or spatial analysis he/she needs

b) **POLICY-USERS**

- 1) Open the Toolbox Viewer main interface (ESPON33.mdb)
- 2) Change the policy-checks list or any other parameter in the simulator
- 3) Go to **map tool** and use Geomedia Viewer options to change visualization

### 3. Short report on networking undertaken with other ESPON projects and self-evaluation reflecting on the quality of the cooperation with other ESPON projects as well as with/among TPG partners

#### 3.1 Networking undertaken with other ESPON projects and project dissemination

During the last year (30 September 2005 – 31 May 2006), the 3.3 project Lead Partner had deep and constant contacts with some other ESPON projects LPs as the **3.4.2** project (University of Bruxelles), the **2.3.2** project (University of Valencia and its Italian partner, University of Turin), the **2.1.5** project (Norwegian Institute for Urban and Regional Research, Blindern) and the **1.3.3** project (University of Venezia and EUTO – Spain). The 3.3 project supplied the methodological (STeM) approach, data and information to these and other projects and programmes.

The Lead Partner presented the 3.3 project results in several occasions:

- Project “Polydev” (*Sustainable Development of CadSES Area*) Interreg III B CADSES Mis. 1.1 - III call **Lead Partner:** Veneto Region (IT) **Partners:** Marche Region (IT), Regional Center for Central and Eastern Europe (SLO), Statistical Region of Goriska (SLO), Primoraska Region (SLO), ANEM – Prefecture of Magnesia (GR), Prefecture of Fhtotida (GR), Regional Center for Central and Eastern Europe (SK), University of Bratislava (SK), Municipality of Sofia (BG) by Arch. Tiziana Quaglia - Veneto Region U.C. Territorial Planning - PTRC, Venezia – Italy. In this project M. Prezioso was requested as scientific coordinator;
- Italian Conference Tourism Days 2005 *Competitività e Sostenibilità. Tipi di Turismo, Strategie d’impresa e Politiche del Territorio* held in Stresa (Lago Maggiore – Milan, Italy), on 16-18 October 2005, organised by University of Piemonte Orientale (Italy);
- the Open Day of the *3rd Geoland Forum* held in Vienna, 9 February 2006; LP was represented by Mr. Francesco De Mitri
- Italian Ministry of Environment (Sustainable Development Direction by Mr. G. Brunelli) about regional Environmental Strategic Assessment, opening a specific observatory on the 3.3 project progress;
- Italian Ministry of Infrastructure (Territorial and Interreg Direction by Mrs. C. Zincone and Mr. Isola) about National Cohesion Report (M. Prezioso, ed by).
- Lead Partner organised with University of Benevento and Italian Geography Society the International Conference “European Territorial Cohesion and Sustainable Development: Convergence and Competitiveness” held in Benevento (Italy), 6-7 October 2005. LP was in the Scientific Committee as responsible of the session “Cohesion and territorial Governance”. In that occasion, some members of CEIS Group presented the 3.3 projects. LP is editing the Conference Proceedings.
- On 9-10 February 2006, LP organised with the Italian Ministry of Infrastructure (focal point for the Italian ESPON projects and Italian Scientific ESPON Committee) the III International Workshop “The Italian Partners of the ESPON Projects” (held in Rome at University of Tor Vergata and Ministry seat).



Lead Partner participated at:

- the ESPON Lead Partner meeting, on 12 October 2005 in Luxemburg;
- the ESPON Scientific Seminar, on 13-14 October 2005 in Luxemburg;
- the ESPON Manchester Meeting, on 7-9 November 2005. In that occasion the LP presented and discussed the 3.3 project TIR in agreement with the ESPON guideline:
  - selecting (draft) Policy Recommendations, and for each of them repeating slides presentation;
  - presenting main results at the origin of the Policy Recommendation (through a map), including the 3.3 project key maps;
  - presenting briefly methodological aspects and addressing them orally;
  - suggesting some ideas on further research as well as gaps/limits towards the Final Report and interim consideration concerning future related research issues.

In that occasion, LP participated at:

- the Brief-Workshop sessions **A** (Approaches and methodologies for integrated spatial analysis) and **B** (Territorial factors for Knowledge Society and Economic Growth);
- the Delphi session into "Regional perspective on the scenarios" workshop and a "World Café workshop" about the TIA methodology.

The 3.3 LP did not participate at all 2006 ESPON Meetings due to internal organizational problems.

LP participated at several statistical and Database tests from EUROSTAT and EU surveys.

The final version of the 3.3 project was discussed in the Rome TPG meeting on February 2006. Afterwards the LP was (and currently is) continuously in contact with the TPG and the MC project referee.

## 3.2 Problems encountered and solutions found/proposed

During the last months the 3.3 project LP has concluded the verification concerning the data availability with the help of Slovenia partner (data recall by ESPON Focal Points). The results of this recall were low and insufficient; only a few ESPON Focal Points answered, and namely: Niels Boje Groth from Denmark; Saviour Formosa from Malta, Constantinos Alkides from Cyprus; Barbara Jeanneret from Switzerland. Therefore the LP completed this test during the March-May 2006 period (see Annex III).

This was necessary because Eurostat data differed pretty much from those in the ESPON DB, particularly with regard to timing. ESPON DB data have been gathered from national sources and they probably suffer from different local definition in indicators levels. Norway data are an endemic problem.

Some project colleagues left the TPG for private matters, i.e. changing University or job place as:

- Christer Bengs, who left Nordregio and Helsinki University of Technology at the end of 2005 and now is affiliated to the Swedish University of Agricultural

Sciences/Department of Urban and Rural Development in Uppsala, as professor in planning. (see <http://www.sol.slu.se/la/staff/bengs.asp>);

- Nicola Luger, who left Environment Ministry and IGS, and now is at ISPRA;
- Simin Davoudi, who left Leeds in April;
- for others, as Mrs. Luisa Porcu and Mr. Luigi Mundula, the LP asked the ousting from the project because of their lack of adherence to the ESPON rules.

LP provided to substitute these colleagues or to perform their tasks. Of course, this brought some little problems (e.g. LP had to meet the substitute colleague from Helsinki in February 2006), but the collaborative behaviour and attitude allowed to deliver the Final Report in time.

Also the initial brief, insufficient and inadequate level of cooperation with MCRIT has been overcome. The GIS framework, planned from the LP, has been available from March 2006.

During this last period the cooperative research network reinforced in and out the 3.3 project and the results of the meetings, included the TPG ones, were very comfortable, sustaining the 3.3 complex methodological approach and supporting the LP during the reorganisation stage.

The innovative aspects of the project created a very good climate to have intensive and original, productive discussions. The high quality of single contribution and the personal availability of the partners permitted to overcome the differences of background and experience between partners, offering to the ESPON MC and EU policy makers a new point of view for looking at the Lisbon/Gothenburg Strategy. We hope we contributed with some little added value towards the scientific/academic European discussion.

### 3.3 Data gaps to overcome

With regard to **data gaps**, the 3.3 list of indicators, datasets, metadata and data were elaborated highlighting the limit to catch the Lisbon goals in front of important data missing required from the Lisbon Strategy description, at the same time for the overall countries, regions and sub-regions. E.g.:

- number of manufacturing enterprises at the required date;
- precise number of regional employers at 2004 or 2005;
- number of regional R&D institutions
- number of regional companies

Another statistical Lisbon problem is related to labour forces glossary, since 'active population', 'labour force' and 'employers' are not represented differently in each dataset. This is probably due to national statistics, which should be revisited, especially for NSM.

The date of the data is not always congruent and coinciding, also with regard to EU15 (France, Denmark, etc.) or countries (Norway and Switzerland) or even important Lisbon themes, such as I&R in Ireland and Finland, while all the scientific analysis and literature describe these countries as leaders in these sectors.

## 4. Short report on further research issues

Regarding further 3.3 project issues, the previous purposes were achieved:

- with regard to the methodological approach, the *Step 5* (Synthesis of the territorialised determinants and the building of the 4 Composite Indices of Territorial Competitiveness in Sustainability with the relative mapping) and *Step 6* (Monitoring the performance achieved in competitiveness in sustainability) were completed;
- the definitive choice of the transnational cooperation areas was made;
- the matrices "policy actions-effect-territorialised determinants" to perform the specific national and regional SF choices were completed;
- the planning of the final GIS operational procedure for connecting scenarios and policy recommendations and to conclude the TIA operational procedure was completed;
- the update of the territorial Lisbon/Gothenburg Strategy in the light of new EU possible inputs was performed;
- the Policy recommendations in an integrated or cross-sectorial way were defined. In their development we worked along with the other projects in the third ESPON strand;
- we studied other ESPON projects in order to identifying uneven and unequal development, areas in particular need for support in the context of the reform of the structural funds post enlargement and the identification of barriers to future potential polycentric development, including specific measures appropriate for lower levels of governance in line with our approach to competitiveness in sustainability.

Regarding the further contributions that can derive from the territorial dimension of Lisbon/Gothenburg, it is possible to suggest the following hypotheses:

- to review the open method of coordination (OMC) introduced by the Lisbon Strategy;
- to adopt the experimental use of the European Strategic evaluation processes, particularly Environmental Strategic Assessment applied to policies, programs, plans at different subsidiarity level of constitutional country organisations;
- to apply Specific Environmental Concerns (as Kyoto) with an appropriate technological support (e.g. IPPH, BAT, etc.) particularly for delocalisation investments towards the new Eastern countries;
- to apply Total Quality, Total Environmental Quality and Corporate Social Responsibility norms to the enterprise and institution actions;
- to study specific strategies about the offer of 'research/education delocalisation';
- to apply the subsidiarity principle and the relative rules to create a link between government and governance, looking at the territorial government in a bottom-up vision (national policies in agreement with local policies, programs and plans), favouring the intra and interregional cohesive

instruments into a new inter-generational pact between state and citizen. This represents also an opportunity to re-define the common ethical rules and to apply basic principles (e.g. sustainability) by a substantial choice of power exercise;

- to study the potential application of the Social Quality and Cohesion principles, evaluating the quality of some indicators at the base of the social and welfare system, as specifically the capability to support the balanced and satisfying relationships in the EU civil society (from stakeholders to shareholders, etc.);
- to build a common model to combat the risk of social exclusion, specifically for young and old people;
- to use ESA for building an EU knowledge Environmental Picture at regional level, in order to assess the project offer about climate change and other environmental topics;
- to study in the same context life and environmental quality with regard to public expenditure for employment;
- to study in a territorial marketing vision the strengths that make places more attractive for investors; and to work for the development and the sharing of good practices with public and private business partners;
- to research specific supporters for innovation and technological transfer, jointly with technical assistance and advisory financial services provided to agencies working for creation and development of SMEs, considering the Access to Intellectual Property issue posed by research organisations;
- to include in the ESPON researches the study of new instruments to better meet the Lisbon/Gothenburg objectives (e.g. new risk capital instruments for SME start-ups using environmental technologies).

*In conclusion* then, the recommendations emerging from this project broadly speaking involve an implicit acceptance of the European Spatial Development Perspective (ESDP) and its guiding principles on social cohesion, economic competitiveness and environmental sustainability, which fit neatly with those expressed in the Lisbon and Gothenburg agendas. However, the principles are easier to express in theory than in practice, and this is especially the case where inconsistencies emerge in an attempt to prioritise different goals which may essentially conflict. Nonetheless we have worked to overcome these conflicts and provided a range of policy recommendations and combinations, some of which are 'capacity-based' ('governance orientated' and 'bottom-up') and some 'principle-based', with a more 'top-down' perspective, geared at what interventions the EU might make to enhance the long term competitive potential, particularly of the peripheral and accession states. Our challenge in so doing has thus been two-fold: bridging the gap between existing territorial disparities and bridging the gap between end goals, which in this study is 'economic efficiency and environmental sustainability'.

Some results of the projects have been considered essential by the TPG for establishing a new perspective to be adopted towards the achievement of a full accomplished Lisbon/Gothenburg Strategy. Here are the most significant results:

- the initial regional resources play an important role; nevertheless seemingly disadvantaged countries don't have to be excluded from the beginning of the development process scheduled by the Lisbon/Gothenburg Strategy;
- the concept of "capability" can be linked to that of "use function" and then contribute to evaluating the most appropriated actions to undertake through the Structural Funds, monitoring over time the relative employment performance;
- the potentially useful territorial aspects emerge as much as the economic ones, explaining how to activate the expectations of Lisbon/Gothenburg for each type of region;
- the potentials for development and territorial imbalances are a clear indication to start common trans-national projects of co-operation, for typology or sector of development, according to the Lisbon/Gothenburg objectives;
- the differences in development potentials reflect the diversity in European territories, thus requiring a differentiation in the interventions, especially in the use of structural funds;
- diversity can be explained only through a complex analysis of the indicators that reveal its territorial dimension. Measuring the Lisbon/Gothenburg Strategy means measuring diversity in its territorial implementation.

In Figure 14 the thematic priority co-operation areas are shown, while Figure 21 shows how to apply the graded policies scheduled in the TIA correlation matrices (please use the four EXCEL files for a detailed TIA experience).

With regard to the presentation of some further European research scopes and thematic issues for implementing the territorial dimension to the Lisbon/Gothenburg Strategy, the 3.3 project suggests improving and pursuing the way of "Better Regulation".

This way was already anticipated in 2005 by the European Commission, who started several formal and informal initiatives. Among them was an **Impact Assessment proposal as a new method** to introduce a common support *within the framework of the Better Regulation package and the European Sustainable Development Strategy*.

This proposal aroused great interest, since it could differently orientate further policy goals and choices. In fact, the Impact Assessment (of which the STeM Approach can represent an anticipation in respect to the territorial dimension of Lisbon/Gothenburg Strategy) introduced a new method since 2002, integrating and replacing previous single-sector types of assessment.

*Impact assessment (IA) is a process aimed at structuring and supporting the development of policies. It identifies and assesses the problem at stake and the objectives pursued. It identifies the main options for achieving the objective and analyses their likely impacts in the economic, environmental and social fields. It outlines advantages and disadvantages of each option and examines possible synergies and trade-offs.*

**Impact assessment is an aid to political decision, not a substitute for it.** *It informs decision-makers of the likely impacts of proposals, but it leaves it up to them to take the decisions.*

This approach is particularly important if it is really aimed to carry on a sustainable economic territorial growth, scheduled at 1,7-2% for 2006 and 2,5% for 2007 (the starting date of the new Structural Funds season). Of course, it requires the European Union to accept permanently sustainability as a political stance and principle for the period 2007-2013 and as an orientation for local/global (regional/national) European competitiveness<sup>14</sup>.

Particularly, the *Territorial Impact Assessment (TIA)* could be an immediate and appropriate regulative instrument for introducing the territorial dimension and its cohesive potential into the Lisbon/Gothenburg Strategy. In fact, faced with the challenge of enlargement and increasing regional disparities, the European Commission proposed a restructuring of cohesion policy in order to adapt it to current needs.

To have knowledge of real current needs is made possible by TIA (also seen in this context as a SEA evolution), because it helps both to identify the problems faced by cohesion policy, in the light of the financial perspectives too; and assess the coherence of the proposed reforms with regard to current and future challenges; and with the Lisbon and Gothenburg objectives. (European Parliament, 2005, *Adaptation of Cohesion Policy to the Enlarged Europe and the Lisbon and Gothenburg Objectives- Provisional Study*, Brussels).

On the other hand, the TIA, seen as a regulated aspect of the Open Coordination Method, could encourage new regions towards a greater commitment to increase competitiveness, and towards representing a greater consistency of their different competitive measures at European, national and regional levels. In fact the Lisbon priorities ought not to be identified entirely with those of the single countries or regions (European Parliament, 2005, p. iii), and this may not mean a leakage of competitive capability and cohesive vision.

TIA could have another function from the European point of view: it allows the realisation of a mid-term review (after four years) in order to re-balance the Community's priorities and the regional strategies in the light of progress made or problems incurred by the use of the new Structural Funds. At the moment, it could seem hazardous to compare old and new Member States to predict their social and economic developments by access to the new Structural Funds: "*Increase conditionality on the results of structural interventions instead of on macro-economic developments, which do not necessarily bear any relation to programmes*" (European Parliament, 2005, p. iv).

Since a challenge introduced by Lisbon/Gothenburg is also to observe whether Europe is capable of offering the world "an alternative to the American model" (as Jacques Delors always declared), further European researches should follow or adopt a more geo-political point of view, i.e. studying the global strategic geo-economic role that some European trans-national areas could assume, transforming themselves in free trade zones.

Furthermore, remembering how the EU was one of the *Trilateral's poles* in the geo-economic and geo-political vision of the 1990's, this is a means of investigating the theme of economic, social and environmental planning common rules (Best

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<sup>14</sup> During the last year, this topic has been discussed from 3.3 LP in several occasions (included some ESPON seminars), to demonstrate that, if sustainable development is a long-term strategy and the deadline originally set for the Lisbon agenda is confirmed at 2010, it is possible to achieve both dimensions at EU level.

Regulation) in these free trade zones and their global relationships in front of several new poles (China, India, etc.)

To pursue this perspective requires having a real common democratic vision based on the concept of *subsidiarity* and a *polycentric* idea of European Union.

The **subsidiarity** principle is intended to ensure that decisions are taken as close as possible to the citizen and that constant checks are made as to whether action at Community level is justified in the light of the available possibilities at national, regional or local level.

It also indicates a principle that privileges, in the trust of the assignments, functions and powers, the level of government and administration most close to the citizen and citizenship, so that the institutional level of power can supply the appropriate offer to the issues posed by the citizens and citizenships, since citizenships (enterprises included) participate from the bottom-up to achieve a social and economic **cohesion** by **governance**.

Subsidiarity needs **polycentrism** to express its territorial political role. Particularly, polycentrism is useful to clarify what horizontal or vertical political organisation really means.

Studies and research carried out on Spatial Planning issues (ESPON, ESDP, CEMAT and the practical empirical INTERREG III trans-regional projects) suggest analytical reading and logical-critical interpretations at regional, national and European Level, to re-interpret indications for territorial sustainable government to be competitive.

Polycentrism is a territorial endogenous balanced organisation. It is the new *corema* of the enlargement EU, based on a spatial model of shared principles, where equalization is adopted and balanced with regard to distribution of resources, in order to respect local identities. Previously it was also called polynuclear system.

Then, further European research scopes can investigate how and where cohesion begins an expression of polycentric subsidiarity in the regions of the European Union, if this is meant to realise social - economic balance and sustainable development, reducing structural disparities among regions and countries, promoting equal opportunities for all individuals.

This study could be finalised to encourage local co-operation and to sustain the share of the actors taking part to the development through forms of participatory planning, because, looking at the empirical experience, cohesion is also achieved by financing operations and this can be measured.

As the *Thematic Background Study on INTERREG and ESPON activities in the field of spatial visions and scenarios - Draft Synthesis Report* has recently declared (February, 2006: p. 60-61): "the improvement of the dimension of the Lisbon/Gothenburg strategy" doesn't require "spatial vision exercises; provisional (3.3) results indicate that a key of success of the Lisbon/Gothenburg strategy, in a context of compatibility with the objectives of the ESDP and of the Structural Policies, is to pay greater attention to individual regional potentials and to specific territorial characteristics at meso/micro scales. In this respect, the study outcomes are likely to be of interest also for the spatial visions, and in particular for the development of competitiveness of the areas concerned in a context of sustainability and of territorial and social cohesion".

In fact, the first general level of cohesion can be measured by the size of the territorial, economic and social divides, which the 3.3 project performed, showing a

set of 6 different development levels for each of the Lisbon/Gothenburg objectives (determinants) concerning regions in EU.

These maps could represent a base for further studies that would aim to develop the political theme of **cohesive convergence** on the basis of Lisbon/Gothenburg objectives: Innovation & Research, Global/Local Interaction, Quality, Resources and Funds.

Ahead of the present situation (see Table 13), the 3.3 project results and TIA procedure could also be the functional basis for verifying the European Parliament draft proposal of Structural Funds distribution (2005) to submit the main changes to the cohesion policy and the new programming system proposed by the Commission for 2007-2013 (by national and regional annual reports) (see Table 14)

**Table 13:** Fields of Difference and Non-Congruence between Lisbon strategy and Structural Funds (Source: Danish Technological Institute, 2005: p. 7)

	Lisbon Agenda	Structural Funds
Spatial Dimension of Objectives	Insignificant	Very significant
Character of Objectives	Broad and operational	Broad
Formulation of Operational Objectives	Centralised	Decentralised
Governance Instruments	Weak	Strong
Significance of Physical Infrastructure	Low	High

**Table 14:** Integration of the Cohesion Fund in the mainstream programming and implementation of the “+2 rule” (Source: European Parliament, 2005: p. 97)

Contribution from the Funds (provisional proposal 2005)	
<p><b>Objective 1:</b> ceiling of 75%</p> <p>ceiling of 85% for the Cohesion Fund but possibility to go beyond</p>	<p><b>Convergence objective:</b> idem</p> <p>No possibility to exceed the ceiling of 85% for the Cohesion Fund</p>
<p><b>Objective 2:</b> ceiling of 50%</p>	<p><b>Competitiveness objective:</b> idem</p>
<p><b>INTERREG:</b> 75 % in objective1 countries/regions</p> <p>50% in objective 2 and non classified regions/areas</p>	<p><b>Co-operation objective:</b> 75% in objective1 countries/regions</p> <p>50% in other regions; may rise to a maximum of 75% if some regions classified under the convergence</p> <p>objective belong to the cross border territory</p>

Finally, it may be useful to remember an important ESDP recommendation:

*“The European Councils held in Lisbon (2000) and in Göteborg (2001) gave the Union a new direction by establishing a long term strategy with sustainable development as the overarching objective. Sustainable development means, in this context, goals for economic, social and environmental policy, which are both mutually consistent and capable of delivering enhanced economic growth. (...) The*



*strategy for sustainable development is a long term one and, although the deadline originally set for the Lisbon agenda was 2010, it is clear that sustainable development has a much longer time horizon and also that there is a global dimension to sustainable development, not just an EU one.” (ESDP Report, From Here to Sustainability – Is the Lisbon/Göteborg agenda delivering?, 2004: p. 2).*

To investigate this *longer time horizon* is our last suggestion.



## **ESPON Project 3.3**

# **Territorial dimension of the Lisbon-Gothenburg strategy**

## **Final Report Revisited Part Two**

**15 December 2006**



# **Territorial dimension of the Lisbon-Gothenburg strategy**

## **Final Report Revisited Part Two**

This Report presents the Final results of a research project conducted from July 2004 to March 2006 within the framework of the ESPON 2000-2006 programme, partly financed through the INTERREG programme.

***The content of this Report does not necessarily reflect the opinion of the ESPON Monitoring Committee***

The partnership behind the ESPON programme consists of the EU Commission and the Member States of the EU25, plus Norway, Switzerland, Romania and Bulgaria. Each partner is represented in the ESPON Monitoring Committee.

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The registration in the world wide catalogue is free of charge.

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## Introduction

The cross-thematic ESPON project 3.3 *Territorial dimension of the Lisbon/Gothenburg Strategy* aimed to study and specify some common criteria and policies allowing for the catching up, at the same time and by 2010 of every European Union country and region, to become “an economy based on a more **competitive** and dynamic economy”, creating full employment and economic and social growth.

Nevertheless, its renovated vision proposes itself as a support for a **sustainable** policy of **cohesion** towards the **integration** of the environmental dimension into economic development; equipping itself of a new method “of co-ordination” by the revision of the Structural Fund distribution.

Joining and linking the two strategies means, at the political level, dealing with and finding a suitable solution for several problems, amongst which:

- the European transition towards an economy based on knowledge;
- the economic reforms needed to further European competitiveness and innovation;
- the European social model’s reform, investing in human capital and combating social exclusion;
- the orientation towards a new European macroeconomic policy suitable for a sustainable growth by the choice of appropriate sectorial microeconomic recommendations.

From the beginning, the target of a simultaneous operational application of the Lisbon/Gothenburg Strategy was defined as “ambitious” by the European policy makers. In fact, in 2004 – when the 3.3 project was launched, there were few theoretical and scientific suggestions about the “territorial dimensions” needed to allow this complex type of development. Nonetheless, the 3.3 TPG based its projects’ arguments and/or paradigmatic hypotheses on some of the more important economic and territorial scientific theories of the 90’s and on EU political reports, declarations and directives. In some circumstances, they have been reassessed and integrated with new and more current academic results produced within the TPG. These paradigmatic hypotheses have been confirmed by the project results; they are synthetically illustrated in the following pages and may be considered an integrated aspect of the policy recommendations (see par. 1.4 and 1.5 of this Summary):

- for Europe to become (then continue to be) competitive and dynamic by building on knowledge and innovation, it needs to know its *territorial potentials* (or *capabilities*) and its *competitive advantages* required for economic development; at the same time, it needs to know the imbalances and disadvantages that issues from existing important European phenomena, such as urban agglomeration, environmental pollution, climate change and social and health risks;
- for the Lisbon/Gothenburg strategy to be applied, some key functional common services are basic. Today, they are concentrated in urban systems (urban agglomerations, large and metropolitan areas or cities which contrast with polycentrism), where the full use of these services is linked at different European urban levels of physical and virtual regional accessibility (above all into the enlargement countries), as well as the capability of capturing foreign

direct investment (FDI) to use for improving human and physical capital performance;

- for an enlarged Europe to build its development (not only growth) on knowledge, it is a priority for employment policies to put confidence in human capital with high educational and innovative levels (with an intensive and appropriate use of ICT and R&D) and “dedicated” services, also in less competitive and dynamic regions. This should allow the improvement of territorial and economic performances, overcoming informative asymmetry.

This has allowed a consideration of the first European Spatial Development Perspective – ESDP (1999) and its polycentric revision (see the ESPON 3.2 project) as another important focal reference point with regard to its suggestions about a balanced and cohesive development of the European territory, and, *vice versa*, to advise some new orientations from the Lisbon/Gothenburg strategy, in order to better specify the direct link that must exist between the new ESDP and competitiveness.

However, the ESPON ToR required a concrete and operational answer about *how* the EU countries (25+2+1 at NUTs0), regions (NUTs2), sub-regional areas (NUTs3) can achieve: i) the Lisbon/Gothenburg strategy; ii) territorial cohesion using its regional potentials, avoiding congestion diseconomies and excessive urban polarisations and agglomerations; iii) a balanced distribution of human capital and general services (public utilities) needed to support the efficient exchange of goods, population, information; iv) the political co-ordination of urban (the cities) and infrastructural systems which sustain the Lisbon/Gothenburg strategy; v) the regional areas which may best benefit from the granting of a co-operative use of the new Structural Funds.

The project met these requirements by building a proposal of cross-thematic co-operative regions, identifying their potentialities in the light of Lisbon/Gothenburg, through ‘bottom-up’ research of the regional and sub-regional qualitative and quantitative values. This allowed a determination of national, regional and sub-regional *strengths* and *weaknesses* (see the indicators/determinants tables and their integration into the ‘Scientific Report’) in order to develop a common co-operative territorial base through the use of new Structural Funds.

The working results of the project were represented in three previous different reports (October 2004; March 2005; September 2005), where it is possible to retrace the advance in progress of the project. In the following BOX 1, they are resumed with regard to the ToR points:

**BOX 1:** The results of 3.3 ESPON project represented from 2004 to 2006

The **main scope of the study** was to develop a number of basic analytical elements (the Lisbon/Gothenburg indicators) that could introduce *territorial cohesion* to the Lisbon/Gothenburg strategy and indicate ways of integrating the Lisbon/Gothenburg strategy into the new Structural Funds.

In fact, an appropriate selection appeared useful in order to provide a basic analysis of European regional results obtained from 2000 to 2004 for supporting and explaining political choices for the period from 2007 to 2013; to incorporate territorial cohesion into Lisbon/Gothenburg topics and goals; and to suggest some possible integrations with regard to the real and complex differences within and between the old and new EU regions for the full use of the revisited Structural Funds.

The project could count on some commonly shared results: i) a list of 42 indicators, which are subject to revision every three years (see in Tab. 1 some differently compared lists; in

'red' the proposal of new indicators); a reduced/short list of 14 indicators (from EU *Spring Report*, 2004) proposed to arrange a more easily constructible European governance model (2001), based on common statistical indicators reflecting the Lisbon/Gothenburg goals, looking at the social and economic objectives and at the geographical scale of NUTS 1, 2 e 3.

Furthermore the theoretical background that backed the work was presented which, starting from the nature and goals of Lisbon/Gothenburg, gives a *new definition* of significant aspects in territorial dimension and a new interpretation of features of structural policy. Additional, new criteria have been developed to define and review the concepts of sustainability and competitiveness and which push towards research in the territorial dimension of the capability to be competitive in sustainability.

The 14 indicators were analysed and mapped, and an accurate critical analysis was completed that showed their low adherence to the Lisbon/Gothenburg parameters. The inadequacy of the method traditionally utilised in the evaluation of the Lisbon/Gothenburg strategy, with the 14 synthetic structural indicators "Short List" proposed by the European Commission in the *Spring Report 2003*, was verified considering the *Cohesion Report 2004*. This test proved quite useful to demonstrate how the regional perspectives are deeply reduced and the results homogenized even in presence of the various functional typologies that the Union brings.

Consequently, this 3.3 study was based on both traditional and innovative indicators which adhere to the Lisbon/Gothenburg strategy and to the different political-scientific trends which back its enforcement. The basic indicators allow us to give European policy makers **4 synthetic choice criteria (composite indicators) for the enforcement of Lisbon/Gothenburg**. They were selected according to their capability of simultaneously representing the Lisbon/Gothenburg goals, considering the availability of official statistical sources to get the data from, of their consistency with the geographical scale of reference and of their date. This required several tests and a long refinement process, held both within the TPG and with the ESPON Programme and European Institutions representatives, to whom the final results in this Report are transmitted.

The Project dealt with all the European Regions, by a new and at the same time consolidated methodological approach (the STeM Approach: Prezioso 1995-2005). It has been proposed for the interpretation of the territorial dimension and for the correlation and interpretation of the spatial indicators, as based also on the revision of Porter's Diamond. Several methods, techniques and procedures have been proposed by STeMA, as selected in order to make indicators interact, build the composite index and territorialize the statistic-spatial data.

A GIS software has been built, capable of running in the same time data, indicators, maps, matrixes, policies and effects according to the standards of Strategic Environmental Evaluation, which was *de facto* transformed into the Strategic Territorial Evaluation of Impact (TIA).

In this context, the proposal has to be mentioned of *four determinants or composite indicators*, which include at the base, and for their evaluation, a larger number of indicators (77) than the initial 42, including the synthetic 14 indicators.

Every indicator, category, sector, typology, determinant and their territorialisation at NUTS scales 2 and 3 have been mapped and remarked.

The list of new indicators set is "subsidiary" (Tab. 2), too: 69 indicators for Municipal scale choices; 64 categories for sub-Regional choices, 30 sectors for Regional ones, 14 typologies for National scale choices and 4 determinants for European scale ones. On these different levels the project suggests the building of a complex decision process which will bring the complete enforcement of the Lisbon/Gothenburg strategy, emphasizing how each one of these levels could be related to a geographical-economic scale in territorial action: NUTs from 7 to 1, i.e. municipality, metropolitan/capital region, sub-regional level, region and country.

The selected indicators have been examined for all the countries, according to national operative plans too. All typologies of co-operation, even in the pre-access stage, have been examined, also including cross-border areas and large trans-national areas similar to INTERREG III B co-operation areas.

Some scenarios in co-operation with the project have been presented (see Figures 24-31), where applicable to different sectors and the new policy on Structural Funds starting from 2007.

An indicator set is expressly dedicated to cohesion and its implementing on a territorialized base.

The ToR asked for an integration of the list with regard to the different regional typologies and the trans-national areas involved in INTERREG III B programmes and projects, well aware that in relation to the Lisbon/Gothenburg strategy only a few indicators seemed to be relevant, but many can support its implementation if we consider also territorial differences (see, i.e., the large number of ESPON typologies: Megas, FUAs, PIAs, urban-rural ones, etc.). Therefore, the project discussed and selected (see FIR, SIR and TIR) both a new integrated list of indicators and the reasons for a spatial vision which is different from a territorial one, and how to point out this difference in the project to better help the decision makers, who in some cases are in a better position to observe the real regional territorial differences facing development choices.

Then the project proposed two types of results: the spatial regional ones (at NUTs 2); the territorialized ones (at NUTs 2 and 3). In this second case, the project has *purpose-built an original base for this territorialisation* of the spatial data (statistical data) using the ESPON programme typologies (see in following Figures 32 and 33).

A more selective and “customised” set of policy recommendations has been presented together with scenarios towards the implementation of the Lisbon/Gothenburg strategy, concerning the different capabilities shown by the territories and their aggregated hypotheses on a co-operative base.

General and sectorial policies have been defined; methods, techniques and procedures have been presented, which allow the selection of appropriate policies for territorial diversity, in order to carry through the Lisbon/Gothenburg objectives; correlation matrixes have been set to the effects caused by implementing the policies.

The ToR remarked also that, “the territorial point of view needs to be taken into account, in particular: the territorial effects of diverting sector policies, (...) territorial strategies as a reference for sectorial policies” (ToR, pg. 21). By using the STeM Approach TIA, the 3.3 project has detected: i) the regional territorial status as potential referential demand in order to offer sectorial cooperative policies; ii) the effects of the Lisbon/Gothenburg sectorial policies offer to have a better scale for accessing the Structural Funds.

This approach was useful, “to assess the development potential and territorial imbalance in different trans-national/national territories and or types of regions in relation to the objective of Lisbon/Gothenburg strategy” (ToR, pg. 22). The 3.3 project called this development potential *capability to be competitive in sustainability*. For this scope, the specific GIS assessment was made, too, as added value of the 3.3. project.

The Final Report presented at March 2006 contained some recalls of previous results and focused its attention on the final findings and recommendations in adding a territorial dimension to the Lisbon/Gothenburg strategy, covering all elements of the project, including the new territorial indicators and a final reporting of the regional scenarios. A description of methodological approach, necessary data support for indicators and typologies developed within the project, including metadata descriptions were already included, as well as a proposal regarding further European research scope and thematic issues, which could further improve an implementation of a territorial dimension to the Lisbon/Gothenburg strategy.

This Final Report Revisited is the synthesis of four previous reports. It was organised on the base of ESPON CU suggestions.

# 1. Concept of competitiveness in light of the territorial dimension of the Lisbon and Gothenburg strategies

## 1.1 *Evolution of the Lisbon and Gothenburg Strategies: 2000-2004*

In March 2000, the EU heads of state agreed the ambitious goal of making the EU “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”. More specifically, it was agreed that the overall strategy to achieve this goal (the ‘Lisbon Strategy’) would centre on the following three strands:

- preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market
- modernising the European social model, investing in people and combating social exclusion
- sustaining a healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix

The Lisbon Strategy was designed to mark a turning point for EU enterprise and innovation policy: it saw the high-level integration of social and economic policy with practical initiatives to strengthen the EU’s research capacity, promote entrepreneurship and facilitate the take-up of information society technologies. The main headings of the conclusions of the summit comprised:

- an information society for all
- establishing a European Area of Research and Innovation
- creating a friendly environment for starting up and developing innovative businesses, especially SMEs
- economic reforms for a complete and fully operational internal market
- efficient and integrated financial markets
- coordinating macro-economic policies: fiscal consolidation, quality and sustainability of public finances
- education and training for living and working in the knowledge society
- more and better jobs for Europe: developing an active employment policy
- modernising social protection
- promoting social inclusion<sup>1</sup>

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<sup>1</sup> The first six of these headings related to strand 1 (preparing the transition to a knowledge-based economy and society by better policies for the information society and research and development),

In June 2001, at the meeting of the European Council in Gothenburg, the EU strategy for sustainable development was agreed and an environmental dimension was added to the Lisbon Strategy for employment, economic reform and social cohesion (The 'Gothenburg Strategy'). According to the conclusions of the meeting, the strategy for sustainable development "completes the Union's political commitment to economic and social renewal [and] adds a third, environmental dimension to the Lisbon strategy". The sustainable development strategy focuses on four key-priorities:

- limiting climate change and increasing the use of clean energy
- addressing threats to public health
- managing natural resources more responsibly
- improving the transport system and land use

Almost half-way through the implementation period, however, little progress had been made in moving towards these ambitious goals. After a global economic downturn, governments had generally become more reluctant to push through difficult and unpopular economic reforms or to increase their national budgets for research and innovation. As a result, there were claims that the EU has lost ground to its main competitors: USA and Japan.

In its traditional Spring Report, which served as a basis for the Spring Summit in March 2004, the Commission set out to assess the progress made towards the Lisbon goals. This report was accompanied by the Implementation Report of the Broad Economic Policy Guidelines 2003-2005, the Joint Employment Report, and the Implementation Report on the Internal Market Strategy. All these reports painted a disappointing picture of EU's competitiveness. The Commission therefore urged governments to give the Lisbon strategy fresh impetus, specifically outlining three priority areas:

- investment in networks and knowledge: starting the priority projects approved in the 'European Growth Initiative'
- strengthening competitiveness in industry and services: stepping up efforts in the areas of industrial policy, services market and environmental technologies
- increasing the labour market participation of older people: encouraging older workers to continue working.

At the 2004 Spring Summit meeting in Brussels, EU leaders adopted conclusions on strategies to meet the Lisbon targets. The Council reaffirmed that the process and goals remain valid but that the pace of reform needs to be significantly stepped up. Wim Kok, the former Dutch Prime Minister, was appointed to head a high-level expert group to give new impetus to the Lisbon strategy. The group's mission was to assess the instruments and methods used to date and to involve member states and stakeholders more closely to ensure the Lisbon objectives could be delivered. The group's report (the 'Kok Report') was presented to the European Commission and the European Council in November 2004 and concluded that little progress had been made over the first five years and recommended a refocusing of the agenda on growth and employment, stating that the "disappointing delivery" was due to "an overloaded agenda, poor co-ordination and conflicting priorities" and identifying the main cause as the lack of political will in member states.

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whilst the last four headings related to strand 2 (modernising the European social model, investing in people and combating social exclusion).

## 1.2 *The Lisbon and Gothenburg Strategies revisited*

After the disappointing mid-term review of the Lisbon Strategy, the Commission has responded by trying to refocus the Lisbon Strategy on economic growth and job creation. The *2005 Lisbon Action Plan* issued in February 2005 identifies 10 central policy areas:

- extend and deepen the Internal Market
- ensure open and competitive markets
- improve regulation
- expand and improve infrastructure
- invest in Research and Development
- facilitate innovation, ICT uptake and sustainable resource use
- contribute to a strong industrial base
- increase employment and modernise social protection
- improve the adaptability and flexibility of the labour market
- invest in education and skills

The Commission's proposals to re-launch the Lisbon agenda have raised controversy about the equality of the three pillars in the process: economic growth and competitiveness, social inclusion and environmental concerns. Critics argue that social and environmental issues have been sidelined, whilst the European Commission argues that the proposal to refocus the Lisbon agenda on actions that promote jobs and growth is fully consistent with sustainable development. All actions of the strategy, the Commission argues, will reinforce the EU's potential to meet and further develop its environmental and social objectives. According to the EU, "The renewed Lisbon strategy does not roll back the existing policies and commitments with regard to environment. The renewed focus will be pursued while respecting the existing policies and regulations concerning environmental protection. The Commission will step up its promotion of environmental technologies. It will also take necessary steps to promote the development of approaches and technologies that allow the EU to make the structural changes needed for long term sustainability, for example in the areas of sustainable resource use, climate change and energy efficiency. These are needed both for use within the EU and to meet demand in expanding markets worldwide."

In April 2005, the Commission presented its integrated guidelines for growth and jobs for the period 2005-2008, which serve as the basis for the national action plans that the member states presented in the autumn of 2005. At the same time, the Commission also presented a working paper with guidance for the member states in terms of structure and content of their action plans. In July 2005, the Commission issued a programme containing actions needed at EU level, based on the EU Lisbon Action Plan issued in February 2005 (European Commission, 2005a). The Commission committed itself to assess the national action plans and to adopt an Annual Progress Report early in 2006.

A review of the EU sustainable development strategy was produced at the end of 2005. The rationale for the review, according to the EU, in addition to the change in the Commission, includes a number of significant changes that have occurred since

the introduction of the current sustainable development strategy presented in 2001, such as:

- the enlargement of the European Union to 25 Member States
- terrorism and violence increasing the instability of regions and life danger for citizens across the world
- the EU commitment to a number of global initiatives and targets
- further globalisation and changes in EU and world economy
- persistent and increasingly apparent signs of environmental problems in the EU and globally

The recent review of the sustainable development strategy was based on the key objectives and guiding principles identified in the Draft Declaration on Guiding Principles for Sustainable Development published in May 2005. The key objectives comprise: environmental protection; social equity and cohesion; economic prosperity and meeting European international responsibilities. The guiding principles comprise: promotion and protection of fundamental rights; intra-generational and inter-generational equity; open and democratic society; involvement of citizens; involvement of businesses and social partners; policy coherence and governance; policy integration; use of the best available knowledge; precautionary principle; and the polluter pays principle.

### *1.3 Concepts and definitions of competitiveness*

Since the FIR, the 3.3 project has studied in depth the review and comparison of existing relevant theoretical/academic and policy/programming literature to identify key concepts and definitions. The material is presented as follows under two main headings:

theoretical/academic literature review (section 1.3.1)

policy/programming literature review (section 1.3.2)

#### 1.3.1 Theoretical/academic literature review

The theory of international exchange shifts the study of the behaviour and strategy of the enterprise in an international context, trying to define the reasons of the international commerce.

In this way, the basic causes of competitiveness are to be researched coherently with the availability of different starting resources and technological levels, in scale performances and in the change of the prices of the factors and assets. It is correspondingly important to find synthetic indicators that might capture and measure the behaviour of the actors in a competitive international context.

The literature on the determinants of performance concerning enterprises (Prezioso, 1993) considers the different forms of access into foreign markets as one of the main competitive factors. The positive relationship between enterprise efficiency and exportations (Aw - Hwang, 1995; Clerides – Lach - Tybout, 1998) is explained



by two approaches that are not mutually exclusive: i) the exports are a learning process that improves the enterprises' productivity; ii) the exportation markets select the most effective enterprises (Delgado - Farinas, 1999). Many other works centre the analysis on more actual forms of internationalisation and analyse the factors orienting Foreign Direct Investments (FDI) (Graham, 1995; Graham - Krugman, 1993; Onida, 1989), or on the choice between FDI and alternative forms of internationalisation, like licensing (Kumar, 1985; Saggi, 1996) or *joint-ventures* (Cleeve, 1997; Kogut - Chang, 1991).

The relationship between exports and performance depends first of all on the higher exposition of exporting enterprises to competition. In turn, competition should have a positive effect on enterprises' effectiveness in different ways (Short, 1994; Nickell, 1995; Vickers, 1995).

Through international competitiveness, it becomes simpler for the entrepreneurs to compare their management's to the competitors' performances, and that should also reduce the chance for the management to appropriate a share of profits by 'playing' on position stocks. Moreover the competition should reduce the incidence of production and distribution costs, with an improvement of enterprise efficiency that determines an increase of profit in those sectors where demand flexibility is higher. Finally, a competitive system increases the risk of failure and urges the management to additional efforts (Schmidt, 1996; Aghion - Howitt, 1996).

Only a few works extend the analysis to *the role of the procedures of access to foreign markets*, which are for instance very important for the Italian regional economies, traditionally based on small and medium-sized enterprises (Prezioso, 1993, 2000 and 2001; Wagner - Schnabel, 1994; Duarte, 1994;). For example, the decision to create a foreign structure sale (CSSA), through direct control or local trade agreements or creating new participated enterprises, has been dealt with to only a small extent in the literature, although it represents the more advanced form of internationalisation for the small entrepreneur and constitutes the first step toward the creation of a foreign branch.

The investments of CSSA show the interesting theoretical character of being a choice made under conditions of uncertainty that include a certain degree of irreversibility, given the presence of *sunk costs*.

Dixit (1998a e 1998b) analyses this structure of choice in the frame of the "real option theory". The access to foreign markets, even if represented exclusively by exportations, has significant *sunk costs* (information costs and opportunity costs). Such costs are substantially higher for small enterprises because, for example, the incidence of travel costs of the human resources is higher.

It should be noticed that, when an enterprise belongs to a group or a company, the *sunk costs* can be shared within the group, thus significantly reducing the value of the "wait option" of the investment for the single enterprise.

However, the internationalisation of the enterprises is only one of the components influencing their competitiveness and its role can be estimated only in comparison to that of other traditional competitiveness factors.

In the microeconomic analysis of competitiveness, the level of enterprise efficiency plays a major role; in fact, other than competition, efficiency can be considered as directly correlated to the level of ownership concentration, as Short says (1994) in several empirical papers.

The idea that ownership concentration has a different impact on the firm's performances as a function of its dimension, is supported by recent empirical evidence: Mc Connel - Servaes (1990) find a positive relationship in a large statistical sample of listed and unlisted companies, while Leech - Leahy - Leahy (1991) find a negative one in a small statistical sample of large listed companies.

It must be considered also that there are huge differences in the various countries across Europe in this respect. A balanced structure of companies is a buffer against rapid changes in the economy caused by cyclical changes (ordinary business cycles) and structural changes (causing altered competitive advantages) of the economy as a whole.

In the literature the relationship between performance, financial structure of the enterprise and market of access to source of funding (financial pressure) is underlined.

The main hypothesis is that "financial pressure" causes improvements in the management accuracy (Jensen, 1986; 1988; Aghion, 1995) in those firms where the development of the corporate governance is higher (separation between board and controller, market and controller, informative asymmetry etc.).

It could therefore be interesting to estimate if the positive relationship between financial pressure and firm's performance has any economic effects: a high financial pressure leads to low performance firms.

In the international context, the literature on this topic focuses attention on medium to large-sized firms and on listed companies (Prezioso, 1993a), and can be subdivided into six main branches, according to the theoretical models that try to explain the determinants of the capital structure and its influence on the process of management decision: i) tax shield, ii) conflict of interests and informative asymmetry costs between shareholders and creditors (Jensen-Meckling, 1976; Jensen, 1986 and Grossman-Hart, 1982), iii) informative asymmetry costs between managers and shareholders, iv) financing strategies as a "signal" of the expected profitability in a context of informative asymmetry (Ross, 1977; Leland-Pyle 1977; Brennan-Kraus, 1987; Noe, 1988; Costantinides-Grundy, 1989; Stein, 1992); v) financial choices oriented by strategic decisions taken in oligopolist contexts (Brander-Lewis, 1986; Titman, 1984; Maksimovic, 1988); vi) financial choices taken in contexts of takeover raids (Harris-Raviv, 1988; Stultz, 1988; Israel, 1991).

In a situation of market failure, the choice of financing a plan of investment for an enterprise is correlated to the positive gap existing between costs of the internal and external finance (Fazzari-Hubbard-Petersen, 1988). From that, it emerges that the firms with a higher profitability rate and with a high level of liquidity would have to be those with a lower debt/assets ratio. However, the existence of asymmetric information should give rise to a trade-off between the financing strategies to the short and long period. Moreover, information asymmetry finds an explicit realization in the estimation of the risk of the investment plan, such appraisal directly influences the financing choices.

One of the direct consequences of the information asymmetry on the credit market is the equilibriums with rationing. The rationing is the cause of the market failure.

That could be connected to an insufficiency in the structure of information that the enterprise sends to the market (Besanko e Thakor, 1993), so the asymmetric information it's bigger than the firm's efforts to reduce it.

The asymmetric information generates rationing also because it modifies the distribution risk-return of the projects, that could lead the credit system refusing the supply of capital and generating a divergence between the supply and the demand (Stiglitz and Weiss, 1981).

Competitiveness is a typical economic concept. It is usually measured as the advantage of firms as compared to their competitors in both the domestic and international markets, focusing attention on the macroeconomic level. (World Economic Forum, 1995; Markusen, 1992 and Porter, 1990).

Within the macroeconomic analysis, authors like Lipschitz and McDonald measured the competitiveness of a system in terms of real exchange rate. Helleiner (1989) and Krugman (1994) criticize the assertion of competitiveness as a whole, pointing out that a country cannot be competitive in absolute terms but exclusively in average. That should involve an increase of the exchange rate, even if in some sectors the country is not competitive. So, fluctuation in the exchange rates will be offset by the balance of payments (Lafay, 1987).

Anyway, “*economic-wide competitiveness*” includes the concept of competitiveness as measurable by *cross-countries* performance analysis. Therefore, it is important to choose variables able to measure performance in quantitative or qualitative terms. A generally used possibility is to analyse the growth of GDP, under the hypothesis of a causal relation between competitiveness and economic growth.

The alternative is to use the concept of competitiveness finalized to understand the competitive relations among firms. It is clear that macroeconomic conditions, such as a high level of education, high attitude to competitive market conditions and high level of optimization in the use of natural resources, can influence the competitiveness of specific industrial sectors.

The competitive relations established at micro level essentially express themselves through actions inclined to offers of high quality products and services at the lowest possible prices.

In this way, the concept of competitiveness is strictly linked to the economic theory; the understanding of the marketing capabilities is the first objective in at least two fields of the theory: production and exchange.

The theory of production analyses the process of enterprises’ choice, assuming they aim to maximize the desired profit according to the technological constraints expressed by the production phase.

The maximization process determines the quantity of goods and services to be sold; as the production will go on until profit conditions exist on the market, then an enterprise will be competitive if it will have an increase of profit. Such definition does not lose effectiveness even if the goal of the firm is to increase its market shares instead of the profit maximization.

In synthesis, the theory says that profit maximization is correlated with the increase of market shares; so a firm that wants to sell the greatest number of products at the lowest possible price must have an optimal cost structure, or a cost structure below the market prices.

Credit rationing decreases the financial resources of the firm, as much as it possibly can’t make new investments, including investments in new occupations (Nickell and Nicolitsas, 1999).

From the microeconomic point of view the study of the 'industrial district' has a great importance, and of how this typology of territorial aggregation can help the competitiveness of firms (Prezioso, 1993). This study has always been an eclectic argument of search.

A number of regions have been appointed as industrial districts, mainly because of their growth, competitiveness and agglomeration patterns and of certain similarities to the model of industrial district provided by Marshall.

Most references to the origin of industrial districts go back to the economist Alfred Marshall. In his *Principles of Economics* (1922) the development and features of industrial districts, or as the author labels the phenomenon, "the concentration of specialised industries in particular localities" is discussed. Marshall stressed the importance not only of the business relationships instituted in a local environment, but also of undertaking other socio-cultural aspects of this phenomenon.

In his original formulation of the industrial district, Marshall envisioned a region where the business structure is comprised of small locally owned firms that make investment and production decisions locally. Scale economies are relatively low, forestalling the rise of large firms. Within the district, substantial trade is transacted between buyers and sellers, often entailing long-term contracts or commitments. In the seminal work by Marshall linkages and co-operation with firms outside the industrial district appears to be minimal. What makes the industrial district model so special, in Marshall's account, is the nature and quality of the local labour market, which is internal to the district and highly flexible. Individuals move from firm to firm, and owners as well as workers live in the same community, where they benefit from the fact that "the secret of industry are in the air", i.e. there is an industrial atmosphere, as he defines it. Workers appear to be committed to the district rather than to the firm, and moreover labour out-migration is assumed to be minimal. The district is seen as a relatively stable community which enables the evolution of strong local cultural identity and shared industrial expertise.

All of these features depicted by Marshall in the model of industrial district are subsumable under the notion of agglomeration, which suggests that the 'stickiness' of a place resides not in the individual localised calculus of firms or workers, but in the external economies available for each firm from its spatial conjunction with other firms and suppliers of services.

It is therefore not surprising, after this overview of the industrial model, that many disciplines, from economics to sociology and geography, have investigated the topic of industrial districts both in general terms and specific ones.

Many authors don't think that it's important to study the concept of the district beyond the traditional microeconomic approach, which studies the dynamics of production units separately from their positioning in the geographic space (the territory) (Prezioso and Renzetti, 1999; Prezioso, 2000). So, the main critical issues are two fundamental questions: i) the distinctive structural characteristics (economic and institutional specialization, relations, organization of firm,) that turn some territorial areas into industrial districts; ii) the effects on the firms that belong to the industrial district.

The characteristics that can identify the industrial district (starting from the Marshall concept) are:

- the presence of co-operation and competition elements that reduce the costs of market transactions;

- the great horizontal and vertical mobility of the workers;
- the presence of opportunities of “output” generated from the productive relations and the interactions between the enterprises and the subjects acting within the district;
- the abundance of non-material factors of local production (entrepreneurial culture, know-how);
- the presence of “social networks” in a position to facilitate the flow of information exchanges within the districts.

The presence of these communities that work like a “system” (Prezioso 2000), would favour, as intermediate output, the creation of common institutions and co-operatives that can generate a climate of mutual confidence (social capital) whose importance to the ends of the development is clear (Knack-Kiefer, 1997).

The ability to incorporate these key district characteristics in model forms has been until rather limited in previous years.

In order to completely comprehend the topic of competitiveness, the contribution of the “empirical literature” turns out to be fundamental for verifying the many reflections arising from the case studies, so to estimate if valid conclusions for some particular areas may have a general character.

Among such conclusions, these emerge:

- a positive effect of the district on the export performance and the foreign market access;
- a negative effect on expenses in research and development of the single enterprises, innovative performance being equal;
- a positive effect on ROE and measured productive efficiency through the methodology of the *stochastic frontiers*;
- an easier access to credit.

Another aspect of the microeconomic analysis of competitiveness is related to the dimensional impacts, so we try to establish which relations exist between competitiveness and dimension. Some recent contributions in matter of industrial economy assert as the peculiar characteristics of the territorial systems can strongly influence the occupational and productive dynamics of the enterprises. In fact they promote both a greater flexibility and a productive and occupational increase of the firms.

From the first half of the 1970’s there has been a progressive increase of small enterprises’ number in all of the greater industrialised countries, with a deep impact on the structure and organization of the production system. The under-dimensioning allows the enterprise to not have to bear the “transparency costs” and the “upsizing costs”.

In the analysis of the competition of the production systems the contribution in literature of Michael Porter is fundamental. The competitive advantage of an enterprise is described by Porter (1982 and 1991), in open conflict with the theoretical instruments of traditional planning and with the methodology of transition costs. The work of Porter sets attention on the importance of the territorial dimension in development.

The true origin of the competitive advantage of an enterprise is the local dimension (or milieu) in which the firm is placed. The territory next to the enterprise will

define many of the markets of input from which the enterprise must be re-supplied, the information driving its strategic choices, and the incentives and pressures towards innovation and accumulation of know-how or resources in time. Competitive advantage can reside both in the territory and in the single enterprise (Porter, 1982).

Porter denies the hypothesis of the mutual extraneousness between enterprise and territory, in order to establish a much more complex dialectic: the territory/environment is no more an objective data and becomes the "product" of the strategic action of the enterprise.

In his approach Porter places the enterprise and the production, defining two concepts: the chain of the value and the competitive environment.

An enterprise is something more of the simple sum of its activities. The value chain of a firm is a system of interdependences, a net of activities, connected from connections.

The generation of economic value is not a phenomenon that can be determined in an isolated ring of the chain, but demands the co-ordination and the competition of all the activities, which produce a competitive advantage in the strength of their complementariness. Therefore, economic competition does not happen opposing isolated enterprises, but alternative value chains. The best enterprises create and support the territory through their ability to improve continuously. According to Porter the advantage consists in the process of movement along the value chain.

So competitiveness is not limited to single contenders, but extends to many actors (stakeholders, suppliers, shareholders, etc.) that are situated along the value chain and exactly define the extension of the activities that the enterprise carries out to compete in a specific field.

With the 'competitive milieu' notion, Porter rediscovers two fundamental elements in economic analysis: history and geography. History is fundamental in order to understand the dynamics of the forces involved and their development. The 'competitive atmosphere' of an enterprise is subject to changes over time: with the intensifying of the 'competitive games' and the growing of the technological complexity, the enterprise must continuously renew its own capabilities to control and co-ordinate, in order to remain competitive. Geographically, the 'competitive milieu' has the propensity to extend, integrating and differentiating, so that the localization strategy is an integral part of the competitive action of the enterprises.

Porter asserts that competitive advantage depends on the internal factors of the enterprises, and on the territory where the enterprises are located, so the search for competitive advantage cannot be separated from the interaction with the local systems and their actors. This assertion leads to a fundamental point of analysis: if the advantage is achieved and maintained through a localized process, the reasons of the success of some competitors must be searched exactly in the localized contexts (states, regions) where they operate.

In Porter's studies, this greater role for the territory as a competitive element has emerged from a large sample of industries selected in ten countries which are market leaders. The ability of an enterprise to innovate and grow depends on four characteristics of the territory (hence the famous "diamond"), geographically are not common:

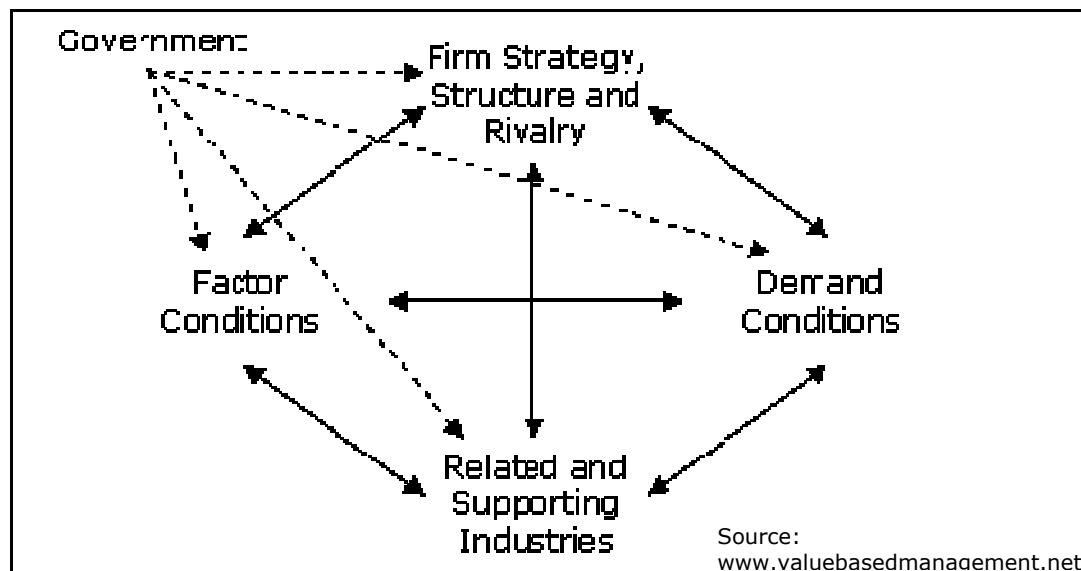
- Strategic localization
- Local demand

- Integration with regional *cluster*.
- Human Resources

Moving from competitiveness of the enterprises up to national competitiveness Porter transforms the diamond (Fig. 1) where the fundamental elements are:

- factor conditions (i.e. the nation's position in factors of production, such as skilled labour and infrastructure);
- demand conditions (i.e. well-aware customers in domestic market);
- related and supporting industries;
- business strategy, structure and rivalry (i.e. conditions for the organization of companies, and the nature of domestic rivalry).

**Figure 1:** Porter's Diamond Original Model for the competitive advantage of Nations



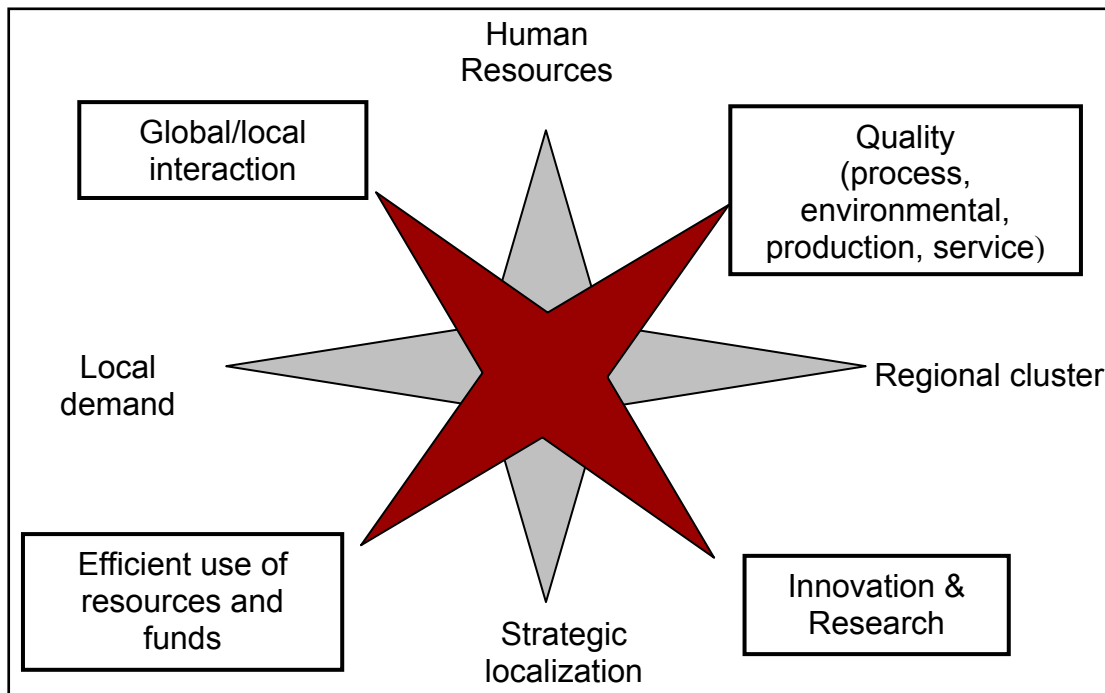
Porter argues that the best management styles vary among industries. Some countries may be inclined toward a particular style of management and will tend to be more competitive in industries for which that style of management is suited. Moreover Porter argues that intense competition spurs innovation. Competition is for instance particularly fierce in Japan, where many companies compete vigorously in most industries. International competition is not as intense and motivating, and there are such differences between companies and their environments as to provide useful excuses to managers who were outperformed by their competitors.

In such a context of reference, the research of new structural indicators suitable to compare objectively European Member States from a territorial competitiveness viewpoint, both at regional and sub-regional levels, asks for a revision of the Porter's diamond. The diamond's model needs to be updated according to the recent indications from new economics and social models for a new EU fulfilling the Lisbon and Gothenburg strategies. In this direction it is possible to add another star into Porter's diamond, crossing the first one, thus increasing the interactive elements to be considered. In addition to the classical elements of Porter's diamond, we can list four additional categories of elements that will also include the classical elements:

- Global/local interaction
- Quality (process, environmental, production, service quality)
- Innovation & Research
- Efficient use of resources and funds

The new scheme deriving from these concepts is represented in the following way:

**Figure 2:** Modified Porter’s Diamond Model (CEIS, 2004-2006)



### 1.3.2 Policy/programming literature review

There is already a wealth of policy-related documentation at the EU level related to the Lisbon and Gothenburg Strategies. This part of report sets out a preliminary overview of some of the most important relevant policy-related documents including the *Presidency Conclusions* of the Lisbon (2000) and Gothenburg (2001) European Council Meetings, the annual *European Competitiveness Report*, the most recent report on *Economic and Social Cohesion* (2004) and the *European Sustainable Development Strategy*.

The main focus of the review is competitiveness. This part of the report summarises the various definitions, key concepts and indicators to be found in these documents. First, however, is a short outline concerning the significance of competitiveness for spatial development in Europe.

Competitiveness is a fundamental goal of European policy and is central to the aims of spatial development policies in Europe. According to the *European Spatial Development Perspective* (ESDP), the aim of spatial development policies is to work towards a balanced and sustainable development of the territory of the European Union according to three fundamental goals of European policy (*Committee on Spatial Development*, 1999: p. 10), namely: economic and social cohesion, conservation and management of natural resources and the cultural heritage, more balanced competitiveness of the European territory.



The ESDP identifies a variety of ways in which different aspects of territorial development can influence competitiveness. Examples include transport policy, research, training and development (RTD), monetary union and telecommunications. Concerning transport policy, for example, the ESDP states that rising traffic levels, particularly on road and air networks, are threatening the competitiveness of some central areas in the EU<sup>2</sup>. Concerning RTD, the ESDP states that multi-annual Framework Programmes promote co-operation with and between companies, research centres and universities with a view to reinforcing the scientific and technological foundations of industry and its competitiveness on the world stage. On monetary union, the ESDP argues that this will trigger further intensification of EU domestic trade and further specialisation within the EU and will enhance the competitiveness of the EU in the world market. In terms of telecommunication policy, the ESDP states that the development of information and telecommunications networks is an important potential force for closer integration and the promotion of enhanced competitiveness for cities and regions in the EU.

Competitiveness is likewise important for the guiding principles for the sustainable spatial development of the European continent as agreed by the *European Conference of Ministers responsible for Regional Planning*, or CEMAT (CEMAT, 2002). According to the document, the development of a sustainable spatial development policy for the territory of the Council of Europe should be based on ten principles relating to more regionally balanced development. The first of these principles relates specifically to competitiveness: development should promote territorial cohesion through a more balanced social and economic development of regions and improved competitiveness (CEMAT, 2002: p.12).

## 1.4 Definitions

### 1.4.1 Initial definitions

According to the *Seventh Competitiveness Report* published in 2003, competitiveness can be defined in many ways (CEC, 2003a: p. 130). Thus, there is no single definition of competitiveness: a variety of different definitions exist in the policy/programming literature. Of these various definitions, the most up to date comes from the 2003 European Competitiveness Report. According to this document, competitiveness is understood to mean «*high and rising standards of living of a nation with the lowest possible level of involuntary unemployment, on a sustainable basis*» (CEC, 2003a: p. 6). The 2002 Communication from the European Commission to the European Council and European Parliament concerning productivity (*'Productivity: the key to competitiveness of European economies and enterprises'*) contains a similar (but not identical) definition, stating that competitiveness is understood to mean «*a sustained increase in real incomes and in the standards of living of regions or nations, with jobs available for all those who wish to find employment*» (CEC, 2002: p. 4). This definition was in fact based on the definition from the earlier 2001 European Competitiveness Report (European Commission, 2001). More importantly, however, it is noted in the 2002

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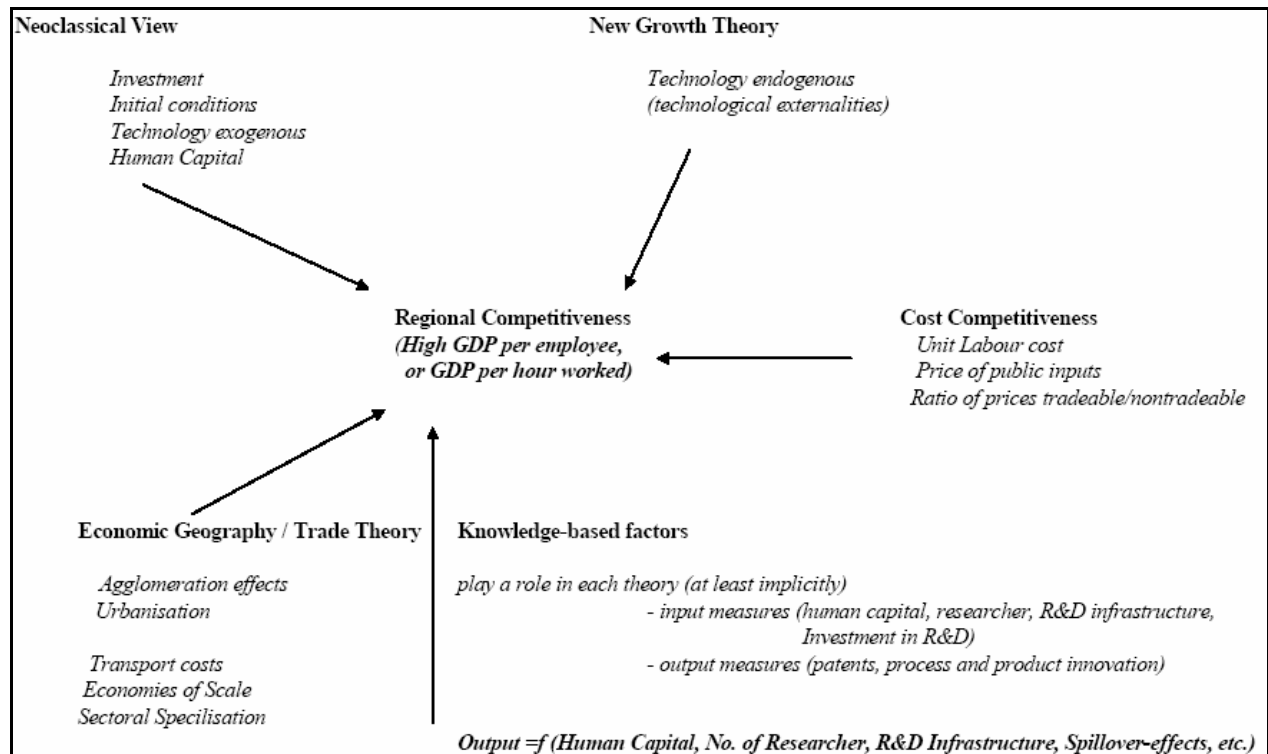
<sup>2</sup> The 2001 *European Transport White Paper* states that the Trans-European transport Network (TEN) is an important factor in promoting European competitiveness and improving links between the European Union's outlying regions and its central markets (CEC, 2001, p. 50)

Communication concerning productivity that this concept of competitiveness is different from the narrower concept applying to the *competitiveness of enterprises*: domestic factors are less dominant determinants of the competitiveness of enterprises (see for example Krugman, 1994 for a discussion of these concepts).

The third chapter of the 2003 *Competitiveness Report* focuses on the *regional aspects* of competitiveness. It defines regional competitiveness for the purposes of the Competitiveness Report in terms of productivity (regional GDP per hours worked), work-leisure balance (total hours worked per employee), the rate of employment and demographic factors (the ratio of the population of working age). The Competitiveness Report identifies many parallels with the study of national competitiveness and certain indicators that are likely to be common to both country-level and regional analyses. However, it asserts that regions are different from countries in some key respects. Sub-national regions are part of the national monetary union and subject to common rules governing their international trade, and the degree of price and wage flexibility is generally less than across nations, whereas generally there is full and unrestricted capital and labour mobility. Regions do not have the same set of adjustment mechanisms as countries, and therefore the concept of macro-economic competitiveness cannot be fully applied to the regional level; on the other hand, as part of a national fiscal system, regions enjoy substantial benefits related to fiscal transfers that constitute an important adjustment mechanism (CEC, 2003a, p. 130). As regional competitiveness shares many features with its national counterpart (competitiveness between nations), according to the report, most theoretical approaches are usually present in both areas of work. Figure 3 gives an overview of the theoretical foundations and of the array of factors that can be considered to play a role in determining regional competitiveness. The concepts from neo-classical, new growth theory and cost competitiveness apply equally well to regions as to nations. On the other hand, knowledge and innovation, and localisation/specialisation effects are critical factors in regional competitiveness. These concepts and issues are reviewed in some detail in the 2003 Competitiveness Report and summarised in Box 2 (Chapter 2).

According to the 2003 *Competitiveness Report*, the EU is characterised by substantial regional diversity in wealth, and competitiveness conditions differ substantially across regions. Whilst a process of convergence has taken place, assisted by the contribution of the Structural Funds, this process has been slow and fostering regional cohesion remains a critical policy challenge. The report attempts to analyse regional competitiveness empirically both across regions and across time, although data constraints limit the number of available indicators and the depth of analysis. However, sufficient indicators were available to measure productivity in 15 sectors across the NUTS2 regions between 1980 and 2000. Similarly, proxies were identified to measure the importance of knowledge in the regional economy. This analysis suggested a positive correlation of productivity with research and development intensity, specialisation in high-tech activities and the number of students in tertiary education (CEC, 2003a, p. 11).

**Figure 3:** Aspects of Regional Competitiveness (*source: CEC, 2003a: p. 131*).



#### 1.4.2 Proposal of new definitions in the light of territorial cohesion priorities in support of the Lisbon/Gothenburg strategy

Territorial cohesion is mentioned in the current EU Treaty<sup>3</sup> and in the draft EU Constitution, as well as in several EU policy documents such as the White Paper on European Governance, the Communication on Integrated Coastal Zone Management, the White Paper on Transport and the report of the Van Miert Group on the revision of the TEN Guidelines. Although not explicitly mentioned in the Lisbon Strategy, it has been argued that it implicitly incorporates a strong territorial dimension (e.g. Luxembourg Presidency of the European Council, 2005). The first formal attempt to define the concept comes from the European Commission's Third Cohesion Report (2004), which refers to territorial cohesion as a synonym for 'more balanced development', 'territorial balance' or 'avoiding territorial imbalances', stating: «The concept of territorial cohesion extends beyond the notion of economic and social cohesion by both adding to this and reinforcing it. In policy terms, the objective is to help achieve a more balanced development by reducing existing disparities, avoiding territorial imbalances and by making both sectorial policies which have a spatial impact and regional policy more coherent. The concern is also to improve territorial integration and encourage co-operation between regions.».

The Interim Territorial Cohesion Report, prepared by DG Regio based on preliminary results of the ESPON programme and other Commission studies, provides a more thorough presentation of the concept of territorial cohesion (EC, 2004). According to the report, territorial cohesion is complementary to economic and social cohesion: it concerns 'the balanced distribution of human activities

<sup>3</sup> Article 16 of the EC Treaty concerns the role of services of general economic interest in promoting 'social and territorial cohesion'.

across the Union' and 'translates the goal of sustainable and balanced development assigned to the Union into territorial terms' (EC, 2004, p. 3).

During the Dutch presidency of the EU in 2004, the issue of territorial cohesion was one of the main subjects of discussion at the EU informal ministerial meeting held in Rotterdam (November 2004). The meeting sought to elaborate the objective of territorial cohesion (although no general agreement was reached on an operational definition of the concept of territorial cohesion) and to adopt a political agenda for the following 2 to 3 years with the aim of creating a coherent, effective and efficient approach to territorial development in EU policies. An accompanying discussion paper was prepared by the Dutch government for this meeting, *which* set out three 'distinct but related dimensions of territorial cohesion' (Dutch Presidency of the European Council, 2004):

- a regional/national dimension – adding a territorial dimension to EU cohesion policy
- a trans-national and interregional dimension – concerning external economic, social and cultural links
- a governance dimension – integrating and coordinating public policy between regions and across borders

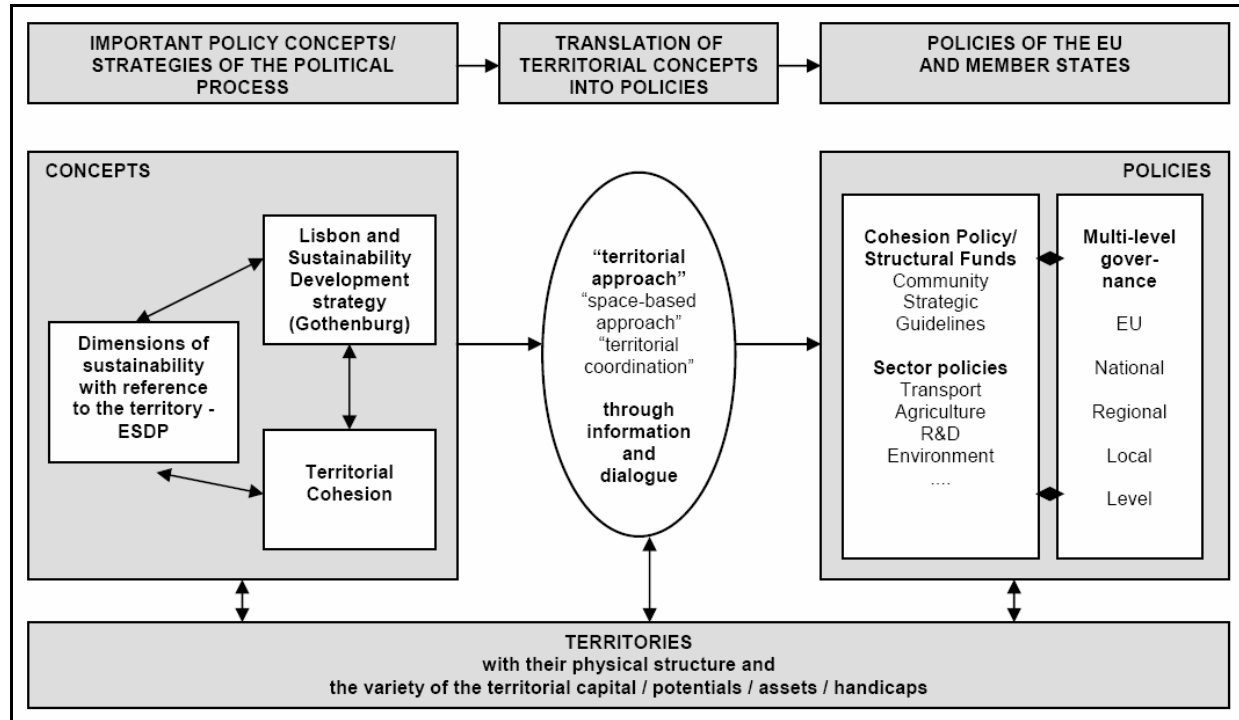
The scoping document prepared to inform discussion at the informal ministerial meeting on Regional Policy and Territorial Cohesion in Luxembourg (20-21 May 2005) continues along similar lines to the discussion paper prepared for the 2004 ministerial meeting in Rotterdam (Luxembourg Presidency of the European Council, 2005). The scoping document asserts that the concept of territorial cohesion builds on the ESDP and states that territorial cohesion 'adds to economic and social cohesion by translating the fundamental EU goal of balanced competitiveness and sustainable development into a territorial setting'. The accompanying document, *synthesis of the political messages*, states: «Although not explicitly mentioned in the strategy, both the Lisbon and Gothenburg ambitions have a strong territorial dimension. The territorial dimension is essential for the implementation of the strategy as most important and dynamic forces in terms of economic development are increasingly both localised and territorially specific.».

The translation of the concept of territorial cohesion into policy and practice is also considered in the scoping document prepared for the Luxembourg meeting. The integration of the territorial dimension into European and national policies (including sectorial policies as well as cohesion policies and Structural Funds) is highlighted (Figure 4). The document states: «Strengthening territorial cohesion in the light of the Lisbon aims is not about creating a top-down and separate EU territorial policy but about integrating the territorial dimension into EU and national policies. Although spatial development is more than territorial cohesion, the EU Ministers with a responsibility for spatial development and the Commission could have a key role in raising awareness concerning the territorial dimension of EU policies and in promoting policy coherence and co-operation in this concern. The EU institutions and other stakeholders should become more aware of this territorial dimension and should be triggered to act adequately... Moreover, the EU Ministers for spatial development have a role in strengthening the (trans-)European dimension of national and regional territorial development strategies and policies and promoting horizontal and vertical policy coherence.».

Reviewing these documents, Camagni (2005) proposes a definition for territorial cohesion as the territorial dimension of sustainability. Like the concept of

sustainability, it attempts to integrate economic, social and environmental dimensions. More specifically Camagni sets out the three main aspects of territorial cohesion (territorial quality,<sup>4</sup> territorial efficiency<sup>5</sup> and territorial identity<sup>6</sup>), arguing that territorial cohesion concerns the integration of these three aspects (Figure 5). According to such a definition, the Lisbon and Gothenburg Strategies would appear to be perfectly compatible with the concept of territorial cohesion.

**Figure 4: Translation of policy concepts into policies for territories** (source: Luxembourg Presidency of the European Council, 2005)

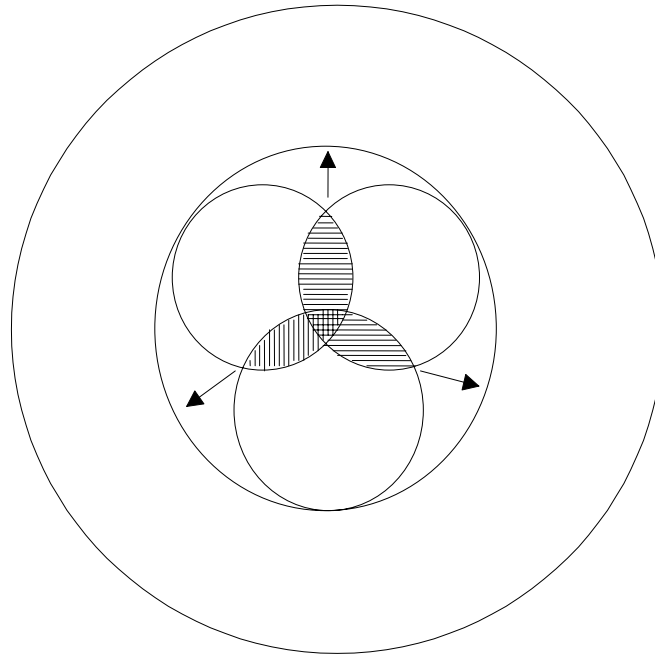


<sup>4</sup> territorial quality: the quality of the living and working environment; comparable living standards across territories; similar access to services of general interest and to knowledge

<sup>5</sup> territorial efficiency: resource-efficiency with respect to energy, land and natural resources; competitiveness of the economic fabric and attractiveness of the local territory; internal and external accessibility

<sup>6</sup> territorial identity: presence of 'social capital'; capability of developing shared visions of the future; local know-how and specificities, productive 'vocations' and competitive advantage of each territory

**Figure 5: The components of territorial cohesion** (source: Camagni, 2005)



#### 1.4.3 Proposal of new definitions: reconciling the Lisbon and Gothenburg Strategies with Territorial Cohesive dimension

As a consequence of the Lisbon Strategy's relaunching, the review of the EU sustainable development strategy, ongoing discussions about the future of the Structural Funds (and the European Constitution), planning and programming concerning the Lisbon and Gothenburg Strategy are currently in a state of flux. It is therefore extremely difficult to assess the congruence of the Lisbon and Gothenburg Strategies or their relation with territorial cohesion. It is possible, for example, that the Structural Funds could be bent to support a relatively narrow (predominantly economic) agenda in support of the Lisbon Strategy of growth and competitiveness or, on the other hand, they could be broadened to encompass the broader aspirations of territorial cohesion. An important factor in this debate is how the policy priorities are translated into practice. One of the main chapters (Chapter 5) of the recent Communication from the European Commission on Cohesion Policy is addressed to territorial cohesion, so it might be reasonable to assume that territorial cohesion will be an important dimension of future Structural Funds and Cohesion Funds (European Commission, 2005b).

EU Cohesion policy is the second largest area of EU expenditure, with an allocation of €212 billion between 2000 and 2006 and a further €22 billion in the new Member States between 2004 and 2006. It is a territorially focused policy: most of the funding is allocated for specific areas. Over two-thirds of the expenditure is spent on economic and social development in the least prosperous parts of the EU (with a GDP pro capita of less than 75 percent of the EU average), covering around 22 percent of the EU population. Since the reform of the Structural Funds in 1988, spending has been based on multi-annual programs drawn up by Member States (at national or regional levels) and approved or adopted by the Commission. For larger programs, Member States prepare Community Support Frameworks (CSFs), which outline the strategic objectives of the funding, and a series of sector-specific or region-specific Operational Programs (OPs) describing the detailed measures and

delivery arrangements for interventions. In the case of smaller programs, these two levels of programming are combined in a Single Programming Document (SPD). Although the parameters for these programming documents are outlined in Council Regulations, there is considerable scope for interpretation of issues such as the balance of spending, the prioritisation of EU policy objectives and themes and eligible expenditure. Through the process of approval/adoption of programming documents, and latterly the requirements for monitoring, reporting and financial management, the Commission has been able to influence the content and delivery of regional development programs.

In the 2007-2013 programming period, the Commission has proposed a new and important form of leverage on how Member States spend EU Cohesion policy allocations, which is of considerable significance for the territorial cohesion agenda. The proposal involves a new planning system with, at the apex, a set of Community Strategic Guidelines and National Strategic Reference Frameworks governing the delivery of individual operational programs. This is intended to ensure that overall EU policy objectives are reflected more clearly in the allocation of resources. The 2005 Community Strategic Guidelines takes account of some of the policy views expressed at the Rotterdam ministerial meeting, with a chapter dedicated to 'taking account of the territorial dimension of cohesion policy' (European Commission, 2005b). The document states: «The concept of territorial cohesion extends beyond the notion of economic and social cohesion, its objective being to help achieve a more balanced development, to build sustainable communities in urban and rural areas and to seek greater consistency with other sectorial policies which have a spatial impact. This also involves improving territorial integration and encouraging co-operation between and within regions.» (European Commission, 2005b, p. 29)

The extent to which future Structural Funds programs will deliver territorial cohesion will also depend on the content of domestic development policies in the Member States. These are likely to be reflected in the implementation of European Cohesion policy. In a number of EU Member States policies are increasingly concerned with growth and overall national development, rather than with overcoming internal disparities. In such countries, a shift has taken place in spatial targeting from selectively focusing resources on designated regions 'in need' to an approach which places emphasis on the contribution of all regions to national development and growth, what Yuill termed the 'all-region approach' (Yuill, 2004, pp. 21-22).

Perhaps the most striking example of this shift to an 'all-region approach' in the domestic regional policies of the Member States is found in the Dutch 2004 regional policy White Paper. This sets out an economic agenda for six Dutch regions, focusing particularly on large, 'ambitious' projects targeted at the "recovery of the growth capacity of the Dutch economy and strengthening the business locations climate" (Ministerie van Economische Zaken, 2004:11). The strategy of the White Paper incorporates two innovations:

- the refocusing of regional economic policy away from the traditional problematic regions in the north and towards economic priorities in all Dutch regions
- a move towards a more selective policy approach, with clear choices being made as to where, in the regions, national policy efforts should be directed

Similar approaches can be found in the Irish National Spatial Strategy which aims to provide a framework for the development of an all-island economy (McMaster, 2004), as well as in policy documents of the UK. The National Planning Framework

for Scotland, for example, highlights «the importance of place and identifying priorities for investment in strategic infrastructure to enable each part of the country to play to its strengths in building a Scotland which is competitive, fair and sustainable» (Scottish Executive, 2004, p. 10).

This move to an all-region/national growth approach is not just taking place in countries where regional disparities have traditionally been perceived as low (such as Austria, Denmark or the Netherlands), but also in other countries. This is not least due to the negative economic cycle of recent years and the difficulties met in maintaining sustainable economic growth also in the wealthiest and economically healthiest regions. The above-mentioned trend is particularly evident in the new Member States where, despite the general rise of regional disparities - caused mainly by the unprecedented, accelerated growth, especially in and around the main cities - the policy focus tends to be on reducing the national development gap with the EU average, rather than on addressing interregional inequality (Yuill and Quiogue, 2005). Some of the 10 new Member States that joined the European Union in May 2004, whose Structural Funds strategies in the 2004-06 period were focused on national development, are currently considering shifting their policy emphasis for the next programming period towards more balanced regional development (Davies and Gross, 2005, p. 18).

The policy shift to national development and all-region approaches can be seen as having, potentially, both positive and negative effects on the contribution of future Structural Funds programs to the goal of territorial cohesion. On the one hand, the emphasis placed on national growth (and catching-up) over inter-regional balance, may contribute to the achievement of territorial cohesion at a pan-European level. On the other hand, territorial cohesion may be constrained at the domestic level, due to the residual weight attributed to spatial balance across and within regions, which is seen as secondary to overall national growth.

Despite new rules and re-focused overarching policy objectives (i.e. harmonization of strategies with the so-called Lisbon goals), it is likely that current programs will significantly influence their successors. This will be particularly the case in the new Member States where the 2004-2006 period has been considered as a preparatory, learning phase for the 'real' challenge of the 2007-2013 period. The political and policy rhetoric of territorial cohesion is likely to be subject to major constraints. The flexibility sought by some Member States with respect to the proposed Community Strategic Guidelines suggests that they do not necessarily share the conceptual approach underlying territorial cohesion. Second, the policy priorities of individual countries vary greatly. Third, there is considerable variation in the scope and capacity of institutional arrangements within Member States to address the territorial cohesion agenda.

On the basis of this critical revision, the 3.3 project proposes to introduce a new language into EU declarations.

The proposal is the logo **competitiveness in sustainability** which is to be considered the target of the 2007-2013 European structural policies, both as measure of the regional capability to apply Lisbon/Gothenburg strategy and as a fundamental goal of the European national and regional policies to obtain a cohesive, polycentric and co-operative territorial development.

In order to help this integrated process, the project suggests accepting that competitiveness (Lisbon) could have lots of definitions, and different territorial dimensions. That is precisely opposite to what happens with respect to



sustainability (Gothenburg), whose definition is clear to everybody and doesn't have to be justified and discussed in the same way (see Glossary).

The project suggests integrating the initial definitions with the following key-messages applicable at the regional scale:

- *a competitive market which uses internal and distinguished development factors, in respect of rules (governance) to grant environmental, social, cultural, economic sustainability;*
- *the availability of key resources useful to business vitality and innovative factors acting in a stable social system;*
- *the possession of co-operative and subsidiary managerial capabilities, to inspire confidence towards the institutions;*
- *the capability to produce and hold in the territory the maximum possible added value (economic competitiveness), enhancing as well the resources through local co-operation (social competitiveness);*
- *environmental values distinctive of the territory itself, whose active protection is granted by a renewable use of the natural resources and wealth (environmental competitiveness);*
- *high co-operative internal capacities, measurable in the ranking assigned by globalisation (political competitiveness).*

This proposal, concerning the evaluation of the territorial dimension of competitiveness in sustainability, and referring as well to the studies on the competitiveness of nations (i.e. Porter, Krugman, Kok), has the goal to provide a critical and constructive approach of macro-economic evaluation widened to the regional scale.

The project suggests assessing territorial competitiveness (Lisbon) linked to sustainability (Gothenburg) also from the externalities and internalities point of view (*economies of external and internal co-operation scale*), thus suggesting the European policy makers push single regions in order to make them do the same to define independent policy declarations in regionally operational documents/programs.

The dimension of these declarations should be evaluated through the parameters selected in the project, which have to be adopted as reference points to start in the 2007-2013 period the enhancement of the different territorial contexts in the perspective of **stable cohesion**<sup>7</sup> (an approach inside the countries or regions), **convergent cohesion** (a comparable approach between the countries and regions), **cohesion towards a continuing improvement** of European populations' general life style, to evaluate the positive progress of regional **performance** in terms of occupation, income and productivity. These parameters are represented by the 4 *synthetic and composite indicators* the project built in

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<sup>7</sup> In this case the word means the capabilities of strength, co-operation, peaceful and productive coexistence among all the components of productive systems; but also the institutions' eligibility and efficiency in putting into practice *governance* rules, leading the business community to pursue, in individual behaviours, such goals as:

- 1) the positive and productive introduction into the social and economic environment,
- 2) the development of "proactive" behaviours towards the inclusion collective choices (up to the "burdening" of individual and social responsibilities),
- 3) contributing with the (formal or not) institutions to the community government, sharing their "good practices".

order to let old strategies (strategic localization, local demand, integration with regional cluster, human resources) and new ones interact, determining the development of the Lisbon/Gothenburg strategy aims: **i) innovation and research, ii) global/local interaction, iii) quality, iv) resources and funds.**

## 2. Definition of the four key themes and statistical issues to apply the Lisbon/Gothenburg strategy

Regional development is strongly linked to national and regional competitiveness. According to the Third report on economic and social cohesion, regional development requires favourable national conditions such as a macro-economic environment conducive to growth, employment and stability and a tax and regulatory system which encourages business and job creation. Two complementary sets of conditions at the regional level also need to be satisfied (European Commission, 2004). The first concerns physical and human capital or infrastructure: material infrastructure in the form of transport, telecommunications and energy networks, and water supplies, for example, and human capital in the form of a labour force with appropriate levels of skills and training. The second set of conditions concerns *regional competitiveness* factors (Box 2), which includes issues such as innovation, information and communication technologies (ICT), and environmental protection.

**Box 2:** Summary of theoretical foundations and factors that can play a role in determining regional competitiveness

A variety of general factors affecting competitiveness are suggested by the literature. Neoclassical theory points to physical and human capital as key influences, while technology remained largely exogenous, whereas new growth theory brought technology within the system, suggesting that the accumulation of knowledge could generate increasing returns. Knowledge could be measured as the skills of the workforce, such as education levels or spending on education, or through measures such as R&D expenditure. Theories more in tune with regional economics, such as new economic geography, look at the effects of localisation on productivity. A number of studies link spillover effects, in particular knowledge spillovers, with productivity gains. This links ideas from new growth theory with the concept of knowledge spillovers as important sources of externalities. Work on knowledge and innovation has suggested a variety of relevant indicators. While it is recognised that many of the indicators will be related/correlated with each other, it is necessary to respect a basic idea of causality, i.e. not to explain one output indicator with another. A variety of indicators can be linked to productivity to assess bi-variate relationships over time and across regions. Econometric approaches such as the Barro regressions rely on explaining productivity growth by a list of factors, including the concept of catch-up suggested originally by neo-classical theory. The list of other factors has gradually been added to by more recent theoretical advances. In addition, new growth theory suggests it is important to test for, and take account of, spillover effects across regions. Clearly, there are factors suggested by theory as having an effect on competitiveness for which there is no quantifiable approximation. Much of government policy falls into this category, as do indicators measuring the extent of venture capital activity, business registration rates, and the presence of high-tech clusters. Such features can be examined to see whether they are present in the characteristics of those regions which display productivity growth in excess of what would be expected when taking account of the more measurable influences.

Source: CEC (2003a), p. 137-138

This set of conditions largely relates to 'intangible' factors that are also related to business competitiveness. They include also the capacity of a regional economy to generate, diffuse and utilise knowledge and maintain an effective regional innovation system; a business culture that encourages entrepreneurship; and the

existence of co-operation networks and clusters of particular activities. These two sets of conditions are interrelated. The precise focus and the mix of factors which are targeted will depend on the starting position, the characteristics of the region concerned, the prevailing circumstances, the development path being followed and so on. There is, therefore, neither a unique nor fixed recipe for successful regional development. Regions must find the right policy mix for their own development path according to their particular economic, social, cultural and institutional features. The importance of good governance for regional competitiveness is also recognised elsewhere in the document (European Commission, 2004, p. xiii).

Reviewing policy literature and assessment reports concerning the Lisbon Strategy helps to identify key themes associated with competitiveness. The two European Council documents produced in 2003 entitled 'Lisbon Strategy Conclusions (Lisbon to Thessaloniki) by theme' and 'Lisbon Strategy Conclusions (Lisbon to Brussels) by theme' provide one source of material to identify key themes associated with competitiveness. These two reports review progress towards the goals of the Lisbon Strategy according to the various themes developed from the structure of the original Lisbon conclusions of 2000 (European Commission, 2003a and b). These main themes include:

- establishing a European area of research and innovation
- economic reforms for a complete and fully operational internal market
- more and better jobs for Europe
- the social policy agenda
- a strategy for sustainable development
- putting decisions into practice: a more coherent and systematic approach

The key issues under each of the above themes are summarized in Box 3. Another recent assessment of the Lisbon Strategy, the Centre for Economic Reform's 2004 annual review of progress towards the goals of the Lisbon Strategy, *The Lisbon Scorecard IV* (Murray, 2004), is a second useful source of material to help identify key themes associated with competitiveness. This report is also based around similar main headings as the two European Council documents produced in 2003 (see above), with the exception of the theme of policy implementation or governance, to which the Centre for Economic Reform's report pays less attention.<sup>8</sup> The five main headings of the Centre for Economic Reform's report are:

1. innovation
2. liberalization
3. enterprise
4. employment and social exclusion
5. sustainable development

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<sup>8</sup> "putting decisions into practice" is the heading used in the two European Council documents to refer to the theme of policy implementation or governance.

**Box 3:** Key issues according to some of the main themes in the European Council's review of progress towards the goals of the Lisbon Strategy

***Establishing a European area of research and innovation***

- the European research area
- the 6th framework programme for research and development
- frontier technologies and biotechnology
- clean and environmental technologies
- defence R&D
- increasing investment in research and innovation
- the Community patent/intellectual property protection
- space policy

***Economic reforms for a complete and fully operational internal market***

- completing the internal market
- implementation deficit
- energy networks
- postal services
- single European sky
- Galileo
- railways, ports and trans-European networks
- internal market for services
- competition rules and state aid
- procurement
- better regulation / impact assessment
- consumer policy

***More and better jobs for Europe: developing an active employment policy***

- overall objectives
- employment targets – towards full employment
- high level employment task force

***The social policy agenda***

- the European social policy agenda
- improving quality in work
- reinforcing social cohesion: the social agenda
- role of the social partners
- corporate social responsibility
- modernising social protection (ageing population / pensions / healthcare)
- promoting social inclusion
- immigration
- equal opportunities

***A strategy for sustainable development***

- a new approach to policy-making
- the global dimension - Johannesburg
- environmental priorities for sustainability
- combating climate change / Kyoto
- ensuring sustainable transport
- addressing threats to public health
- managing natural resources more responsibly
- maritime safety

***Putting decisions into practice: a more coherent and systematic approach***

- improving the existing processes and role of the spring European Council
- structural indicators
- implementing a new open method of coordination
- broad economic policy guidelines
- employment guidelines
- structural changes – the Cardiff economic process

*source:* Adapted from European Commission (2003b)

The main indicators for monitoring the Lisbon and Gothenburg Strategies presented in the 2004 report from the Commission to the Spring European Council (CEC, 2004), are also grouped according to five similar themes, namely:

1. employment
2. innovation and research
3. economic reform
4. social cohesion
5. environment

## 2.1 *Examples of initial indicators*

The subject of indicators concerning the Lisbon and Gothenburg Strategies, and competitiveness in particular, has been discussed intensely since the agreement of the Lisbon and Gothenburg Strategies in 2000 and 2001. At the European Council meeting in Lisbon in March 2000, the European Council invited the Commission to draw up “*an annual synthesis report on progress on the basis of structural indicators to be agreed relating to employment, innovation, economic reform and social cohesion*” (Council of the European Union, 2000: para36).

In the statistical annex to the *2004 Report* from the Commission to the Spring European Council (CEC, 2004), indicators for monitoring the Lisbon Strategy are presented according to five main themes and summarised in Box 4 below<sup>9</sup>.

**Box 4:** Indicators for the Lisbon and Gothenburg Strategies from the 2004 Report from the Commission to the Spring European Council

### **Employment**

- Employment and productivity development in EU
- Total employment rate
- Employment rate – females
- Employment rate – males
- Total employment rate of older workers
- Employment rate of older workers – females
- Employment rate of older workers – males

### **Innovation and Research**

- GERD (Gross domestic expenditure on R&D)
- Evolution of R&D spending
- Youth educational attainment level – total
- Youth educational attainment level – females
- Youth educational attainment level – males
- Evolution of youth educational attainment level

### **Economic Reform**

- Comparative price levels
- Business investment
- Evolution of business investment

### **Social Cohesion**

<sup>9</sup> an additional general economic theme, encompassing two other indicators (GDP per capita in PPS and labour productivity per person employed), is also contained in the statistical annex

- At-risk-of-poverty rate after social transfers – total
- At-risk-of-poverty rate after social transfers – females
- At-risk-of-poverty rate after social transfers – males
- Evolution of the at risk of poverty rate
- Dispersion of regional employment rates – total
- Dispersion of regional employment rates – females
- Dispersion of regional employment rates – males
- Total long-term unemployment rate
- Long-term unemployment rate – females
- Long-term unemployment rate – males

**Environment**

- Total greenhouse gas emissions
- Energy intensity of the economy
- Transport – Volume of freight transport relative to GDP
- Relative performance of the 15 Member States according to the Structural Indicators on the shortlist
- Relative improvement of the performance of the 15 Member States according to the Structural Indicators on the shortlist

*Source: CEC (2004)*

The 'Enterprise Policy Scoreboard' is a monitoring instrument within the framework of the open method of co-ordination adopted at the Lisbon European Council in 2000 (CEC, 2003b). The Scoreboard provides information about the performance of countries in specific areas and the data allow comparisons across countries and relative to EU average. Through its annual publications, the Scoreboard facilitates assessment of progress towards the Lisbon Strategy's goal of improving Europe's competitiveness by 2010. Values of indicators are normalised by calculating indexes, whereby the EU-15 index is 100. Indicators are grouped according to 8 main themes (see Box 5 for the list of indicators):

1. Access to finance
2. The regulatory and administrative environment
3. Open and well-functioning market
4. Entrepreneurship
5. Human resources
6. Innovation and knowledge diffusion
7. Information and Communication Technologies (ICT)
8. Sustainable development

**Box 5:** Indicators of the Enterprise Policy Scoreboard

**Access to Finance**

- market capitalisation in percent of GDP
- newly listed companies in percent of already listed companies
- venture capital (early and later stage) as percentage of GDP
- number of business angel networks

**The regulatory and administrative environment**

- percentage of SMEs identifying administrative burden as a major business constraint
- impact assessment
- on-line presence of government services

**Open and Well-functioning Markets**

- trade integration

- state aid, in percent of GDP

#### **Entrepreneurship**

- gross-birth rates of enterprises
- net-change of enterprise population, (birth-rate minus death-rate)
- volatility of enterprise population, (birth-rate plus death rate),
- female self-employment in industry and services, in percent of total self-employment

#### **Human resources**

- tertiary graduates (ISCED 5 and 6) per 1000 population aged 20 to 29
- graduates in science and technology per 1000 population aged 20 to 29
- population (aged 25-64 years) participating in education and training

#### **Innovation and knowledge diffusion**

- R&D expenditure as a percentage of GDP
- number of patents / high tech patents per million inhabitants
- co-operation for innovation

#### **ICT**

- ICT expenditure as percentage of GDP
- business use of internet
- internet users per 10000 inhabitants
- commercial use of the internet
- broadband penetration rate
- telephone charges

#### **Sustainable development**

- development of eco-efficiency for energy consumption (million € per ktoe), absolute and change in percent
- development of eco-efficiency for greenhouse gases (million € per ktonne CO<sub>2</sub> equivalent), absolute and change in percent
- development of eco-efficiency for acidifying gases (million € per ktonne acid equivalent), absolute and change in percent
- development of eco-efficiency for ozone precursors (million € per ktonne ozone forming potential), absolute and change in percent
- number of ISO 14001 and EMAS certifications per 1000 enterprises

Source: CEC (2003b)

The 2003 *Competitiveness Report* uses a variety of regional indicators of competitiveness to produce a number of tables and a series of cross-plots with productivity to examine the evidence for some of the relationships suggested by economic theory (CEC, 2003a). These indicators comprise:

- productivity growth (%pa)
- R&D intensity
- high-tech location quotient
- students per capita in tertiary education
- productivity spillover effect

According to the analysis of the pattern of regional competitiveness by means of indicators, the 2003 *Competitiveness Report* concludes that productivity differences across the regions of the EU are diminishing over time (CEC, 2003a, p. 164). The Report states that the disparities remain substantial, however, and the pace of convergence remains very slow. This justifies an active policy stance, according to the report. The report concludes that the fastest-growing regions have firms that have most successfully integrated into the international competitive system. This is thought to allow them to harness the human knowledge resources of their regions and raise their competitive edge. The role of public policy is thought to have been subtle but critical in the success of these regions, providing a policy infrastructure



that supports business innovation. Policies that remove barriers to trade and open up regions to competition across the single EU market are considered crucial. According to the report's conclusions, problems of peripheral regions need to be specifically addressed through improved transport and communications, especially telecommunications. It asserts that case studies confirm these as important influences in those regions that have generated a better productivity performance. It reports that evidence for the importance of human knowledge in boosting regional competitiveness is varied, often difficult to tie down but ultimately compelling in its message. The fastest growing regions appear to be those with firms that are better at harnessing human knowledge, both in the cross-regional statistical analysis and in the case study analysis. The report states that the success of clustering in the high technology areas, especially in the case of biotechnology, is strongly linked to human knowledge factors. Clusters may not only confer advantages through common access to knowledge resources, such as the science and research base of higher education, or indeed capital resources, but also may facilitate inter-firm communication and entrepreneurial activity in those sectors that generate the highest value-added outcomes. The message for policy, according to the report, is that the agglomeration forces generating such human resourcefulness should be actively supported and the processes that build such human capital should be encouraged. The implications to be drawn are that active public support for improved competitiveness will come from concerted programmes operating at different levels, such as those co-financed by structural and cohesion funds, pan-European through to regional, and covering associated physical and non-physical infrastructure requirements. This will support better transport and communications infrastructure and better support the regional entrepreneurial culture that allows businesses to build close links with well-funded and well-organised networks of, especially science-based, higher education institutions. Policy support at regional level appears critical in the better-performing regions and this corresponds to regional stakeholders subscribing to a common vision, facilitated by public-private partnerships to take this vision forward.

## 2.2 The Commission's 14 Structural Indicators in light of European territorial Cohesion. Their experimental use in the 3.3 project and critical review

At the Lisbon European Council in March 2000 the European Union set a strategic goal for the next decade "of becoming the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion". In order to measure the progress of this strategy a set of indicators was needed – and agreed upon. These were to be reported in a separate "Synthesis Report" or annex of the annual European Commission "Spring Report" to the European Council. The indicators cover the five domains of employment, innovation and research, economic reform, social cohesion and the environment, as well as general economic background.

A critical comment to the choice of these indicators would be that they are synthetic, but not analytical. The structural changes of the global economy seem to indicate an increased outsourcing of movable production (compared to the prevailing domestic immovable production) and an increased share of the

production of intangible goods (compared to tangible goods). Such structural changes could be useful to conceptualise when analysing the European situation in relation to the global one. Available statistics do not, however, lend themselves to this kind of analytic scrutiny.

Starting from the original 35 indicators for the EU15 in 2001, the list has successively expanded: in 2002 it covered 42 indicators and in 2003 it was expanded geographically to cover also the (at that time) Candidate Countries. For the 2004 report the Commission suggested a “short list” of 14 structural indicators, allowing for a more “concise presentation and a better assessment of achievements over time vis-à-vis the Lisbon agenda”. This short list has been agreed upon with the European Council. Three of the fourteen indicators were successively replaced but it was agreed upon that the short list will be kept stable for three years and is as such viable until the 2006 spring report at least.

The rationale of the short list is essentially pragmatic. In a communication (COM (2003) 585 final, 8.10.2003) the Commission stated five primary benefits with such a short list, namely that:

- it is easier to present a clear picture of the Member States’ positions relative to the most important Lisbon targets;
- the proposed indicators are well known and easy to understand;
- the shortlist of indicators has a clearer logic and therefore the policy messages drawn from the progress assessment based on the structural indicators will be soundly based;
- agreeing the list of indicators every three years fits with the streamlined procedure for the Broad Economic Policy Guidelines, the Employment Guidelines and the Internal Market Strategy; and
- the stability of the list will be ensured by agreeing it once every 3 years

Finally, the composition of the list reflects data availability.

Most of the chosen indicators do not have territorial aspects as their main objective for measurement, but a majority of them do have territorial implications. There is therefore a clear rationale to analyse these 14 indicators also from the point of view of European territorial cohesion.

### 2.2.1 Short list of structural indicators – regional perspectives

Six of the fourteen Structural Indicators from the short list are available completely or partially at the regional level (NUTS2). Furthermore, in order to improve the analysis, we have estimated the regional implications of an additional indicator (the [un]employment rate). The regionalised indicators are primarily economic and social indicators. However, also for them, variations are first and foremost reflections of differences between countries rather than between regions. This is understandable, since the framework for economic and social activity is still today largely a matter of nation states rather than regions. Within a given country, by and large, broad economic policies, legislation, taxation, the currency, and so on are primarily national matters. Although this analysis has a clear regional-spatial focus, Figure A15 in the Annex nonetheless presents an outline at the country level, providing a basis from which to address the issue at the regional level.

### **Gross Domestic Product per capita in Purchasing Power Standards**

The rationale for this indicator is to estimate the overall *standard of living, and social and environmental welfare*. It is a temporal comparison where it is expected to increase over time and the gap with main competitors (USA, Japan) is expected to decrease. At the same time the indicator has substantial spatial implications, mainly in connection with overall territorial cohesion. Figure A1 in the annex depicts this at NUTS2 level for the entire ESPON space.

There is a substantial concentration in Europe in terms of production value. For example, the area within the Pentagon (i.e. that inside the circle London-Paris-Munich-Milan-Hamburg) produces around a half of the entire EU25 Gross Domestic Product and contains one third of its population – on a mere 15% of its land area.

In general, metropolitan and other large city areas in the west dominate the upper reaches of production per inhabitant. Also in Eastern Europe capital regions have in general a considerably higher production per capita than the rest of their respective countries. The regions surrounding Prague and Bratislava are the only Eastern European regions to have a productivity rate higher than the EU average. In addition to Cyprus and Malta the only region of the new member states to reach above 75% of the EU average is the one surrounding Hungary's capital Budapest.

Most regions in the new member states fall below 50% of the EU average. Similarly, most regions in the cohesion countries (with the exception of Ireland) as well as the New Länder display considerably low rates, albeit far above Eastern European levels in general. In macro-spatial terms Europe thus in this respect displays a clear core-periphery pattern with eastern Germany, the Czech Republic, western Hungary and Slovenia constituting a buffer zone running through the continent.

When taking into account the varying national levels of GDP per capita, the largest variations within a country (at NUTS2 level) can be found primarily in East-European countries such as Slovakia, the Czech Republic, Romania and Hungary. Among the old Member States Belgium and the UK have the highest internal disparities. At the other end of the scale, variations in Switzerland and the Netherlands are very small.

### **Gross Domestic Product per employed person in Purchasing Power Standards**

The primary aim of this indicator is to measure the overall efficiency of the economy in terms of labour productivity, i.e. how much on average is being produced per every employed person. Like with GDP per capita, it is a temporal comparison where it is expected to increase over time and the gap with main competitors (USA, Japan) should be decreased. Raising labour productivity is crucial if aiming for sustained growth during a period of ageing populations. Figure A2 in the annex depicts the data at NUTS2 level for the entire ESPON space.

On the whole the pattern is somewhat reminiscent that of GDP per inhabitant, i.e. with a clear core-periphery and a clear east-west division. All capital regions in the 15 old Member States as well as Prague are above the EU average. A closer inspection reveals considerable differences. There are two primary explanations for this variance. Firstly, differences in labour productivity may stem from more labour input (extensive input), i.e. more persons in employment. Secondly, they may also stem from more output per unit of labour input (intensive input, mainly driven by

more capital and/or advanced technologies or/or improved organisation of production processes).

Labour productivity at the regional level does not correlate to any higher degree with the employment rate, i.e. there are “productive” regions with high and low shares of employment alike. Labour productivity as such is thus primarily a reflection of the economic structure of the region (high vs low share of capital intensive production). However, differences between GDP per capita and GDP per person employed are by and large explained with the employment rate.

Thus e.g. Corse in France, Sterea Ellada in Greece and the Italian regions of Sicily, Campania and Calabria show considerably higher productivity (>40 index points when compared to the European average) when looking at productivity per employed person instead of per inhabitant. The same applies for all French Outremer territories, as well as for most of remaining Greece and southern Italy, most regions in western Spain and virtually all of Bulgaria. In general these regions have in common a substantially low rate of employment.

The opposite holds true for much of Fennoscandia, the Netherlands and the UK, southern Germany and all the regions in Switzerland. In these areas the rate of employment is substantially higher than the European average.

Except for Brussels, Rome and Sofia, most capital regions display a lower productivity per person employed than per inhabitant. The primary reason for this is the extensive commuting from outside these regions. There are only seven regions where labour productivity lays above 50% of the EU average (Brussels, Inner London, Luxembourg, Hamburg, Corse, Île-de-France/Paris and Bremen), in contrast to GDP per capita, nearly threefold. More generally, considering the NUTS2 level, labour productivity shows a substantially larger territorial cohesion than GDP/capita.

### **Employment rate**

The increase of the rate of persons employed is perhaps the most widely cited and publicly well known goals of the Lisbon strategy. When looking at the EU population as a whole, a mere 27% of it is engaged in employment. Those not employed represent a wide variety of people. This includes first and foremost unemployed persons, whereas the non-active group consists of e.g. pre-school infants and schoolchildren, students, pensioners, persons in military service or on maternity, housewives etc. While large portions of those not currently employed are, by definition, non-employable (e.g. children), a noteworthy part of those unemployed or non-active persons represent a pool of unutilised labour potential that could partly ease the demographically based labour market pressure many European countries are currently facing.

In March 2000, at the Lisbon European Council, a target was set for an EU employment rate of 70% by the year 2010 (60% for females). This ratio refers to the share of employed persons in the age group 15-64 years. The employment rate is a summary measure of the use of labour in the economy. There is considerable scope for the EU to rise its employment rate and hence also to rise output and living standards.

At the time that this goal was set the corresponding average rate was 63.1% for the EU15, while some four years later this had increased to 64.8%, which – if the trend continues – would not be sufficient to meet the target. In the second quarter

of 2004 the employment rate for the EU25 was even lower (63.3%) due mainly to the lower levels in some of the larger new Member States, such as Poland and Hungary. On average, the employment rate is ten percentage points lower in the new Member States than in the old ones.

Regional differences are also substantial (Figure A3 in the Annex). Out of all 280 NUTS2 (or corresponding) regions within the ESPON study area, less than a quarter (66 regions) lay above 70%. Of these only Prague and Bratislava are in Eastern Europe, the rest lying primarily in northern Europe, the Netherlands, the UK, Switzerland and southern Germany. In general, capital regions and other large city regions have higher rates than their respective national average.

In some 4/5 of the European territory the employment target has not yet been met. In 24 regions less than half of the working age population is employed. These regions cover 11% of the ESPON space. Four of them are in (northern and eastern) Bulgaria, two in (western) Hungary and three in Poland. Furthermore all French overseas territories and Corse, four Spanish regions and the six most southerly Italian regions belong to this group. In Corse, which has the lowest rate, less than 38% of the working age population is employed.

In general (in Western Europe) high employment rates and small shares of working age population (aged 15-64 years) correspond. Due to the substantial structural changes underway this is not currently the situation in most Eastern European countries, which means that in those countries a rise of the employment rate is a realistic goal.

### ***Employment rate of older workers***

When compared internationally, the employment rate of older workers is low in Europe. Raising the employment rate of older workers is essential in order to achieve a higher overall employment rate. It should also increase social cohesion by means of a better integration of older workers in the labour force and help ensure sustained economic growth in a phase of ageing populations.

The Lisbon target of employment rate for persons aged 55-64 years is set at fifty percent of that age group by 2010. Out of a total of 280 NUTS2 regions this target has been met in 58 of them, primarily in Denmark, Norway, Sweden, Switzerland and most of the UK (Figure A4 in the Annex). In Eastern Europe only Prague and three regions in Romania belong to this group. However, in the Romanian capital region of Bucharest this rate is as low as 27% (suggesting data inaccuracies).

The lowest rates can be found in Eastern Europe. Out of the 20 regions with the lowest rates only three are in the old Member States (Nord-Pas-de-Calais and Corse in France and the Belgian Limburg). In three regions in Bulgaria, Poland and Slovakia respectively and in four Hungarian regions less than a fifth of the population aged 55-64 years is employed.

When comparing the total employment rate to the employment rate of older workers, thus considering the issue from the point of view of social inclusion, the patterns are somewhat different. Labour market integration of older workers is particularly low in North-western France and in a belt stretching from the Alps (Northern Italy, Slovenia, Eastern Austria, Hungary and Slovakia) to the Black Sea (including all of Bulgaria). In these regions the overall employment frequency is between two and three times higher than that of older persons. In contrast,

employment frequency of older persons is nearly on a par with the corresponding total one in all regions of Norway and Sweden.

### ***Gross domestic expenditure on research and development***

The gross domestic expenditure on research and development (GERD) is considered a core indicator when aiming for a knowledge-based competitive economy. The Barcelona European Council target rate of gross domestic expenditure on R&D was set at 3% of the GDP by 2010, of which two thirds should stem from the private sector.

Figure A5 in the Annex presents these data at the regional level. Apart from those where the entire country consists of merely one NUTS2 region, also Belgium, Ireland, Norway, Sweden and Switzerland are presented at the national level. Currently 18 out of 280 regions meet up to the criterion. Ten of these are in Germany, basically covering all of the country's leading academic and private sector research cities, three are in Finland, two in France and one each in the Netherlands and Austria. Furthermore also the region surrounding Prague (Strední Čechy) has a GERD rate exceeding the 3.0% target, showing a rate more than double that in the city of Prague itself. An additional three UK regions (aggregated from NUTS1) and eight Swedish ones (aggregated from the country level) could also be included in the list. The single highest rate in Europe – higher than that of Silicon Valley, USA – is in Braunschweig (railway technology, aeronautics, etc), where the R&D expenditure exceeds 7.1% of GDP.

The regions with the worst performance in this respect are primarily in Eastern Europe and in the cohesion countries. Additionally, many regions where tourism generates much revenue also belong to this category.

Rather unexpectedly, the correlation between a high rate of GERD and a correspondingly high GDP is remarkably weak at the regional level. Top research regions display both average or lower production values (such as Braunschweig or Dresden in Germany or Pohjois-Suomi in Finland) than Europe in general, or adversely, regions such as Åland in Finland or Bolzano-Bozen in Italy may perform highly with regard to the production output per inhabitant despite very low GERD rates.

### ***Youth education attainment***

This indicator reflects the urgent need to ensure a proper educational level for the next generations. It refers to the proportion (%) of population aged 20-24 years having completed at least an upper secondary education. Data are only available at the national level (Figure A6). For this indicator there is no fixed target rate; it is merely expected to increase over time. "Youth education attainment" replaces "Public expenditure on education", which has been dropped from the short list.

Although in general one among several reasonably good indications of the prevailing knowledge level of this age group, it should nonetheless be interpreted with a considerable amount of caution. Varying education systems, where intermediate degrees are not issued, affect the data considerably. In addition, perhaps even more crucial in an age of knowledge society, this indicator does not in any way disclose how large a share of youngsters (presumably also post-24 years of age) that has completed a tertiary education, which can be either low (such as in the Czech Republic) or high (such as in Denmark). Self-evidently, it does

furthermore not reveal the overall educational level of the entire population, but merely that of this particular age group.

In Norway, the Czech Republic and Slovakia this rate exceeds 90% of the total age group. It is also high in Poland, Finland and Sweden. In Malta and Portugal on the other hand, less than half of the young population have completed at least an upper secondary degree. Also in Spain, Italy and Luxembourg the rate is below 70%.

### ***Comparative price levels***

The rationale behind this indicator is to measure the efficiency of the single market and the overall integration of consumer markets in Europe. It refers to the national deviation from average European price levels for all private household final consumption. It has no fixed target rate but is expected to display convergence over time. This indicator substitutes the old “Financial market integration”, which has been dropped from the short list. Figure A7 displays the data at the national level.

In order to obtain a well functioning internal market, price levels in Europe should thus converge toward the EU average, whilst both too high and too low prices presumably reflect non-convergence with regard to private household consumption. In this respect the core European countries (France, Benelux, Germany and Italy) as well as Austria are well integrated, as price levels in these countries do not vary more than 7% in either direction from the EU average. Price levels in Ireland and the UK (more expensive), as well as Spain, Cyprus and Greece (cheaper) are also within a range of 20% of the EU average. At one of the extremes of the scale are countries such as Switzerland, Norway, Denmark and Sweden, where consumer prices are substantially higher than the EU average. At the other extreme are most of the transition countries, as well as Portugal, with consumer prices substantially lower than in the rest of EU. Bulgaria, Romania, Slovakia, the Czech Republic and Hungary show average consumer price levels at less than the half of the EU average.

From a spatial point of view, substantial cross-border variations in price levels are also interesting. This has several implications on which cross-border private household trade is the most obvious. Also, as consumer prices generally tend to follow general wage levels in any given country, the implications for cross-border investment could be expected to be substantial. FDI data between e.g. Germany and the Czech Republic or Poland support this assumption. The largest cross-border price discrepancies are between Austria on the one hand and Slovakia, the Czech Republic and Hungary on the other. Across these borders consumer prices vary with a ratio of 1:2. Variations of similar magnitude are also found across the German-Czech and the German-Polish borders, and this is the case with Finland and Estonia, a border across which private household trade is quite substantial.

### ***Business investment***

One method of estimating the magnitude of private sector investment (as opposed to public sector investments) is to relate the value of gross fixed capital formation stemming from the private sector with the overall GDP of a country. Gross fixed capital formation measures the expenditure on durable real assets, such as buildings, cars, plants and machinery, roads, as well as “improvements” to land. In

measuring the expenditure, sales of similar goods are deducted. Trade in real estate is excluded from gross fixed capital formation. The term “gross” indicates that consumption of fixed capital has not been deducted from the value and is therefore comparable with GDP (Gross Domestic Product).

No fixed target rate has been set for this indicator, but the rate is expected to increase over time. It is introduced instead of (but not replacing) the former “Expenditure on information technologies”, which has been dropped from the short list, primarily due to problems with data availability. For ‘business investment’ data are only available at the national level.

The rate of private sector investment can vary due to a multitude of reasons, such as the relative size of the public sector, the current business cycle of a country, the amount of FDI and development assistance received, the current level of general economic development or, first and foremost, the overall structure of the economy. In the last case a production-based economy tends to generate a larger gross fixed capital formation than a service-based economy, where investments to a larger extent are being made in intangible assets. Due to these factors the results presented in Figure A8 are difficult to interpret concisely. High rates of investment can be found in transition countries (such as the Czech Republic, Latvia and Slovakia), in advanced economies (such as Switzerland) and in Cohesion countries (such as Portugal) alike. Similarly, the lowest rates are in Bulgaria, Cyprus and Sweden.

### ***At-risk-of-poverty rate after social transfers***

The at-risk-of-poverty rate refers to the share of persons with an equivalised disposable income after social transfers below 60% of the median equivalised disposable income in each country. It is a measure of the risks of poverty and social exclusion. This indicator is in accordance with the Lisbon European Council's high priority on social cohesion. It has no fixed target value but is expected to decrease over time. The larger the share of these persons, the more skewed is the income distribution of the country. Data are available at the national level only and are presented in Figure A9 of the Annex.

At the national level the most balanced income distributions are in the Czech Republic and Sweden, where the rate of persons with an income below 60% of the national average is less than 10%. Income distribution is also very even in Germany, the Netherlands, Denmark and Norway. At the other end of the scale are countries with large income differences such as Portugal, Greece, Ireland and Slovakia, where the share of persons at-risk-of-poverty amounts to a fifth of the total population.

These figures however reveal nothing of the spatial distribution of income within these countries. Experience from previous studies in the Nordic countries however suggests that these only partially walk hand-in-hand. Thus, for example, regional income variations in Finland are substantially larger than in Sweden.

### ***Dispersion of regional unemployment rates***

The dispersion of regional employment rates is the only indicator on the short list that has a clear spatially cohesive objective. The reduction of regional disparities as measured by the dispersion of regional employment rates has long been a primary



aim of EU territorial policy. It has no fixed target rate; disparities are merely expected to decrease over time. At the national level disparities are measured as the coefficient of variation of employment rates across regions (on NUTS2 level) within countries. In order to measure this coefficient at NUTS2 level instead, data on employment rates should correspondingly be available at NUTS3 level at least. Unfortunately this is not the case. We have therefore substituted this calculation by measuring the regional variance of unemployment rates across all NUTS2 regions in the ESPON space, well aware that this does not measure the same phenomenon as employment rates. Furthermore, in 35 cases (such as Vienna, Brussels, Zurich, Prague, Hamburg and Madrid) NUTS2 and NUTS3 regions are one and the same, meaning that the measured dispersion is nil. This is however a fact that cannot be overcome within the scope of this study. All data are based on labour force surveys.

Figure A10 in the Annex presents this estimation. Regional disparities are in general smaller in the European core than in the edges. Slightly larger regional disparities can be observed in the New Member States than in the old ones, albeit many Cohesion countries also display high regional variations. Outside of these countries the only regions with substantial variations (with a coefficient of variation above 10) are Languedoc-Roussillon in southern France, East Riding and North Lincolnshire on the English east coast and Övre Norrland in northern Sweden. Poland and Bulgaria however constitute the European extremes in this respect as the corresponding rate in regions such as Pomorskie, Dolnoslaskie, Mazowieckie, Zachodniopomorskie and Wielkopolskie in Poland and Severoiztochen and Yuzhen Tsentralen in Bulgaria exceeds 40.

The lowest regional variations can generally be found in Norway, the Netherlands and France and regional disparities are in this respect also marginal in several regions in Austria, Belgium and the UK.

### ***Long-term unemployment rate***

Long-term unemployment is herein measured as persons unemployed for more than 12 months as a share of the total labour force. All data are based on labour force surveys. In accordance with the Lisbon objectives the share of long-term unemployed persons is expected to decrease over time but no definite target value has been fixed. Figure A11 in the Annex presents these data at NUTS2 level (Norway and Switzerland at the national level).

To a large extent, long-term unemployment is a mere mirror of the prevailing employment rate (Figure A3). Regions with a high employment rate tend to have low unemployment, and vice versa. Since the demographic composition of the population by and large reflects the employment rate, long-term unemployment is far from being merely a measurement of the functionality or dys-functionality of the labour market in general. Reducing long-term unemployment is nonetheless important for achieving the overall Lisbon goal of "greater social cohesion", because the long-term unemployed face a high risk of social exclusion. The long-term unemployment rate does certainly also reflect structural problems in the labour market, which lead to an under-utilisation of human resources. In addition, reducing long-term unemployment is important from a human capital perspective, because the long-term unemployed become detached from the labour market and lose their skills, which are increasingly needed in the face of rapidly ageing populations.

In several regions of Spain, southern Italy, Greece and the French Outremer a large share of the labour force have been unemployed for more than 12 months. However, the worst situation is generally in the New Länder of Germany and in most transition countries. In altogether 23 regions this rate exceeds 10% of the labour force, a considerable figure when compared with the average total unemployment rates for these countries and regions. In these regions long-term unemployed persons thus constitute the lion's share of all unemployed persons.

The opposite holds true especially for the UK, the Netherlands and Austria. Of the fifty NUTS2 regions with the lowest rates, 18 are in the UK, 12 in the Netherlands and 8 in Austria. At the national level rates are also extremely low for Norway and Switzerland.

For those countries with available data, regional variations are smallest in the Netherlands, Romania and Austria. On the other hand, regional disparities with regard to long-term unemployment are substantial in Italy and France as well as Slovakia and Bulgaria.

### ***Greenhouse gas emissions***

The total emission of the six main greenhouse gases (the "Kyoto Basket") is measured and evaluated as relative change over time. Emissions are measured as CO<sub>2</sub> equivalents where each gas is weighted by its warming potential. The overall objective is to reduce drastically these emissions over time and under the Kyoto Protocol the EU has committed itself to reduce emissions by 8% by 2008-2012, compared to the 1990 baseline. This reduction goal has then (February 2005) been raised to a 15-30% reduction of emissions by 2020 and a 60-80% by 2050.

This is a dynamic indicator not taking into account the starting point of gas emissions. New investments in cleaner and cleaning technology as well as a downscaling or closing of the old production structure has implied that emission reductions in the transition countries have been the largest, as in Latvia (65% decrease) and Lithuania (58%). This reduction is however in most cases counterbalanced by an increased road transport.

The most rapid increases have occurred in Ireland, Spain and Portugal (Figure A12 in the Annex).

### ***Energy-intensity of the economy***

Energy intensity is measured as gross inland consumption of energy divided by GDP at constant prices and indexed on 1996. The original unit is kgoe (kilogram of oil equivalent) per 1000 Euro. The data is aggregated from five types of energy (coal, electricity, oil, natural gas and renewable energy sources) and four sectors of inland consumption (production, storage, trade and consumption/use of energy). No clear target rates have been fixed but the aim is to reduce this ratio over time. Data are available at the national level only and presented in Figure A13 in the Annex.

Reductions in the rate can stem from two sources: either a decrease in energy consumption or an increase of GDP. This indicator is also by nature a dynamic one not taking into account the starting level. Thus countries where the share of energy consumption has been high at inception expectedly display the highest decreases. This is the case with most of the New Member States. Norway, Spain and Portugal on the other hand display only slight increases in the ratio.

### **Volume of freight transport relative to GDP**

The last indicator on the short list measures the volume of freight transport relative to GDP. It is an indication of the decoupling of freight transport growth from real GDP growth. Freight transport is measured in tonne-km per GDP in constant prices and includes transport by road, rail and inland waterways but excludes air (and pipeline) transport. Rail and inland waterways transport is based on movements on national territory, regardless of the nationality of the vehicle or vessel. Road transport is based on all movements of vehicles registered in the reporting country.

Data are provided at the national level (Figure A14) and indexed in relation to the base year 1995; thus also this indicator does not take into account the level at the beginning. Since it is a ratio, this indicator can decrease either through a real decrease in transport or through an increase of GDP, the latter of which has few direct positive environmental consequences. This is the case, for instance, with Finland and Sweden, as well as with many transition countries where transport has actually increased, but at a lower rate than production, therefore displaying a relative decrease in the ratio. Increases in the ratio have mainly occurred in Estonia, Greece and Ireland.

#### 2.2.2 Short list of structural indicators: a synthesis

We have merged the fourteen indicators (from the five domains of employment, innovation and research, economic reform, social cohesion, environment) into three groups mirroring the “ESDP triangle” of economic, social and environmental sustainability. Groupings could be made in several ways, all affecting the outcome of the synthesis indicator; here we have done as follows.

First, upper and lower quartiles were calculated for each one of the 14 indicators. Second, for each region the number of values in the lowest quartile was subtracted from the number of values in the highest quartile, thus ending up with a net value where each indicator has equal weight. Where no data were available at the regional level, we have provided each NUTS2 region in the ESPON space with the corresponding disaggregated country value. This implies that regional variations within a given country are based upon a few indicators alone, whereas the overall variations within the entire ESPON space are more diverse.

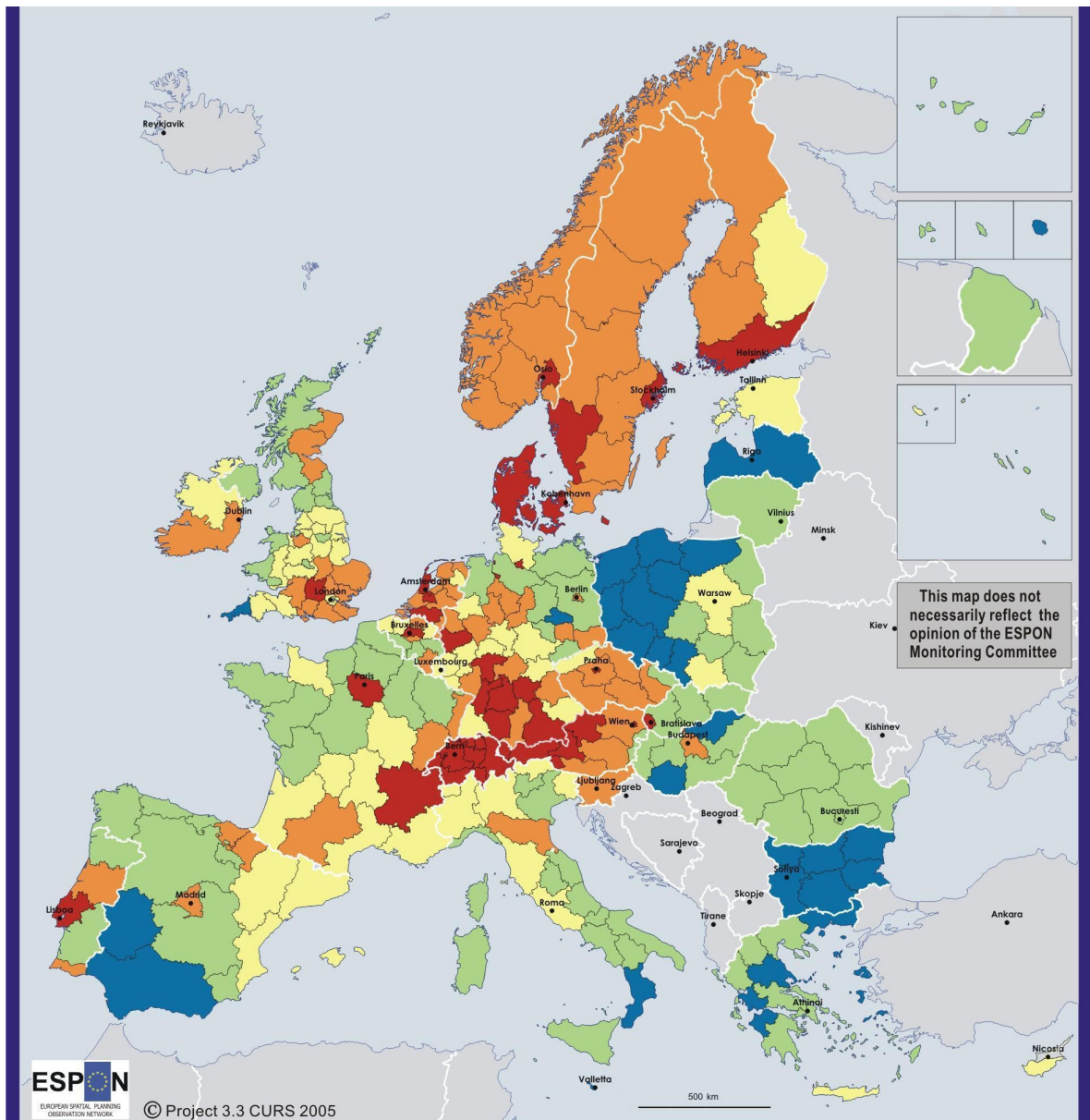
Figure 6 displays a synthesis of the eight economic indicators from the short list. These are:

1. Gross Domestic Product per inhabitant
2. Gross Domestic Product per employed person
3. Employment rate
4. Employment rate of older workers
5. Gross domestic expenditure on R&D
6. Youth education attainment levels
7. Comparative price levels
8. Gross Fixed Capital Formation/GDP

The first five indicators are available at the regional level whereas the last three are dis-aggregations from national figures.

These indicators are to a large extent interlinked, i.e. they tend at the regional level to vary correspondingly across the European space. A clear core periphery pattern therefore emerges largely resembling e.g. GDP per capita. The European Pentagon including Switzerland and Rhone-Alpes in France as well as most regions in the Nordic countries constitute the economic stronghold of Europe, primarily scoring high on most of the indicators. Furthermore selected capital regions outside these countries (such as Lisbon, Madrid, Prague, Bratislava) stand out.

**Figure 6:** Regional performance based on eight economic indicators



Number of indicators in the upper quartile minus number of indicators in the lower quartile (see attached list of indicators)

- > 2 Primarily high performance
- 1 - 2
- 0 Medium performance
- -2 - -1
- < -2 Primarily low performance

Indicators:

1. **Gross Domestic Product** as purchasing power parities per inhabitant in 2000. Origin of data: EUROSTAT, ESPON Database 2.4 (CH and NO)
2. **Labour productivity:** gross domestic product as purchasing power parities per person employed in 2000. Employment data for FR9 is from 2001, for DEB from 1999. CH: Own estimations based on Swiss Federal Statistical Office, 2001. Origin of data: EUROSTAT, Swiss Federal Statistical Office, ESPON Database 2.4 (NUTS 1 regions FR9 and DEB).
3. **Employment rate:** employed persons aged 15-64 as a share of total population of the same age group in 2000 (%). Employment data for FR9 is from 2001, for DEB from 1999. CH: Own estimations based on Swiss Federal Statistical Office. Origin of data: EUROSTAT, Swiss Federal Statistical Office, ESPON Database 2.4 (NUTS 1 regions FR9 and DEB).
4. **Employment rate of older workers:** employed persons aged 55-64 as a share of total population of the same age group in 2000 (%). CH: data at the national level. Data for FR9 is from 2001 and for DEB from 2002. Origin of data: EUROSTAT, ESPON Database 2.4 (NUTS 1 regions FR9 and DEB).
5. **GERD:** gross domestic expenditure on research and development as a share of GDP in 2000 (%). BG: data is from 2002. MT: data is from 2002. ES63: average value of NUTS 1-region ES6. Origin of data: EUROSTAT, ESPON Dtb 2.4 (DE27, DE22, FR9, ITD1, ITD2 (disaggregated from old N2 regions), UK (disaggregated from N1 level, 1999)), UNESCO (at national level: BE (year 2000), CH (2000), IE (2000), NO (2001), SE (2001)).
6. **Youth education attainment level:** share of population aged 20-24 having completed at least upper secondary education (%). Annual average 2001-2003. Origin of data: EUROSTAT.
7. **Comparative price levels** of final consumption by private households (including indirect taxes) in 2000. Origin of data: EUROSTAT.
8. **Business investment:** gross fixed capital formation by private sector as a share of GDP (%) in 2000. Origin of data: EUROSTAT, OECD (CH).

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Origin of data: See attached list of indicators

Source: CURS

The lowest scores are nearly exclusively in the New Member States or the Cohesion Countries, with Cornwall in the UK and the French Reunion constituting the most prominent exceptions. However, like in the Czech Republic and Slovakia, also in other Eastern Europe countries most capital regions display higher scores.

The synthesis of the three social indicators concerns:

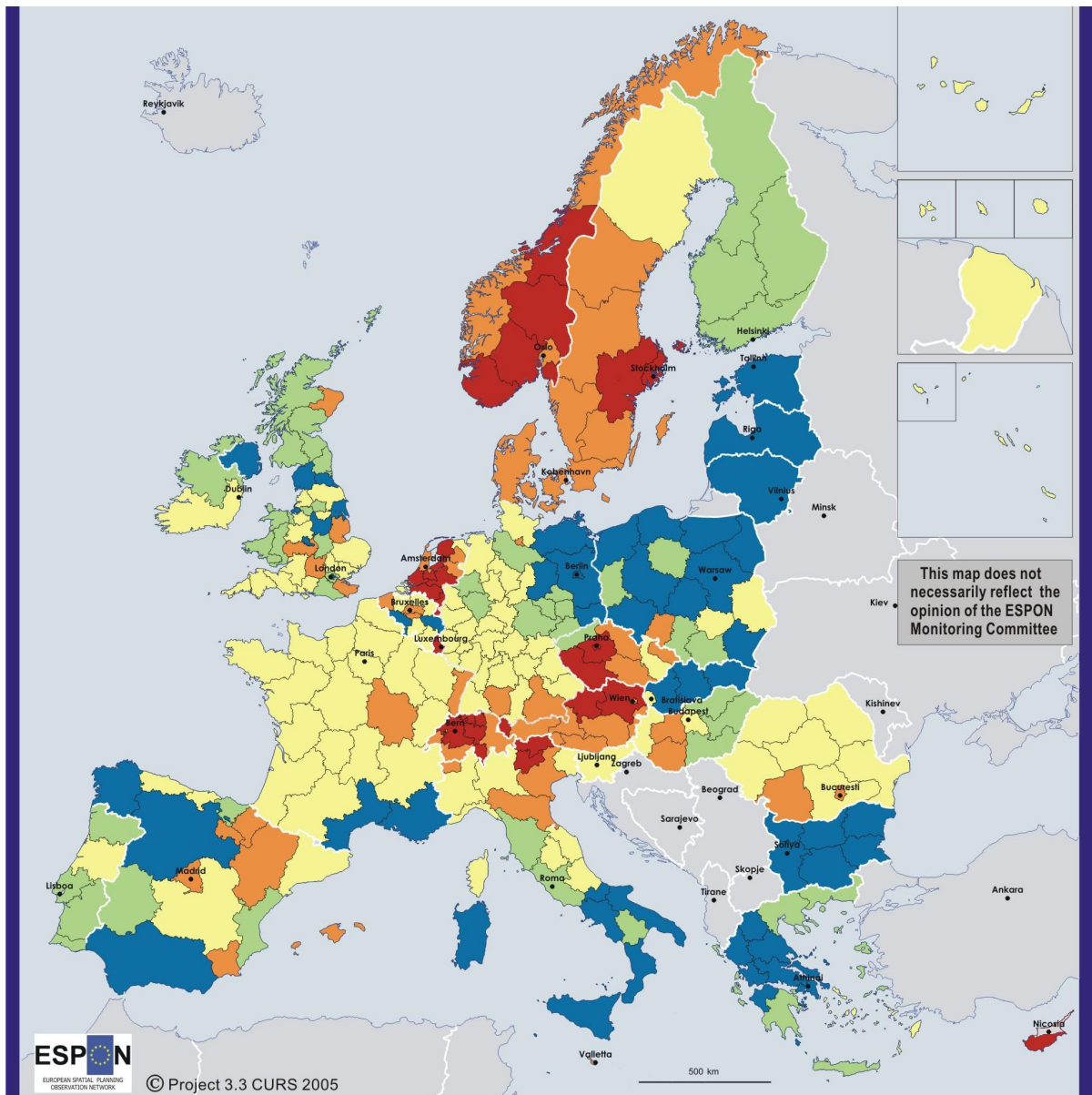
9. At-risk-of-poverty rate after social transfers
10. Dispersion of regional unemployment rates
11. Long-term unemployment rate

The latter two are regional figures whereas the first one is a dis-aggregation from data at the national level. The three variables do not relate to each other to any larger degree, although there is a slight correlation between the latter two, as high long-term unemployment rates are more common in regions with high internal disparities with regard to total unemployment.

Thus Figure 7 differs from Figure 6. Apart from clearly discernible east-west differences, the dominance of the European core is downplayed in this respect. Furthermore, many capital regions such as London, Paris, Lisbon and Helsinki in the west or Warsaw, Bratislava and Bucharest in the east display lower performance with regard to these social indicators as was the case with the corresponding economic ones. Great part of Norway, the Netherlands and the Czech Republic on the other hand perform better in this respect.

One tentative conclusion based on these indicators is that performances on the economic and social scale do not entirely walk hand in hand, although they do not oppose one another.

Figure 7: Regional performance based on three social indicators



Number of indicators in the upper quartile minus number of indicators in the lower quartile (see attached list of indicators)

- > 1 Primarily high performance
- 1 High performance
- 0 Medium performance
- 1 Low performance
- < -1 Primarily low performance

Indicators

9. **At-risk-of-poverty rate:** share of persons with an equivalised disposable income after social transfers below 60% of the national median, in 2000. CY: data is from 1997. CH: data is from 1999. CZ, DK and SE: data is from 2001. NO and SK: data is from 2003 and provisional. FI and FR: the available data only permits adjustment for social transfers on a gross basis. Origin of data: EUROSTAT, Swiss Federal Statistical Office, Observatoire social Européen (CY).
10. **Dispersion of regional unemployment rates:** coefficient of variation (VAR) of NUTS 3 level unemployment rates within each NUTS 2 region.  $CV = \frac{\sum (x - \bar{x})^2}{(n-1)}$   
Annual average 2003 (except for GR & MT: 2002; Ceuta & Melilla: 2002).  
GR & PT: Regional variations between all NUTS2 regions in respective country.  
Origin of data: EUROSTAT
11. **Long-term unemployment rate:** persons unemployed for more than 12 months as a share of the total labour force in 2000 (%). PT12-14 and NUTS 1 -region FR9: data is from 2001. NL, MT and NUTS 1 -region DEB: data is from 2002. CH and NO: data at the national level and from 2003. Origin of data: EUROSTAT.:

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Origin of data: See attached list of indicators

Source: CURS

Figure 8 depicts a synthesis at the national level of the three short list environmental indicators, namely:

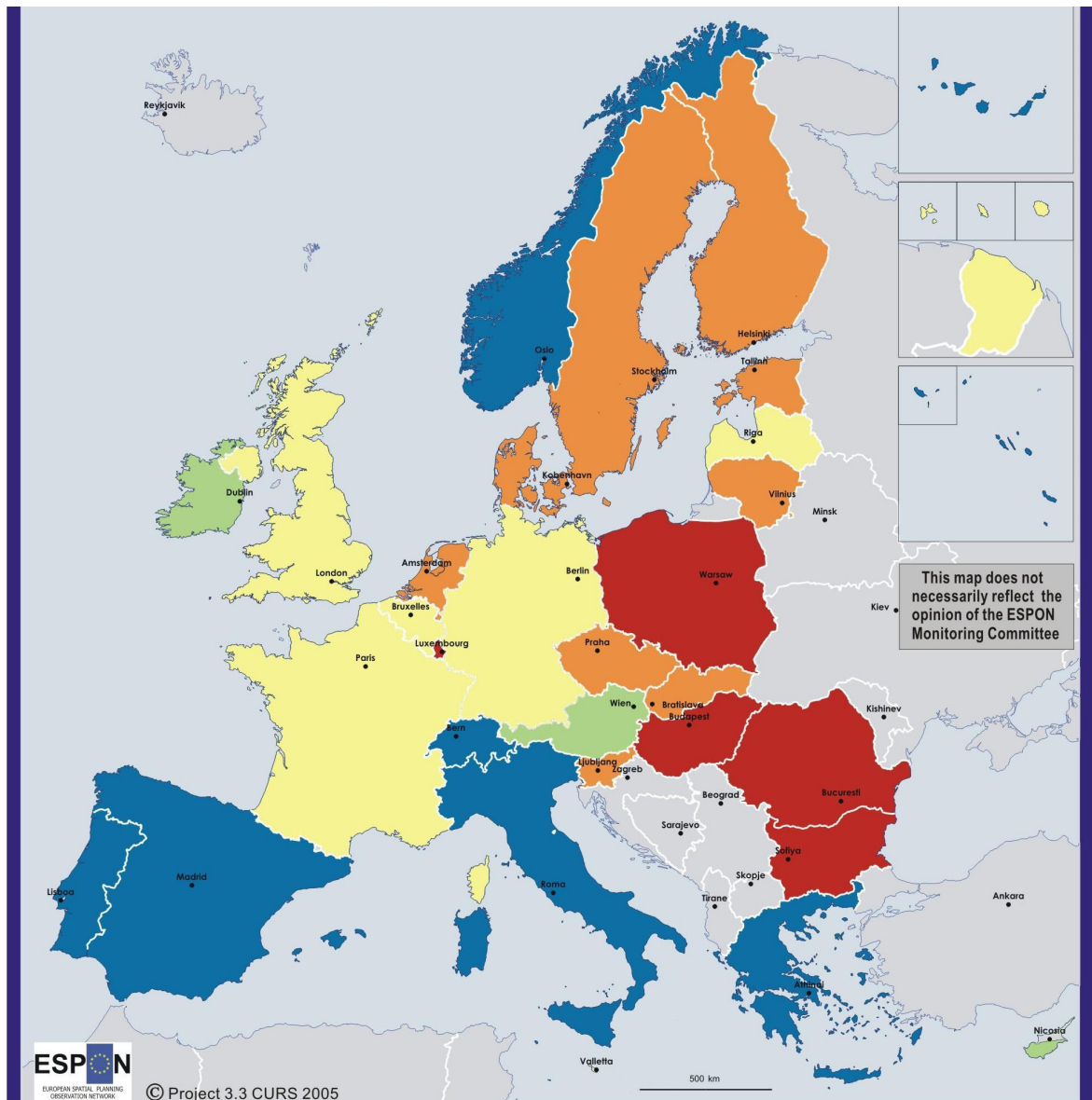
12. Energy-intensity of the economy
13. Greenhouse gas emissions
14. Volume of freight transport relative to GDP

In general the three indicators correlate with each other. As stated above, these indicators are by nature dynamic and don't take into account the starting level. The high performance of most transition countries is largely explained by this fact, as they have started from substantially high levels. Also, as GDP is a denominator in two of the three indicators, the rapid relative economic growth in these countries is mirrored in the "reductions".

The Cohesion Countries as well as Norway are the worst performers, scoring low on all three indicators.



**Figure 8:** Performance based on three environmental indicators



Number of indicators in the upper quartile minus number of indicators in the lower quartile (see attached list of indicators)

- > 1 Primarily high performance
- 1
- 0 Medium performance
- -1
- < -1 Primarily low performance

Indicators

12. **Total greenhouse gas emissions:** percentage change in emissions of 6 main greenhouse gases (in CO<sub>2</sub> equivalents) between base year and year 2000. The base year for the non-fluorinated gases (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O) is 1990, and 1995 for the fluorinated gases (HFC, PFC and SF<sub>6</sub>). Exceptions are: FI, FR, IS and NO have 1990 as the base year also for the fluorinated gases; PL and BG have 1988, and SI has 1986 as the base year for the non-fluorinated gases (and 1995 for fluorinated gases); HU has the average of 1985-87, and RO has 1989 as the base year for all GHG gases; For EE, LT and LV no information on fluorinated gases is available. Origin of data: EUROSTAT; Bundesamt für Umwelt, Wald und Landschaft, die Schweiz.
13. **Energy intensity of the economy:** gross inland consumption of energy divided by GDP (kilogram of oil equivalent per 1000 Euro at constant prices) in 2000, indexed on 1996 = 100. CH: measured as Kwh/GDP in Swiss Frangs. Origin of data: EUROSTAT, Swiss Federal Statistical Office.
14. **Volume of freight transport** relative to gross domestic product in 2000, measured in tonn-km/GDP and indexed on 1995. Includes transport by road, rail and inland waterways. Rail and inland waterways transport are based on movements on national territory, regardless of the nationality of the vehicle or vessel. Road transport is based on all movements of vehicles registered in the reporting country. SI and CY: Figures are estimations. Greece: Some data is estimated by Eurostat as no data on road freight transport are available for Greece since 1999. MT: average value of EU25. Origin of data: EUROSTAT.

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Origin of data: See attached list of indicators

Source: CURS

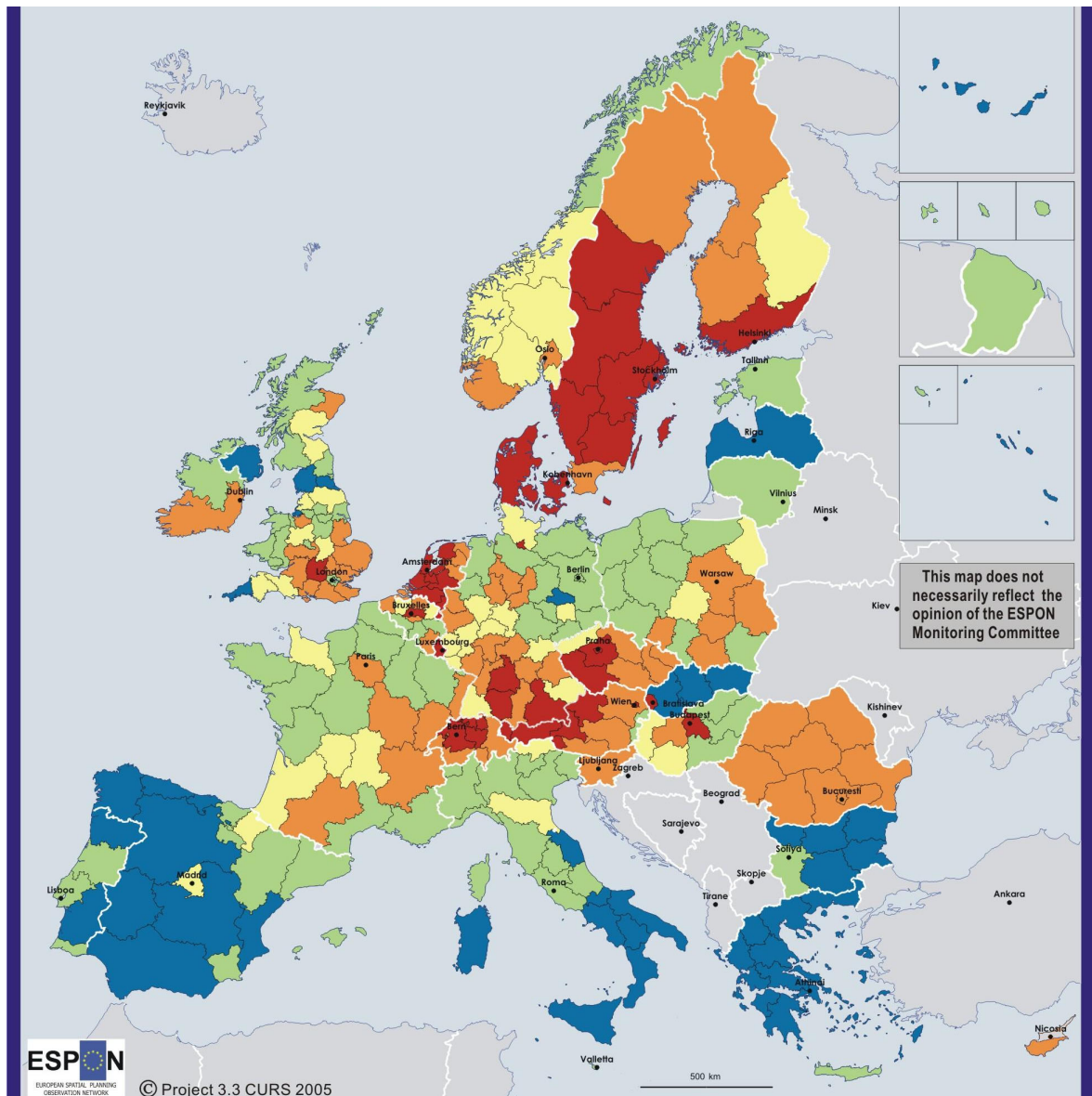
In Figure 9 performance in all the short list's fourteen structural indicators has been merged into one. Seven of these indicators are totally or partially based on regional data, whereas seven are merely dis-aggregations from data at the national level.

The over-representation (eight out of fourteen) of economic indicators is mirrored in the pattern. Thus the hard economic core of Europe is clearly discernible, also encompassing much of the Nordic countries. Norway falls short primarily due to low 'performance' on the environmental indicators, whereas the opposite holds true, for instance, for Romania and eastern Poland due to better performance both on social and environmental indices.

The capital regions of Prague, Bratislava and Budapest are also among the top European performers in this respect. Territorial disparities are greatest in Slovakia basically dividing the country into the capital region on the one hand and the rest of the country on the other.

The cohesion countries (except for Ireland) also stand out as low performers in this respect, scoring fairly low on all sectors.

**Figure 9:** Overall performance with regard to fourteen structural indicators



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Number of indicators in the upper quartile **minus** number of indicators in the lower quartile (see attached list of indicators)

- > 3 Primarily high performance
- 1 - 3 Medium performance
- 0 Medium performance
- -3 - -1 Medium performance
- < -3 Primarily low performance

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Origin of data: See attached list of indicators

Source: CURS

Indicators:

1. **Gross Domestic Product** as purchasing power parities **per inhabitant** in 2000.  
Origin of data: EUROSTAT, ESPON Database 2.4 (CH and NO)
2. **Labour productivity**: gross domestic product as purchasing power parities per person employed in 2000. Employment data for FR9 is from 2001, for DEB from 1999. CH: Own estimations based on Swiss Federal Statistical Office, 2001. Origin of data: EUROSTAT, Swiss Federal Statistical Office, ESPON Database 2.4 (NUTS 1 regions FR9 and DEB).
3. **Employment rate**: employed persons aged 15-64 as a share of total population of the same age group in 2000 (%). Employment data for FR9 is from 2001, for DEB from 1999. CH: Own estimations based on Swiss Federal Statistical Office. Origin of data: EUROSTAT, Swiss Federal Statistical Office, ESPON Database 2.4 (NUTS 1 regions FR9 and DEB).
4. **Employment rate of older workers**: employed persons aged 55-64 as a share of total population of the same age group in 2000 (%). CH: data at the national level. Data for FR9 is from 2001 and for DEB from 2002. Origin of data: EUROSTAT, ESPON Database 2.4 (NUTS 1 regions FR9 and DEB).
5. **GERD**: gross domestic expenditure on research and development as a share of GDP in 2000 (%). BG: data is from 2002. MT: data is from 2002. ES63: average value of NUTS 1 -region ES6. Origin of data: EUROSTAT, ESPON Dtb 2.4 (DE27, DE22, FR9, ITD1, ITD2 (disaggregated from old N2 regions), UK (disaggregated from N1 level, 1999)), UNESCO (at national level: BE (year 2000), CH (2000), IE (2000), NO (2001), SE (2001)).
6. **Youth education attainment level**: share of population aged 20-24 having completed at least upper secondary education (%). Annual average 2001-2003. Origin of data: EUROSTAT.
7. **Comparative price levels** of final consumption by private households (including indirect taxes) in 2000. Origin of data: EUROSTAT.
8. **Business investment**: gross fixed capital formation by private sector as a share of GDP (%) in 2000. Origin of data: EUROSTAT, OECD (CH).
9. **At-risk-of-poverty -rate**: share of persons with an equivalised disposable income after social transfers below 60% of the national median, in 2000. CY: data is from 1997. CH: data is from 1999. CZ, DK and SE: data is from 2001. NO and SK: data is from 2003 and provisional. FI and FR: the available data only permits adjustment for social transfers on a gross basis. Origin of data: EUROSTAT, Swiss Federal Statistical Office, Observatoire social Européen (CY).
10. **Dispersion of regional unemployment rates**: coefficient of variation (VAR) of NUTS 3 level unemployment rates within each NUTS 2 region.  $CV = \frac{\sum (x - \bar{x})^2}{(n-1)}$   
Annual average 2003 (except for GR & MT: 2002; Ceuta & Melilla: 2002).  
GR & PT: Regional variations between all NUTS2 regions in respective country.  
Origin of data: EUROSTAT
11. **Long-term unemployment rate**: persons unemployed for more than 12 months as a share of the total labour force in 2000 (%). PT12-14 and NUTS 1 -region FR9: data is from 2001. NL, MT and NUTS 1 -region DEB: data is from 2002. CH and NO: data at the national level and from 2003. Origin of data: EUROSTAT.
12. **Total greenhouse gas emissions**: percentage change in emissions of 6 main greenhouse gases (in CO<sub>2</sub> equivalents) between base year and year 2000. The base year for the non-fluorinated gases (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) is 1990, and 1995 for the fluorinated gases (HFC, PFC and SF<sub>6</sub>). Exceptions are: FI, FR, IS and NO have 1990 as the base year also for the fluorinated gases; PL and BG have 1988, and SI has 1986 as the base year for the non-fluorinated gases (and 1995 for fluorinated gases); HU has the average of 1985-87, and RO has 1989 as the base year for all GHG gases; For EE, LT and LV no information on fluorinated gases is available. Origin of data: EUROSTAT; Bundesamt für Umwelt, Wald und Landschaft, die Schweiz.
13. **Energy intensity of the economy**: gross inland consumption of energy divided by GDP (kilogram of oil equivalent per 1000 Euro at constant prices) in 2000, indexed on 1996 = 100. CH: measured as Kwh/GDP in Swiss Frangs. Origin of data: EUROSTAT, Swiss Federal Statistical Office.
14. **Volume of freight transport** relative to gross domestic product in 2000, measured in tonn-km/GDP and indexed on 1995. Includes transport by road, rail and inland waterways. Rail and inland waterways transport are based on movements on national territory, regardless of the nationality of the vehicle or vessel. Road transport is based on all movements of vehicles registered in the reporting country. SI and CY: Figures are estimations. Greece: Some data is estimated by Eurostat as no data on road freight transport are available for Greece since 1999. MT: average value of EU25. Origin of data: EUROSTAT.

### 2.2.3 Concluding remarks

Providing the 14 indicators are truly indicative of economic, social and environmental competitiveness and sustainability, then a definite conclusion could be drawn that economic (or partially social) competitiveness and environmental sustainability do not necessarily correlate. Owing to the fragility of the indicators, however, such a conclusion may be premature to draw.

It seems obvious, however, that social processes reflected in social indicators are an effect of national traditions as well as welfare policies, which have emerged regardless considerations related to economic performance or, alternatively, as one possible strategy for gaining enhancing economic performance.

Providing that the welfare choice has been deliberate among those European countries characterised by developed welfare regimes, this strategy seems to have been successful in terms of economic performance. Moreover, with regards to the future, national welfare strategies appear to slow down rather than advance, which simply seems to indicate that the old strategy is being reconsidered. Various parts of national welfare regimes in Europe are being increasingly dismantled. The reason is probably to be sought in the global expansion of markets, the quest for foreign investments and the way national competitiveness is conceived of in emerging global conditions.

At the global level, there is no system (or only very marginal ones) for the reallocation of resources according to social needs. Within Europe, there is also no EU policy aiming at the harmonisation of welfare regimes or of taxation policies for that matter. In these conditions, national economic success is connected to competition in providing advantageous business conditions in terms of low taxation and the reduction of other additional costs for productive investments, which of course diminishes the possibilities to keep up existing basis for taxation and consequent welfare regimes.

Environmental performance as reflected in the indicators probably mirrors the initial structure of the national economy and its alterations during the period under scrutiny more than national economic performance in quantitative terms (or changes in that performance) as such. While policies aiming at protection and conservation of natural assets may enhance the economic prospects of increased consumption, they may also be conceived as hampering competition with regard to productive investments at the global scale.

Consequently, the lack of income transfers at the global level could constitute a threat to the protection of people, the reproduction of labour, and protection of nature and culture at the European level. These tendencies are obviously connected to the lack of harmonised intra-European policies concerning these very same matters. An open question is to what extent a *European* welfare regime, including harmonised taxation, reallocation of resources on the European level according to ideas of social and territorial fairness, as well as common policies for the protection of environment and culture would enhance the position of Europe as a whole in the global competition. Such questions of strategic importance cannot be addressed at the moment by available statistics.

#### 2.2.4 Short list of structural indicators and core ESPON typologies

The territorial dimensions of the ESPON space have been thoroughly mapped in previous ESPON projects and several typologies describing the territory have been constructed. In this chapter three such core typologies are examined in light of the composite synthesis indicators constructed above. This allows an examination of the extent to which the underlying assumptions of these typologies are reflected in the short list indicators. The chosen typologies are:

1. A typology of functional urban areas (FUAs), ESPON 1.1.1;
2. Urban rural typology, ESPON 1.1.2; and
3. Multimodal potential accessibility, ESPON 1.2.2.

The main questions thus refer to whether economic, social, environmental and overall competitiveness and sustainability is higher in regions where there are large FUAs, in regions that have high urban influence and in regions where the accessibility potential is high.

Table 1 presents these data. As in the method of Figures 1-4, for each region the number of each indicator's value in the lower quartile has been subtracted from that in the upper quartile, resulting in a net sum. For each type of region (in the typologies) the mean value of these indicators has then been calculated. This implies that all averages are unweighted (i.e. they don't take into account the population of the region).

A value above 0 means that the regions in that typology tend – on average – to score high with regard to the structural indicators, either considering the 14 indicators as a whole, either the 8 economic ones, or the 3 social ones, or the 3 environmental ones. Likewise, a value below 0 indicates that the regions pertaining to that particular group in the typology on average tend to score low with regard to the structural indicators.

**Table 1:** Synthesis of short list indicators in light of three core ESPON typologies

<b>Core ESPON typology:</b>	<b>Structural Indicator Short List Syntheses</b>			
	<i>All fourteen Structural Indicators</i>	<i>Eight economic Structural Indicators</i>	<i>Three social Structural Indicators</i>	<i>Three environmental Structural Indicators</i>
	<i>Average net sum</i>	<i>Average net sum</i>	<i>Average net sum</i>	<i>Average net sum</i>
<b>Typology of Functional Urban Areas (ESPON 1.1.1)</b>				
Highest level FUA in NUTS 2 -region				
No FUAs	-1	-1	0	-1
Regional/Local	-1	-1	0	-1
National/Transnational	0	0	0	0
European/Global	1	1	0	0
Total	0	0	0	0
<b>Urban-Rural Typology (ESPON 1.1.2)</b>				
High urban influence, high human intervention	1	1	0	0
High urban influence, medium human intervention	-2	-1	-1	0
High urban influence, low human intervention	0	1	0	-1
Low urban influence, high human intervention	-1	-2	-1	2
Low urban influence, medium human intervention	-2	-1	0	-1
Low urban influence, low human intervention	-1	0	0	-1
Total	0	0	0	0
<b>Potential Multimodal Accessibility (ESPON 1.2.2)</b>				
Index, ESPON Space=100				
over 140	3	2	0	0
110-140	1	1	0	0
90-110	0	0	0	0
60-90	-1	-1	0	0
below 60	-2	-1	-1	0
Total	0	0	0	0

### **Typology of Functional Urban Areas**

The typology of Functional Urban Areas (FUAs) is based on the average scores of five out of the seven features and functions of the FUAs presented in the aforementioned ESPON project, i.e. population, transport, industry, knowledge and decision-making. The total number of functionally significant urban areas in Europe is 1595. Of these 76 are European/global level FUAs (concentrated into 73 NUTS2 areas).

All in all the 14 structural indicators are reflected in the typology of functional urban areas. Regions with European/Global FUAs have the highest average score whereas regions lacking FUAs or with only a regional/local FUAs score the worst. The same hierarchy is evident when examining only the eight economic indicators taken as a group. However, there is no clear pattern regarding the existence and magnitude of the relation between FUAs and social cohesion, whereas the pattern for the

environmental indicators is also nearly nonexistent, albeit in slight favour of large FUA regions.

At the regional level there is primarily a high correlation between high regional performance and European/Global FUAs in the European Pentagon, including Switzerland, Rhone-Alps in France and Denmark (Figure A16 in the Annex). In this area, excluding Northern Italy, European and Global FUAs have high regional performance. A similar correlation appears also in most capital regions in Northern and Eastern Europe and Southern Sweden. On the other hand high performance is also evident in many regions lacking FUAs or having only regional ones, especially in central Europe (e.g. Austria, the Czech Republic, southern Germany, most of Sweden). More generally there is a core-periphery pattern emerging primarily between capital regions and rest of the respective countries.

### ***Urban-rural typology***

Regarding urban influence and human intervention the results are not so clear cut as above. Nonetheless the overall average score is highest for regions where both the degree of urban influence and the degree of human intervention are high, i.e. typically urban areas. The same applies to the economic indicators alone, whereas e.g. the composite social indicators are not in any way reflected in the hierarchy.

For regionalisation a fragmentation of the typology into its two main aspects (urban influence and human intervention) was necessary. Therefore the correlation between the structural indicators and the urban-rural typology is presented in two consecutive maps (A17a and A17b).

At the regional level there is primarily a high correlation between high regional performance and high urban influence in the European Pentagon, including Switzerland and Rhone-Alps in France. When within this area there is a high regional performance, there is also high urban influence. The same holds true for most capital regions in Northern and Eastern Europe. At the other end of the scale (low) regional performance and (low) urban influence correlates in many regions of the Cohesion countries, the northernmost parts of the United Kingdom, Eastern Germany, Slovakia and Bulgaria. In these regions there are both low regional performance and low urban influence. However, most capital regions display higher scores (lower correlation) in these countries.

There are some distinct areas where the correlation is low. In Austria, the Czech Republic, Romania and Sweden there is high performance, but the urban influence is low (except for capitals). Regions with low regional performance and high urban influence are primarily located in Italy and in the Cohesion countries.

Regarding the human intervention aspect, the pattern is similar. There is primarily a high correlation between high regional performance and high human intervention in a quadrangular area, whose corners are situated in Southern Sweden, Manchester, Rhone-Alps and the Romanian Black Sea coast. High correlation between high regional performance and high urban influence appears also, for instance, in the Stockholm region.

### ***Multimodal potential accessibility***

Finally, with regard to multimodal potential accessibility the overall average of the 14 indicators correlates strongly with that of accessibility. Thus regions with a high



accessibility on average score high both in terms of the total result and of the economic composite indicator. This correlation gradually decreases with the worsening of accessibility. Once more, social and environmental competitiveness and sustainability as measured here are basically not reflected in accessibility at all.

At the regional level (Figure A18) Central Europe in general scores higher values. There is a high correlation between high regional performance and accessibility in the European Pentagon, including Switzerland and Rhone-Alps in France, as well as in most capital regions in the Nordic countries and the southern parts of Eastern Europe. In these regions there are primary high scores both on accessibility and the structural indicators.

Austria, the Czech Republic, Romania and Sweden constitute the main exceptions. In these countries only the capital regions have both high regional performance and high accessibility. Most of the other regions in these countries have high performance, but connections to these areas are below average. Regions with low regional performance and high accessibility are primarily rural areas in United Kingdom and Germany. Also some regions in Italy and the Cohesion countries display this pattern.

Once more the core-periphery pattern is evident on two distinct scales, i.e. between the Blue Banana and the rest of Europe on the one hand and between most capital regions and the rest of their respective countries on the other.

### 3. New methodology and indicators in support of the territorial dimension of the Lisbon/Gothenburg Strategy

The previous experimental exercise concerning the short list of indicators provides an understanding that the most appropriate approach to studying the territorial dimension of the Lisbon/Gothenburg Strategy is a territorial-multidimensional one that revolves around four key objectives/principles:

- competitiveness
- sustainability
- cohesion
- integration

Therefore the 3.3 project considered the indicators' relationship within the vision of the Sustainable Territorial Management methodological Approach – STeMA (Prezioso, 1995, 2003, 2005).

This approach implies a continuous confrontation and updating to increase the levels of awareness and participation in the development choices.

To achieve this, the STeMA:

- defines the "playground" for every indicator/determinant of the Lisbon/Gothenburg Strategy and contributes to determining some *judgements*<sup>10</sup>, to calculate the state;
- applies a TIA procedure to calculate the risk of compromising the system/determinant with respect to the Structural Funds plan and Lisbon/Gothenburg policies;
- selects the trans-national/regional zones for co-operative use of the new Structural Funds.

In order to attain that, it is fundamental to understand the answer that is brought about by the indicator (aiming at the best possible significance) or, in other words, to define exactly the phenomenon that has to be explained by the indicator. We built up four synthetic indicators that answer the Lisbon question; *if and how a given territory is able to generate/develop competitiveness*, not in absolute terms but relatively to what Amartya Sen calls "**capabilities**". In our case, they become **territorial capabilities**. This type of approach (see Annex I) has two fundamental points of strength:

- the initial resources play a role in that a lesser handicap is imposed on those countries that have less of them;
- the concept of capability can be connected to that of "use function/functionality" that allows an estimation of the realizations achieved and also to carry out a monitoring over time.

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<sup>10</sup> Status Quo is the state of the determinants (the critical elements to be competitive) and is defined by state indicators. Vulnerability is the description of the effects of the determinants and is defined by process indicators.

The theoretical choices and methodological approaches discussed below are strongly dependent on the previous points and the results try to combine a rather simple procedure with the complexity of the topic. This required the TPG to make an acceptable compromise between more advanced and sophisticated procedures (also in the statistical and mathematical instruments involved) and a methodological approach concerning a sufficient scientific agreement, innovative in some parts, but, once more, at the same time easy to run.

In the following section the purpose is to explain the steps involved in the construction of the STeMA towards the definition of the *Territorial Capability of Competitiveness in Sustainability Composite Index* (thereafter TC of CiS CI) (Carbonaro, 2006).

The aim was to construct a measure established on the basis of an ordinal scale. These conditions identify what we previously named competitiveness in sustainability.

To achieve this goal there is the need for a synthetic measure (technically a composite index) that moreover would be:

- tailor-made for the specific question regarding the distribution of the new Structural Funds;
- inserted in the general framework of a wider interconnection and integrations between territories;
- devoted to preserve the richness of territorial heterogeneity, but at the same time with a strong purpose of a common convergence towards higher L/G levels;
- and, last but not least, easy to handle for decisional purposes and, therefore, generated from a very pragmatic operative approach.

The TC of CiS CI is determined by the occurrence that several elements (“driving forces”) can contribute to the territorial capability of competitiveness in sustainability, but, at the same time, they can be grouped into four fundamental aggregate sets (in our language determinants), which are in turn generated by the combination of other less aggregate sets, in accordance with a hierarchical structure: determinants from typologies, typologies from sectors, sectors from categories, to end with the elementary information, or indicators, that generate categories.

The determinant takes a value through ‘messages’ from its indicators that reverberate on the state of the system and on the domain (national or regional) of their relations.

Each determinant outlines, at the scale of pertinence to the SFP, the logical network of the information and the judgements produced to respond to the logic of the system. This meant identifying the process and the target through which the basic indicators of every determinant interact individually or as a whole.

The interactions between indicators, in synergy or in reciprocal prevalence, define a ‘domain of interaction’ that allows every competitiveness component or determinant to be defined, and to then assess the potential impact that could come from the realization of the new SF plan, or part of it.

This framework is largely adopted in the literature concerning the development of aggregate indices that summarise the information contained in different elementary

indicators. What differs from the usual methodology for producing aggregate indices are the aggregation process and the introduction of an innovative territorialisation procedure (outlined in more detail below), to stress the similarity/diversity of the European regions in respect to their capability for competitiveness in sustainability (including the factors creating it).

The strength of this methodology can be seen in its capacity to combine very different elementary information (quantitative, qualitative - the latter also transformed into quantitative) and in referring to phenomena (economic, social, environmental etc.) that could hardly be treated with an identical model.

A weak point can be located in the aggregation process and the ranking choice that allows "pair to pair comparisons" to be made between indicators. Anyway, limitations and criticism would have accompanied the choices as to an aggregation function and a weighing scheme in the alternative to a more conventional methodology.

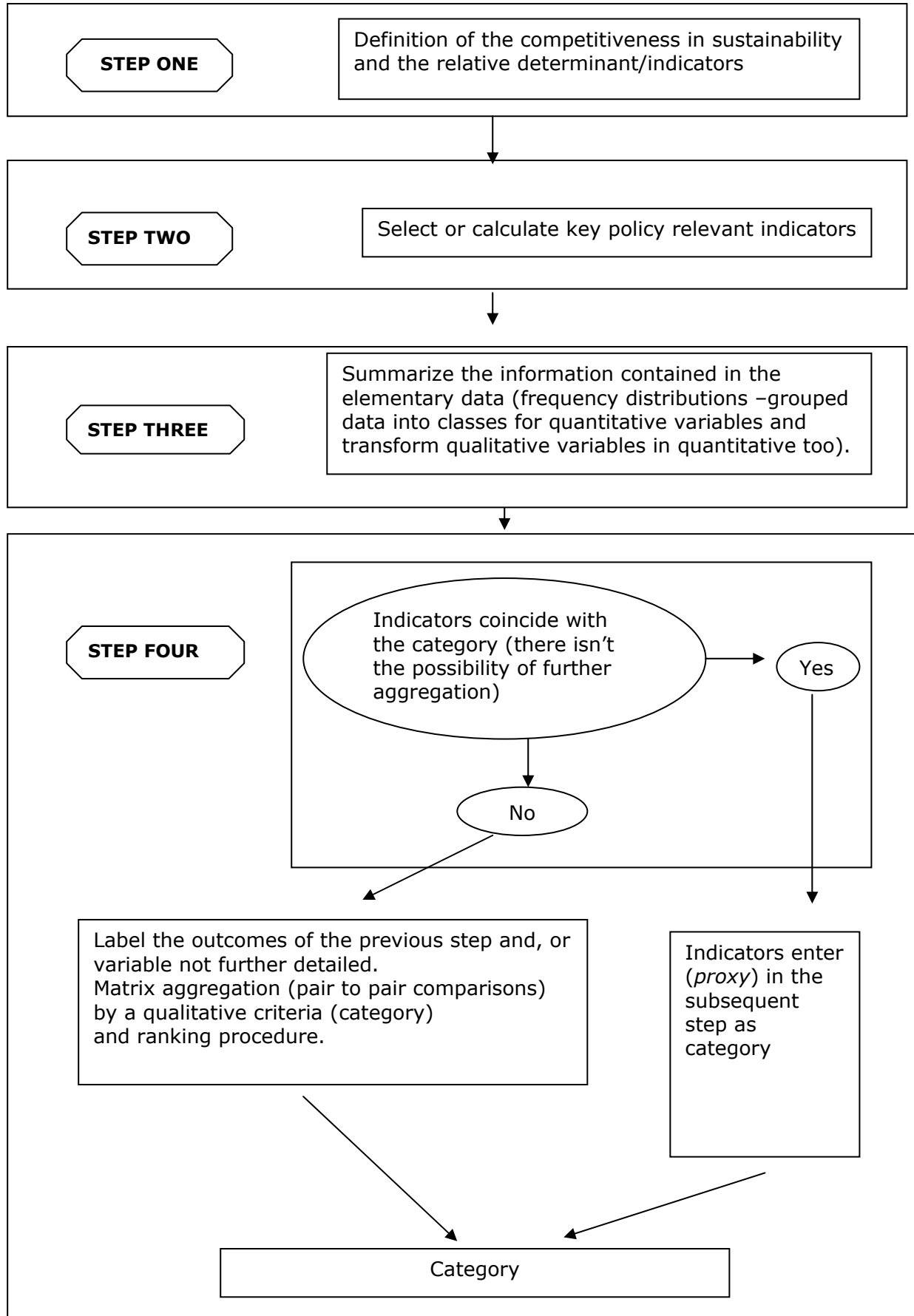
To give a comparison of the various indicators into determinants, STeMA provides *the construction of several qualitative interaction matrices* that, on the basis of reliable scientific theories or of reasonable demonstrations, given the value of a single indicator ( $I_1$  or  $I_2$ ), returns the qualitative value of the corresponding synthetic/composite indicator ( $I_x$ ).

For the *ex ante* definition of the Capability Framework, it is necessary to combine the status quo and the vulnerability (added in a non-algebraic way) to express *the overall sensitivity judgement* in the domains of the determinant.

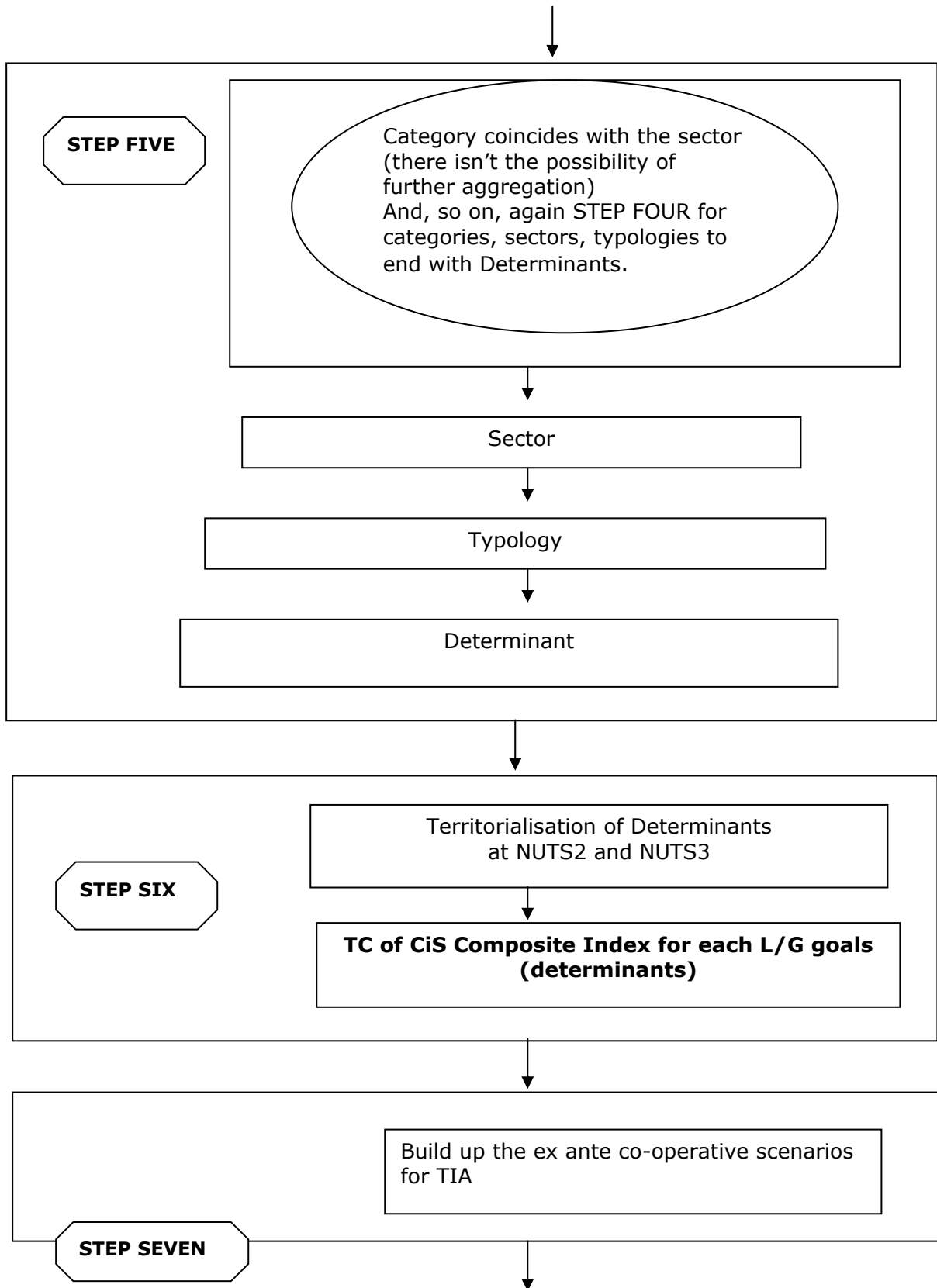
Several steps are needed to obtain the requested measure, beginning with the proposal of our "core" indicators, to persist with grouping the data, and, to complete with the definition of aggregation criteria (in conjunction with a special kind of weighted scheme) concerning the link between the different subdivisions in order to define the next level (category, sector, typology, determinant). Finally, the definition of the territorialisation procedure, and of the rule capable of comparing the performances (*ex ante* and *ex post*) complete this methodology.

The steps, nine overall, are linked to each other, so that the previous enters as input in the subsequent. They are illustrated in Figure 10. It shows the relation between the components (that is indicator → categories → sectors → typologies → determinant - from the lower to the higher level -) and outlines when the aggregation process, territorialisation procedure and policy choices occur (see also the software application, named the toolbox, described later).

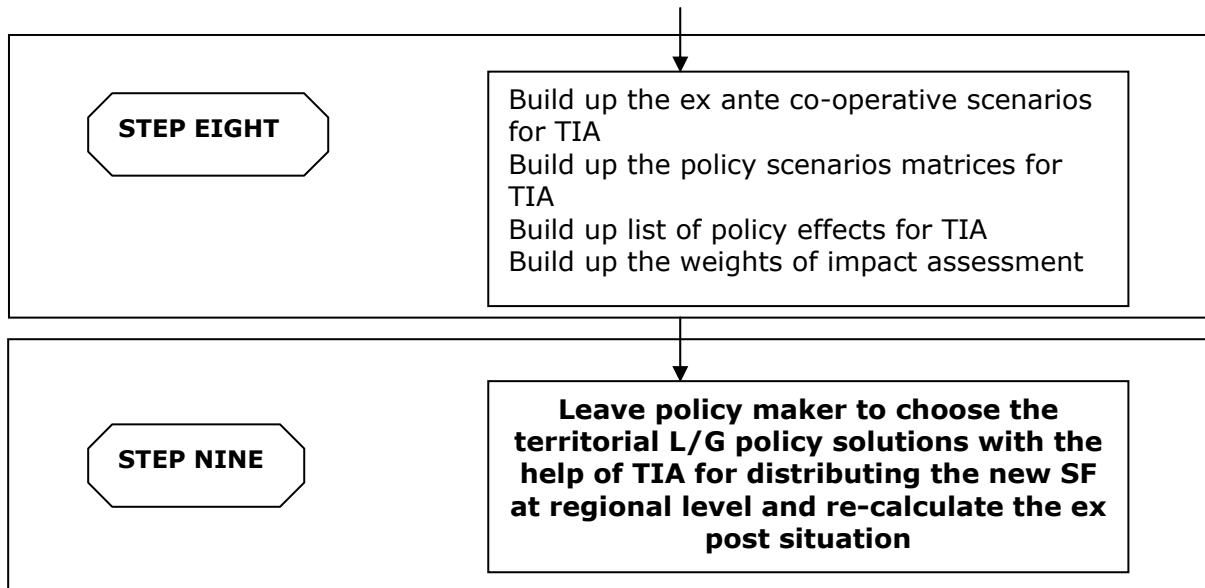
**Figure 10:** STeMA process and work steps



(continue from previous page)



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In this approach, that faces the challenge of adding the “territorial dimension” to peculiarly economical-political objectives (competitiveness and sustainability), the main operational problem was that a large part of the indicators describe socio-economical phenomena that are not completely “territorialized” because of the statistical relevance of the data themselves, both in terms of the modality of the survey and of the geographical level of detail.

In this particular case, the great majority of data needed to build from the indicators up to the determinants, are currently available mainly at national (NUTS0) and regional (NUTS2) level.

From our point of view, the most appropriate territorial levels on which the analysis of the competitive process should be addressed are NUTS2 and NUTS3. In fact, the readout of the programmatic demand – to which the SF policy should provide a consistent offer – is best performed at these levels of subsidiarity.

This problem was solved by taking advantage of the work made by those ESPON projects which provided territorial typologies of various kinds, namely, a major part of the thematic projects. Most of them, or at least the ones that are more closely related to our framework, have in fact geographically referred to the NUTS2 and NUTS3 administrative levels.

The territorial typology helps by providing a way to “project” onto a more detailed reference data that are generally assigned to a much wider boundary. On the other hand, this allowed the retaining of a source of information that is geographically more detailed, even when combined with less detailed ones.

The theoretical bases on which our approach is founded guarantee the significance of this sort of projection, that was also used in previous ESPON-related studies<sup>11</sup> and that is included in the studies under ESPON Project 2.4.2 “Zoom in” too.

Moreover, this point of view is also consistent with the application of the vertical subsidiarity principle within European States/regions.

<sup>11</sup> See, e.g., SPESP 1999, Final Report of the working group on Cultural Heritage.

### 3.1 *The 3.3 project proposal of a new integrated indicators set as the best support of the Lisbon/Gothenburg territorial strategy pillars*

The Governments of the member nations don't seem to have completely performed the fundamental task of leading the market according to Lisbon directives, or creating common macroeconomic conditions, or else setting an appropriate system of shared bonuses. The *policy-makers*, who were responsible for putting into practice economic policies set towards stability (price stability, financial, etc.), and, at the same time, should have simplified the transition to an economy based on knowledge and should have reinforced the role of the structural reforms, thus promoting growth and occupation, seem to have met with many problems, especially in:

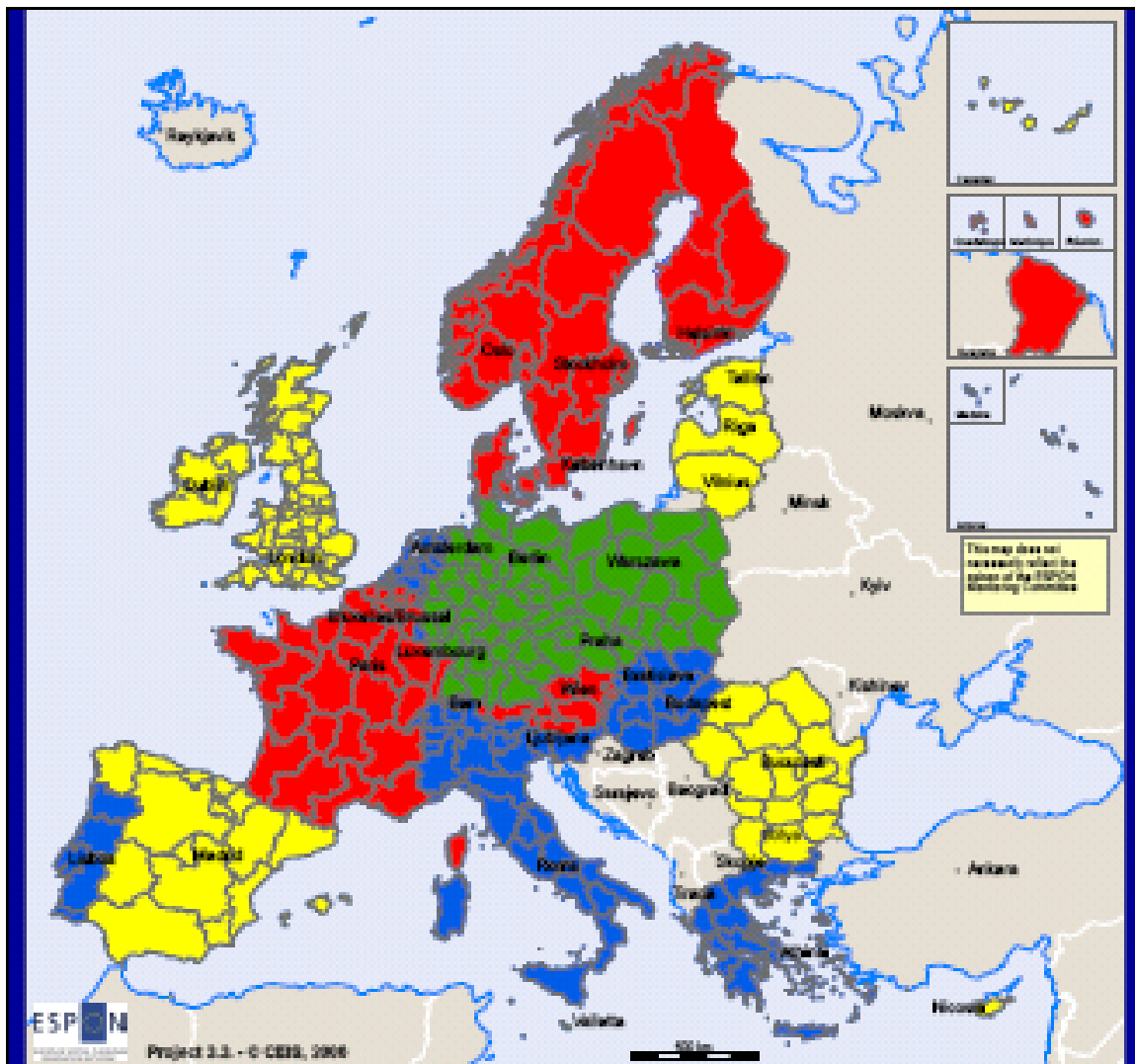
- reducing the pressure of taxation on labour (calculated by fiscal pressure and labour cost, see Fig. 11 and Fig. 12), with special focus on lowly qualified labour; improving the implied bonuses of the taxation system and welfare (see Fig. 13 and Fig. 14) in order to sustain high occupancy rates;
- restructuring public expense to raise the component of capital growth both physical and human, and to promote research and development.

On the other hand, countries and policy makers granted financial sustainability in the medium term (not in the long term as expected) especially considering the demographic evolution and change, and raised almost everywhere public interventions towards the directives of Lisbon/Gothenburg.



Figure 11: Fiscal pressure (CEIS, 2006)

MAP GL 29 - Fiscal Pressure



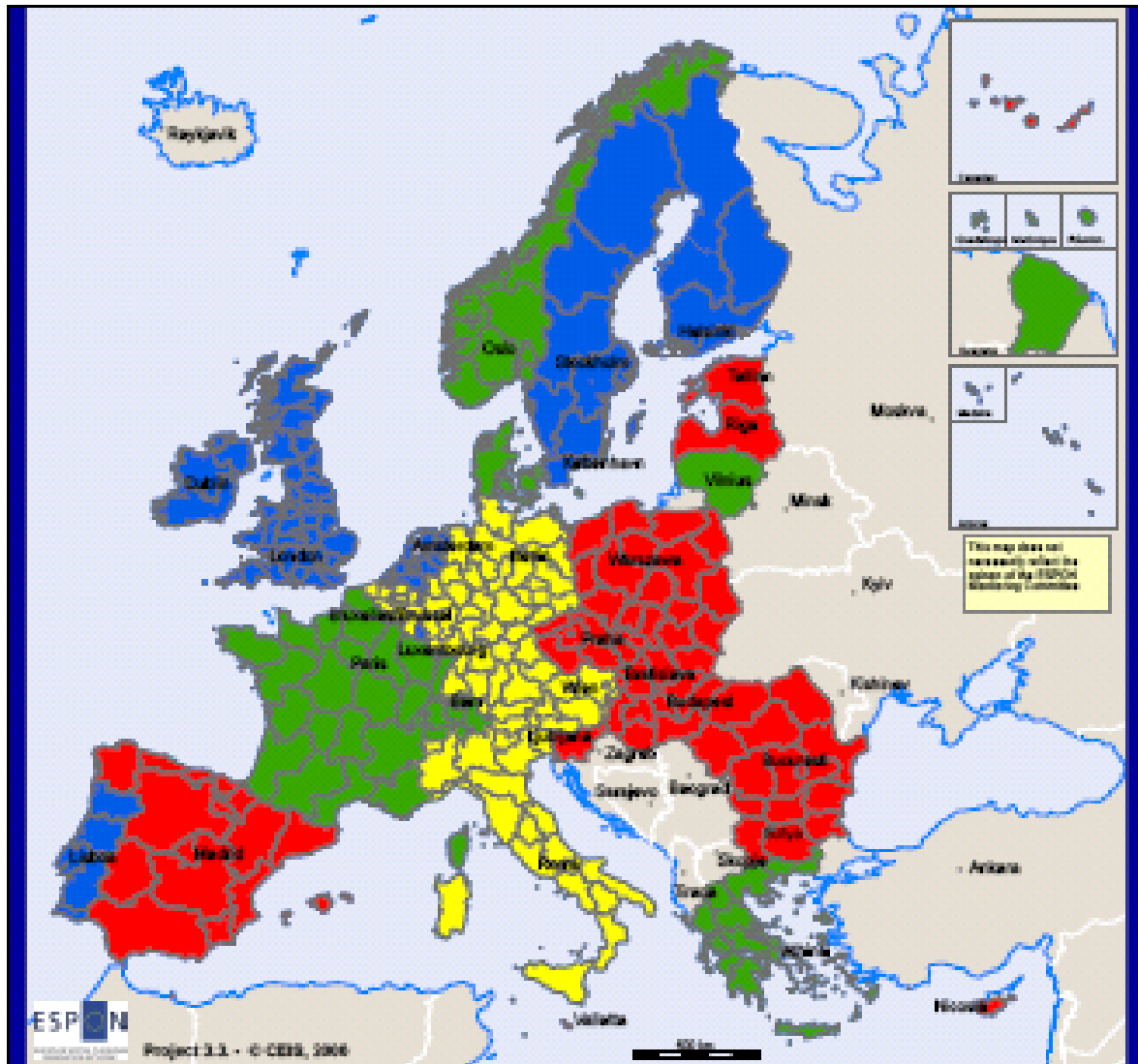
strategico appeal for localization calculated as total general government revenue (% of regional GDP)

High	>47.6
Medium high	44.3 - 47.6
Medium low	40.6 - 44.3
Low	≤40.6

© European Spatial Planning Observation Network  
Original data: Eurostat, 2004 - 2006

Figure 12: Labour cost (CEIS, 2006)

MAP GL 30 - Labour cost



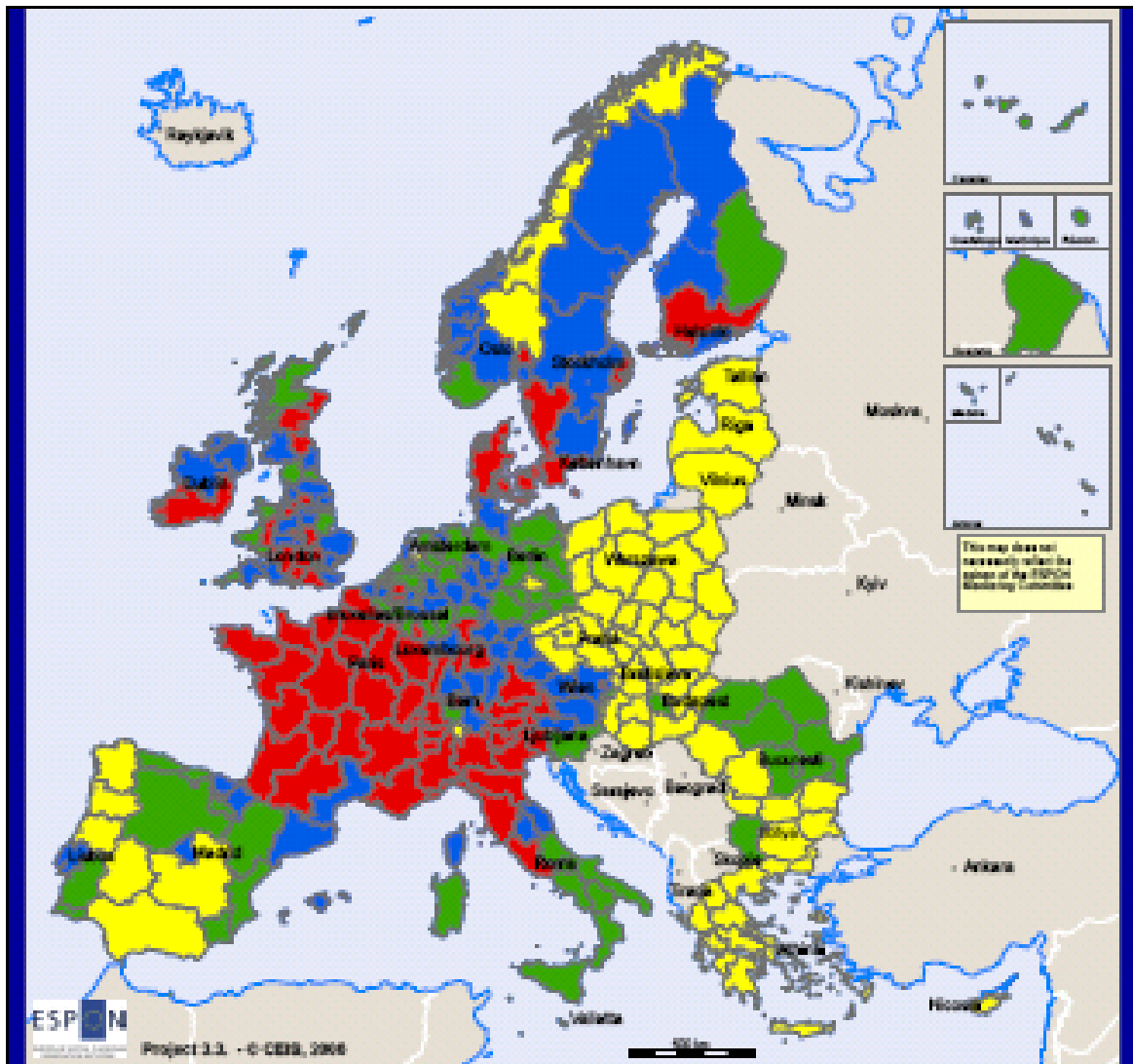
strategic economic costs calculated as annual average value of the quarterly total labour cost index in industry and services (excluding public administration)

High	>120.875
Medium high	115.925 - 120.875
Medium low	110.925 - 115.925
Low	<110.925

© The geographic coordinates for the geographic coordinates  
European Reference 1983 (EUREF), 2000  
Origin of data: Eurostat, 2007 - 2008

Figure 13: examples of Welfare system: Public Health (CEIS, 2006)

MAP RF 10 - Public Health



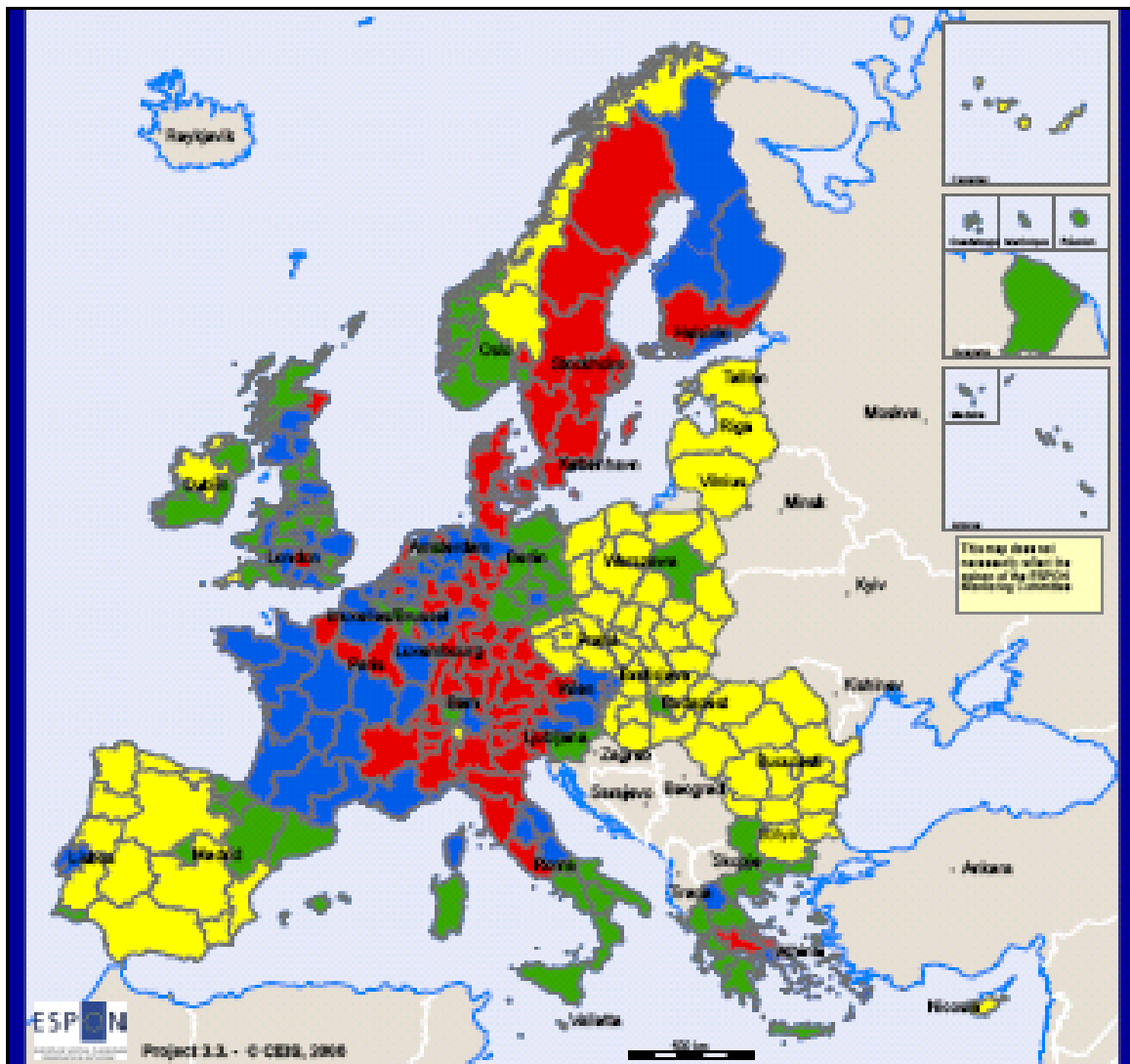
Expenditure in order to sustain the Quality of life calculated as (national health expenditure - COFOG GF07/national GDPpp) \* Regional GDP (In M€)

GDP map originates from data for the geographic coordinates Regional reference for 2005, 2003 (Data of Euro-STAT, 2006, 2005)

<span style="color: red;">■</span>	High	≥ 1609,30
<span style="color: blue;">■</span>	Medium high	1276,70 - 1609,30
<span style="color: green;">■</span>	Medium low	885,50 - 1276,70
<span style="color: yellow;">■</span>	Low	< 885,50

**Figure 14:** examples of Welfare system: Poverty and Age expenditure (CEIS, 2006)

**MAP RF 11 - Poverty and Age expenditure**



Expenditure in order to combat the social exclusion, poverty and age calculated as:  $(\text{regional expenditure in pps per capita} - \text{COFOG GF16}/\text{national GDPpps}) + \text{Regional GDP (in M€)}$

High	> 4626.50
Medium high	3518.50 - 4626.50
Medium low	2530 - 3518.50
Low	< 2530

© I Geographical Association for the geographical knowledge  
Regional indicators: ESPON, ESPON, 2006  
Origin of data: COFOG GF16, 2000 - 2005

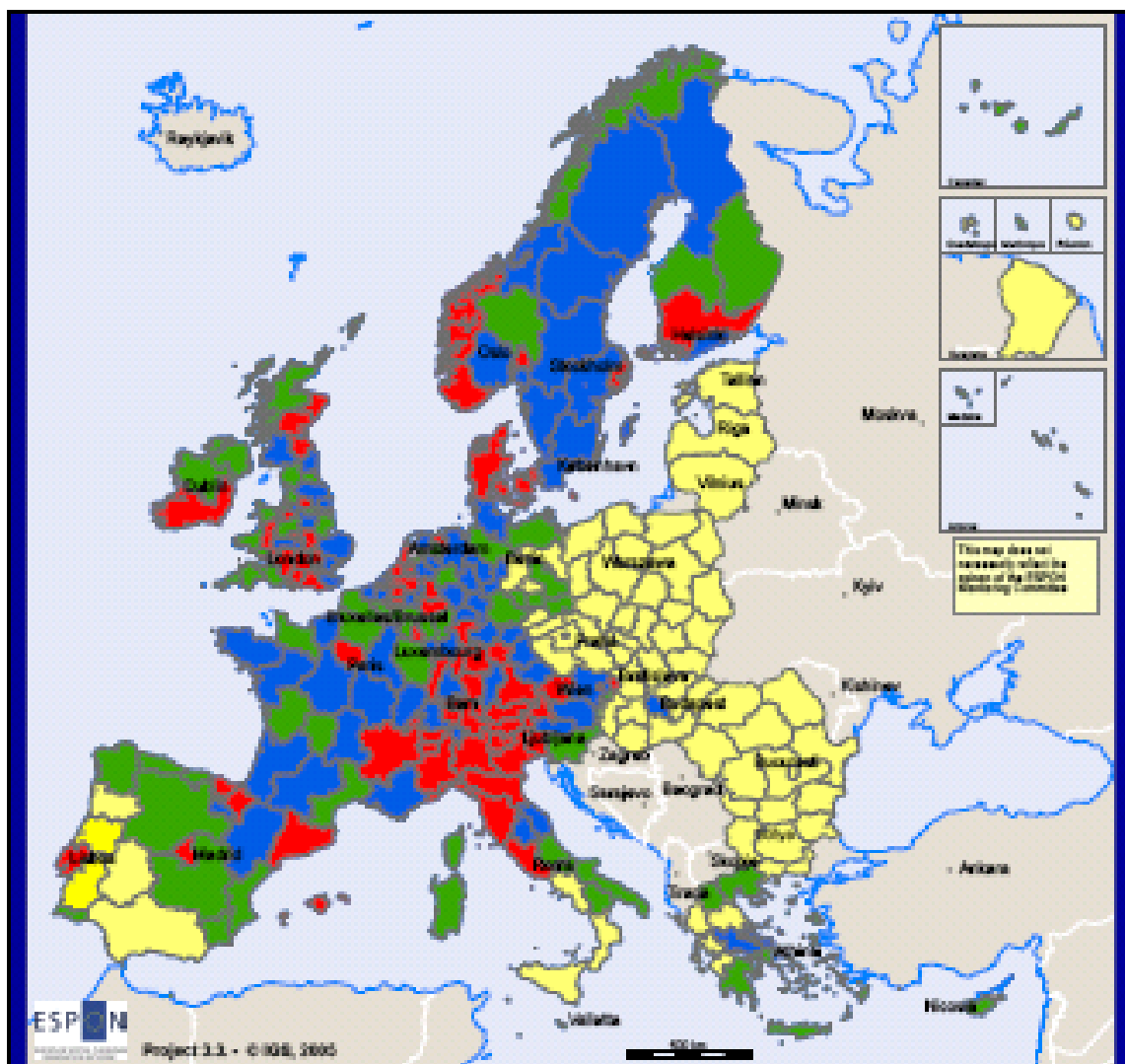
It was not possible, instead, to evaluate the results of the long-term cycle of coordination of economic policies begun during the Greek presidency, because only partial data are available of member States' policies.

Adhesion of the new member States had a relatively low influence on the values of the used indicators, for the adopted statistical method; the great variety that characterises the ten new members in the five areas of reference is nevertheless meaningful, producing a not foregone global effect.

But the strongest effects **do not come out** the two indicator which traditionally synthesize the general economic context (GDP pps, Fig. 15 and labour employment for calculating productivity, Fig. 16) where the average value for the new members is about the half of the Union value; price level as well is about the half; but they come out of occupancy rates – both general and those considering younger rather than older workers – and from the critical advantage for the new member States in youth education levels in relation to European average (percentage of youth aged 15 to 24 with secondary school graduation is about 90%, but it is lower than the percentage of youth with a tertiary level graduation or degree) (see Fig. 17).

**Figure 15:** GDP pps (EUROSTAT, 2004)

MAP Q 01 - Gross Domestic Product per capita (pps)



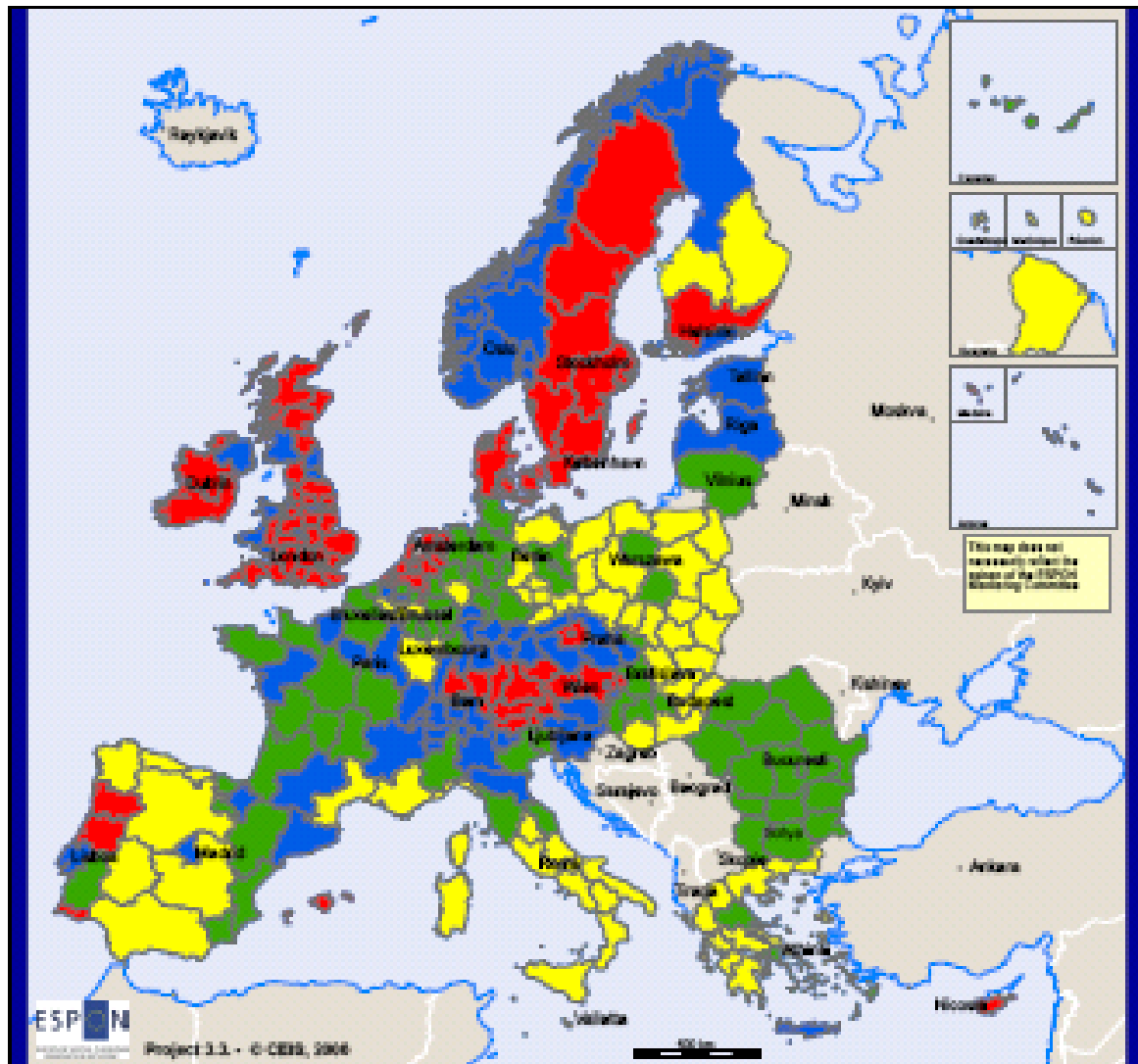
Regional GDP per capita in Purchasing Power Standard (pps)

High	> 23665.1
Medium high	20206.3 - 23665.1
Medium low	15236.9 - 20206.3
Low	< 15236.9

© European Geographic Observation Network for the geographic location of regional information (ESPON, 2004)  
(Data of Eurostat, 2004 - 2005)

Figure 16: Level of employment (EUROSTAT, 2004)

MAP Q 03 - Level of employment



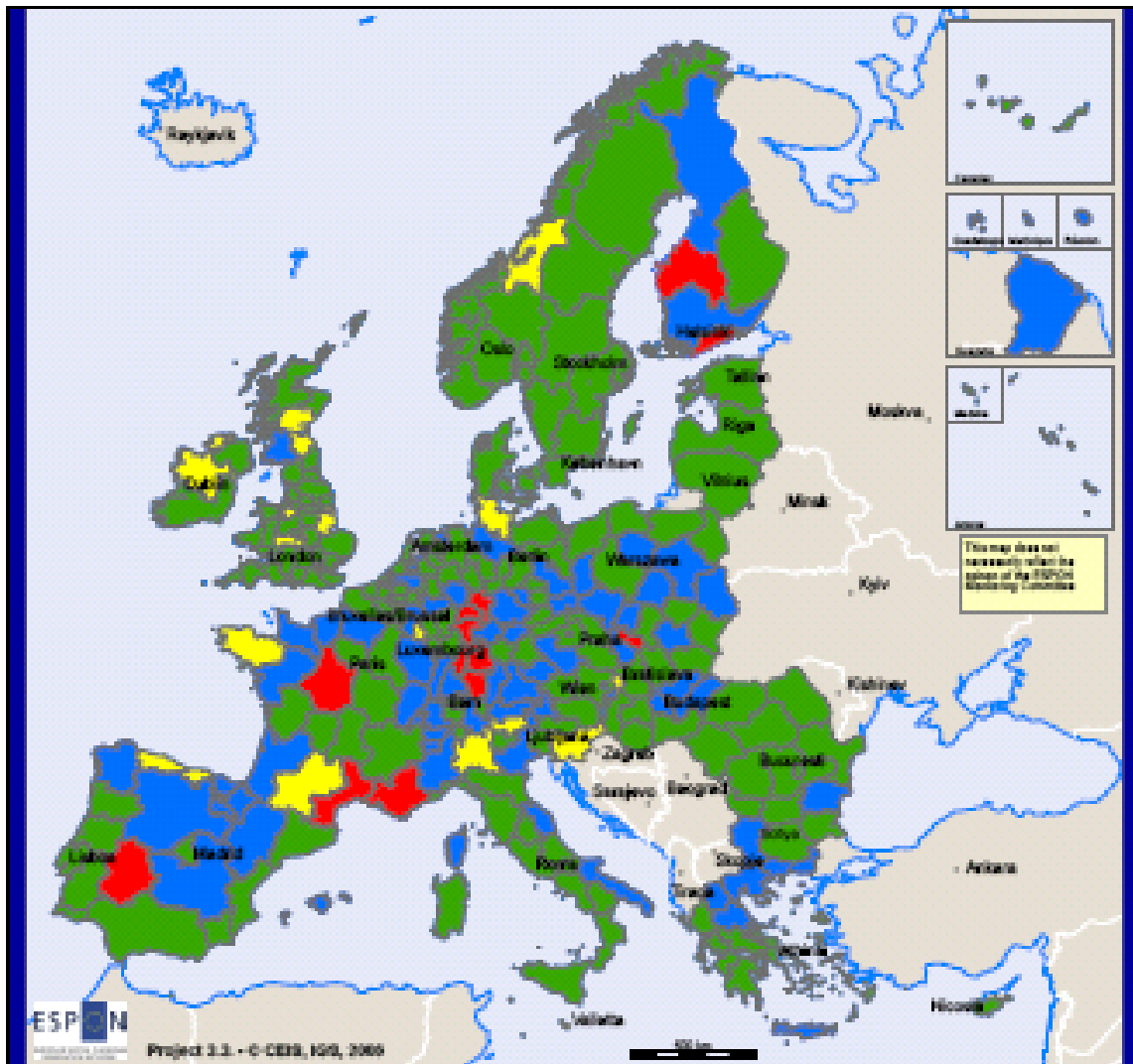
Regional percentage of employees calculated as level of employment number of employees/population (%)

High	>56,20%
Medium high	51,60% - 56,20%
Medium low	47,40% - 51,60%
Low	< 47,40%

© European Spatial Planning Observation Network  
Map produced by ESPON, 2004  
Origin of data: Eurostat, 2004

**Figure 17:** Knowledge Innovative Structures (CEIS, 2006)

**MAP IR 12 - Knowledge Innovative Structures**



Values obtained combining Universities students and Human capital

- High
- Medium high
- Medium low
- Low

© The geographic description for the geographic Institute (spatial reference: WGS 1984, UTM, EPSG:31466)  
(scale of data: CEIS, 2006)

The project produced, as expected considering it is a complex geographical-economic “work”, and as usually happens when the goal to achieve is politically important, a large number of indicators (Table 2), “maps” and horizontal and vertical comments. Each of which, beside representing the indicator, the category, the sector, the typology and finally the determinant, expresses compared judgements (status quo, vulnerability, capability) that unite or separate even adjacent European regions.

**Table 2:** List of basic indicators used in the 3.3 project, compared with the list of 42, the short list of 14 indicators and the ESPON project list (underlined the new indicators advised by the 3.3 project)

Determinant	3.3 Indicator	42 Spring indicator (2003)	14 Short list indicator	ESPON references
<i>Innovation &amp; Research</i> <sup>12</sup>	Internet users	II.3.1		project 1.2.2
	Firms with internet access	II.3.2		project 1.2.2
	<u>Available e-government services</u>			
	Universities students			project 1.1.2 (w. gaps)
	Innovative dependency index			ESPON DB
	Population with tertiary education			ESPON DB (w. gaps)
	Population in life-long learning	I.5		
	Research Centres			project 2.2.1
	Old and new technologies	III.3.3		project 1.2.2
	<i>Global-Local interaction</i>	General environmental concerns	V.7.2; g/f	
Specific environmental concerns		V.7.2		
<u>Manufacturing enterprise</u>				
<u>Products trademarks</u>				
Energy self-sufficiency index		V.2	Energy intensity of the economy	project 2.1.4
FDI intensity		III.6.6		
Trade integration of goods		III.6.4		
Trade integration of services		III.6.5		
Degree of Vulnerability in Europe			Volume of freight transport relative to GDP	project 1.3.1
Typology Multimodal Accessibility Potential		V.3		project 2.1.1
<i>Quality</i> <sup>13</sup>	<u>Fiscal pressure</u>			
	Labour - cost index (2000:100) - NSA	e		
	Long-term interest rate	d	Financial market integration (convergence in bank lending rates)	project 2.2.1 project 3.3
	Research Centres			
	<u>Credit institutions</u>			
	<u>Insurance companies</u>			
	<u>Companies</u>		Employment rate	
	Stock market capitalisation - end of period - Billiards of euro - NSA	III.6.1		
	Population change			ESPON DB
	<u>Tourists inbound</u>			
<u>Tourists outbound</u>				
<u>Students inbound</u>				
<u>Students outbound</u>				
<u>Researchers inbound</u>				
<u>Researchers outbound</u>				
Active people	I.1.1		ESPON DB	
GDPpps per capita	a.1	GDP per capita (PPS)	ESPON DB	

<sup>12</sup> Into the calculation of the composite index "Innovation & Research" the indicator *Employment rate of older workers* was substituted by the *Innovative dependency index*. The older workers are however indirectly considered in the indicator *Population in life-long learning*.



	<u>Consumption per capita</u>			
	Level of employment	I.1	Employment rate	ESPON DB
	Consumer price index	III.1.1		
	<u>Hospital beds</u>			
	<u>Hotel beds</u>			
	<u>Cultural opportunities</u>			
	Typology Multimodal Accessibility Potential			project 2.1.1
	Old and new technologies	III.3.3		project 1.2.2 project 3.3
	Municipal waste generation	V.5		
	<u>Hazardous waste generation</u>			
	<u>Municipal waste recycling</u>			
	<u>Degree of vulnerability in Europe</u>			project 1.3.1
	Total greenhouse emissions	V.1	Total greenhouse gases emissions	
	<u>Total gross abstraction of freshwater</u>			
	<u>CO<sup>2</sup> emissions</u>	V.7.1; V.7.2		
	<u>Confidence in EU Commission</u>			
	<u>Confidence in EU Council of Ministers</u>			
	<u>Confidence in EU Parliament</u>			
	<u>National public participation</u>			
	<u>European public participation</u>			
	Early school leavers	IV.5.1		
	Inequity of regional income distribution	IV.1		
	Persons aged 0-17 who are living in households where no one works	IV.7	Long-term unemployment rate	
	At-risk-of-poverty rate before social transfers	IV.2.2	At-risk-of-poverty rate	
	Female employment	I.2.1		
	<u>Fertility rate</u>			
	<u>Healthy life years</u>			
<i>Resources and funds</i>	R&D expenditure	II.2.1	R&D expenditure IT expenditure	project 2.1.2
	(firms) National aids	III.5		
	Human capital expenditure (pps per capita)	II.1	Spending on human resources (public expenditure on education)	
	<u>Employment expenditure (pps per capita)</u>			
	<u>Climate and natural resources expenditure pps per capita</u>			
	<u>Efficiency and accessibility</u>			project 2.2.1
	Public Health expenditure pps per capita	III.5		
	Poverty and age expenditure pps per capita	III.5		
	<u>EU funds spending</u>			project 2.2.2
	Economic resources	III.1.1		

To avoid the excessive distributive uniformity of the data deriving from a classification with *equal* interval (quite popular in the European geographic studies), we preferred to use the so called *quantile method*.

<sup>13</sup> The indicator *Labour productivity per person employed* is used in the composite index "Quality". The indicator *Dispersion of regional employment rates* is not used because cover data is missing.

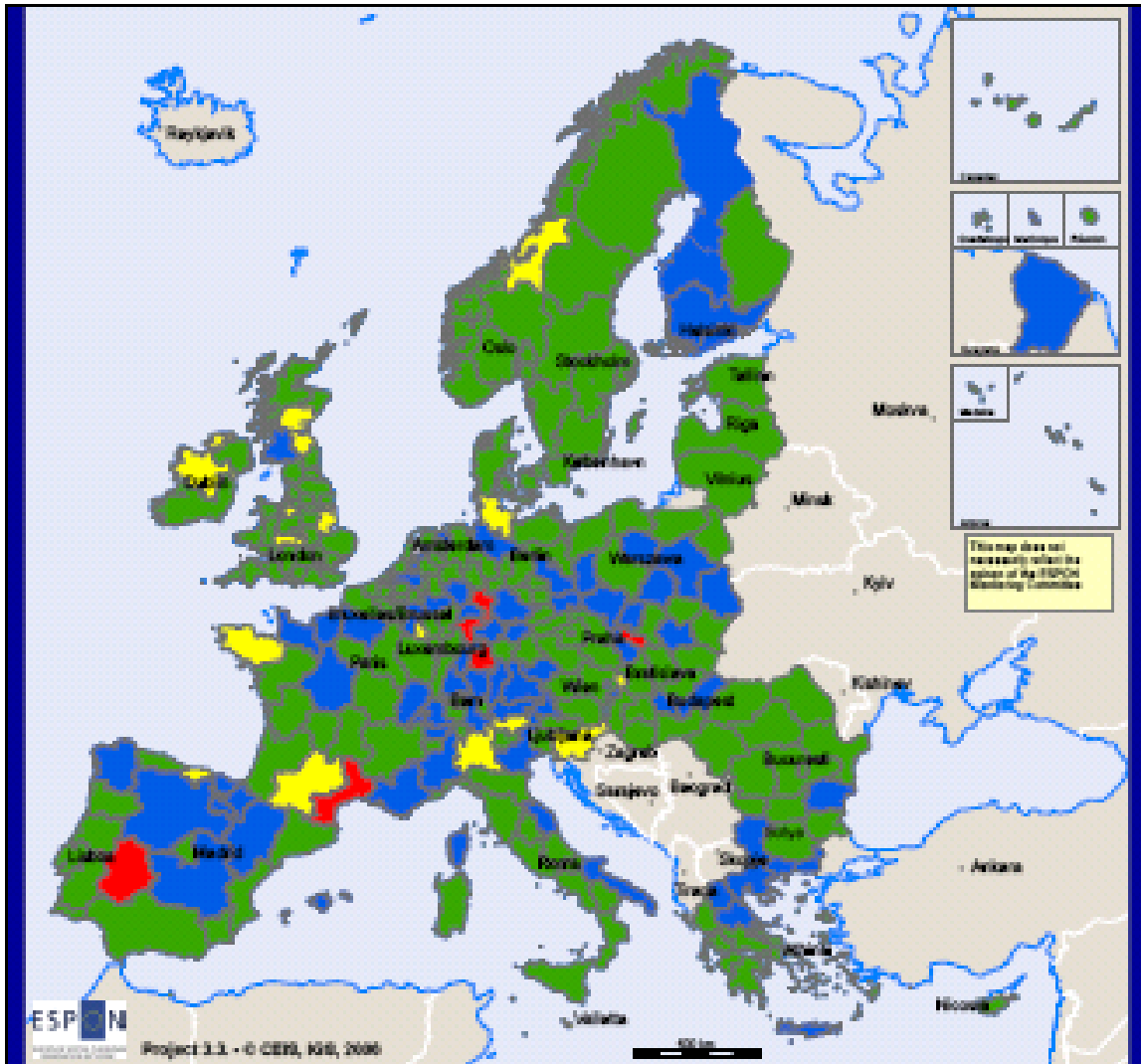
In the following section the main results are presented, obtained for the 25 countries forming the EU, to whom Bulgaria, Romania and Switzerland were added. In addition to the spatial and territorialized synthetic maps, some indicators stand as particularly relevant for the initial regional status. Right from this moment possible co-operation areas are represented. They will be specifically recalled later in the chapter dedicated to the evaluation of the policy recommendations' effects.

### *3.2 Innovation and Research*

A great majority of the European Countries shows a medium-low profile in terms of I&R (one of the main themes of Lisbon) at national scale and a higher level at regional one. With respect to national policies, medium-high values can be found only in the "Pentagon" area and in Slovenia, while only some regional enclaves in the Scandinavian Peninsula, in Great Britain, Netherlands, Italy achieved the goal fixed by Lisbon. Facing territorialisation, differences result even more strongly and sharply, clearly highlighting the gap dividing Finland, Norway, Sweden (with a low population density) from France, Spain, Greece and the rest of Europe.

**Figure 18:** Innovation and Research: composite index final values (CEIS, 2006)

**MAP IR 17 - Innovation and Research: Synthetic Spatial Composit Index**



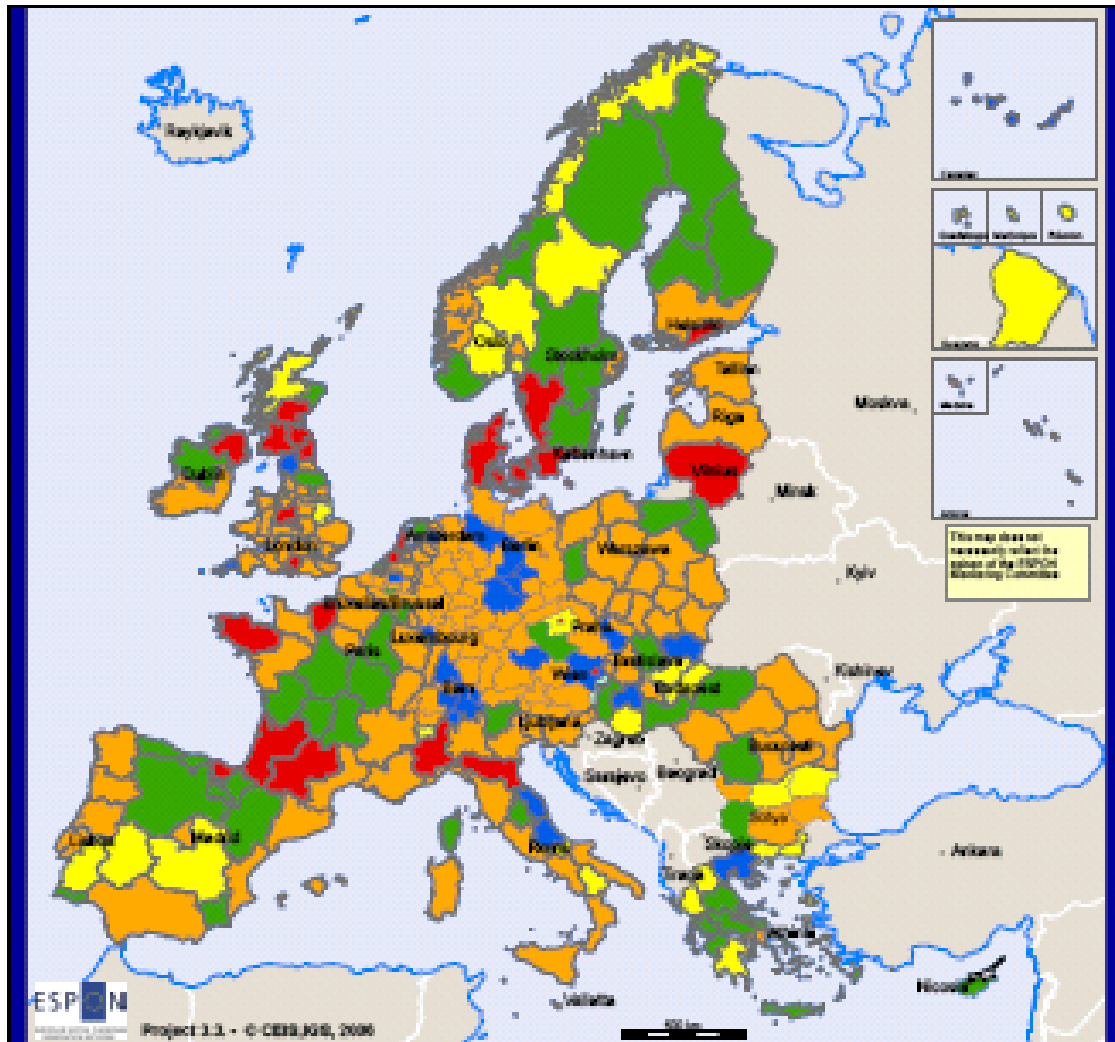
Values obtained combining  
Innovation and Knowledge  
Creation Facilities

- High
- Medium high
- Medium low
- Low

© The geographic facilities for the geographic knowledge  
Region Database (RIGD), 2003  
Origin of data: CEIS, 2006

**Figure 19:** Territorial I&R: final values at NUTS2 (CEIS, 2006)

**MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2**



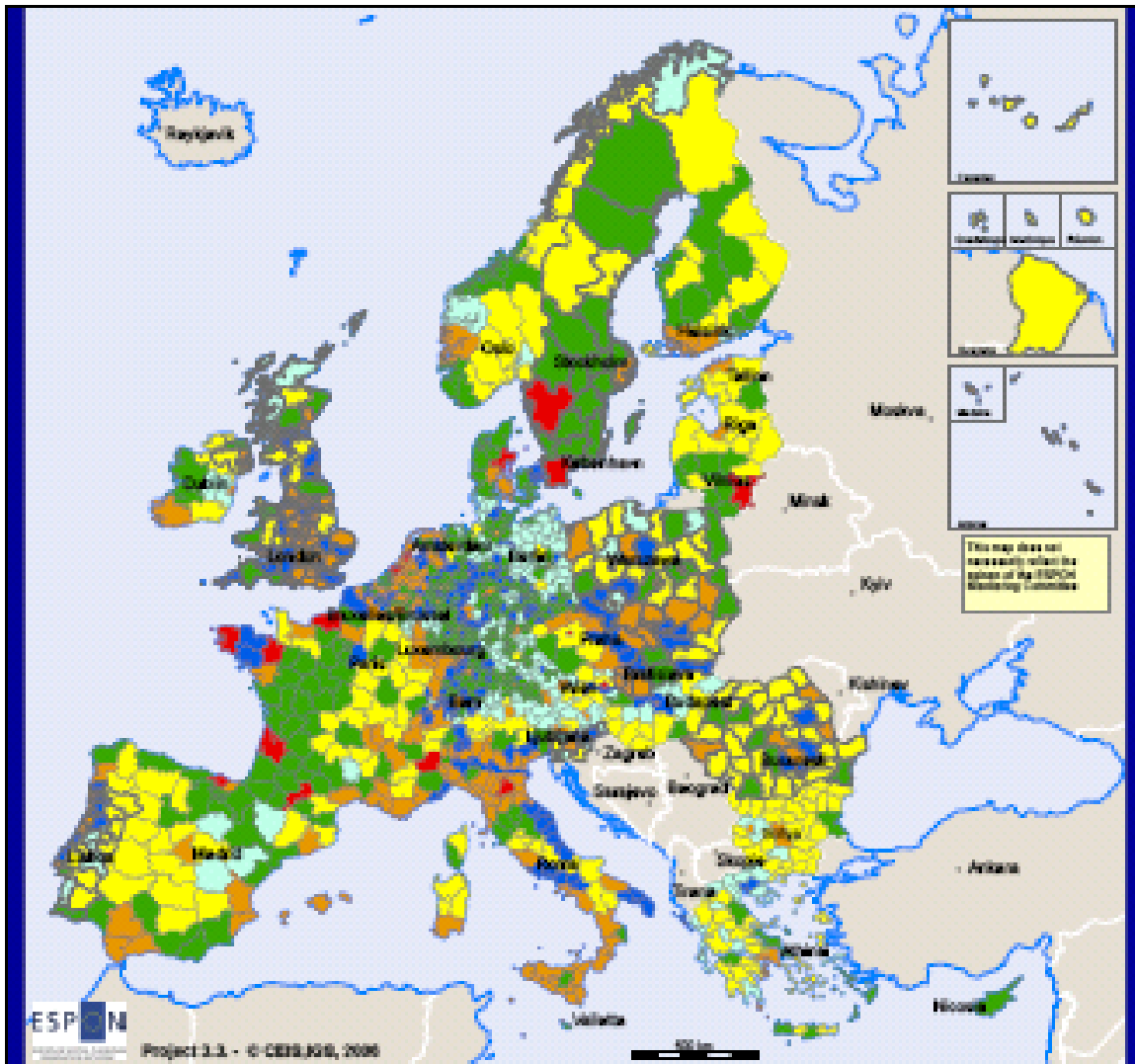
Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

© European Commission, 2006. For the geographic location of the regions, refer to the map of Europe in the ESPON Monitoring Committee Report of date 07/01/2006.

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

**Figure 20:** Territorial I&R: final values at NUTS3 (CEIS, 2006)

**MAP IR 19 - Innovation and Research: Territorial Dimension at NUTS 3**



Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT3 - Territorial typologies at NUTS3

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

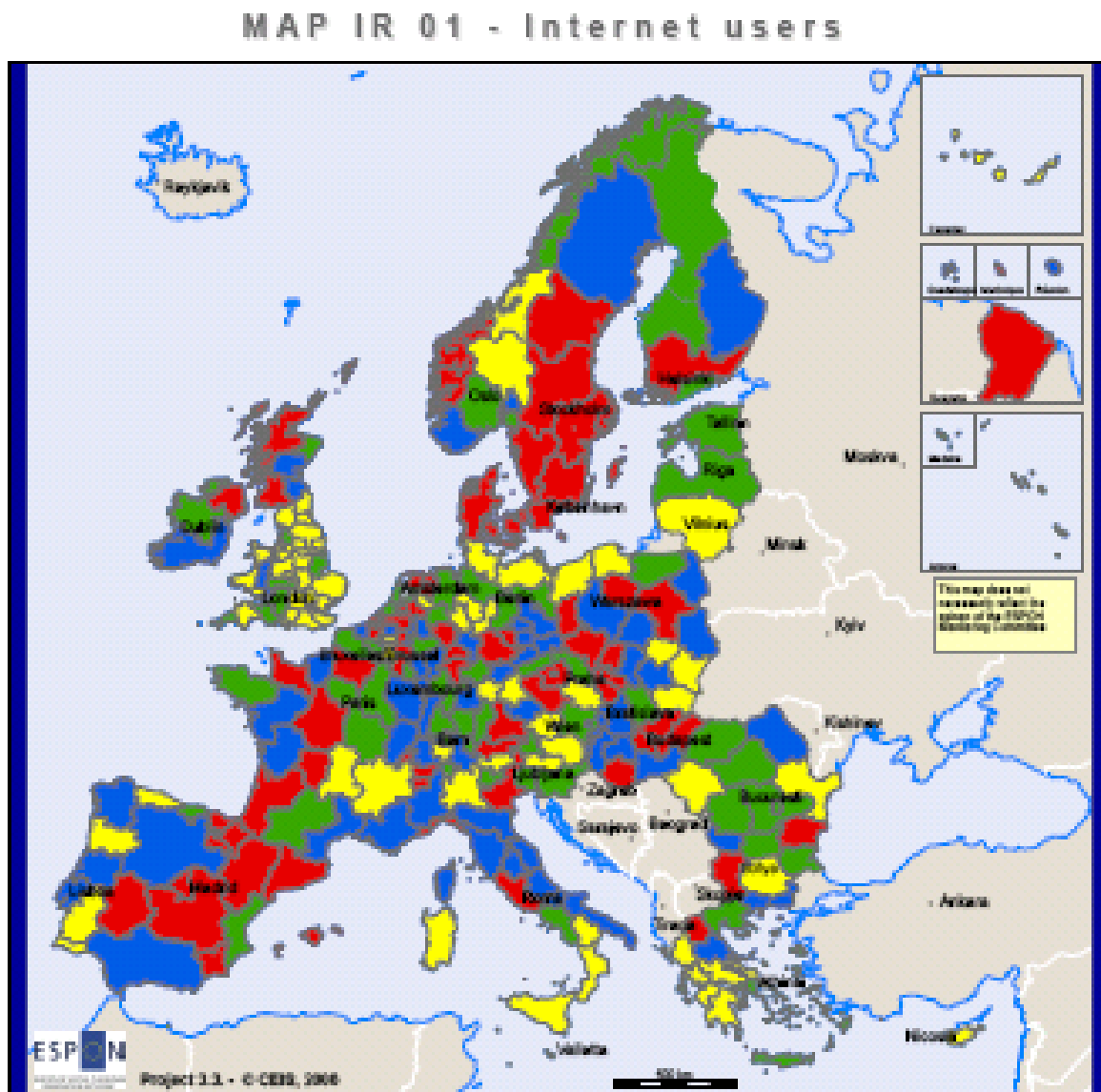
© Geographical coordinates for the geographic coordinate system: EPSG:31466, 2006. Origin of data: CEIS, CEIS, 2006. CEIS

From this point of view, it is necessary to provide for targeted structural actions, concrete and operative, with the direct concourse of regional finance:

- promoting a wide use of the computer (*surfing the web*, to get over the digital divide) only as regional dedicated policy (map IR 01 – Internet users);

- sustaining the businesses which use the web and immaterial networks in the North of Scandinavian Peninsula, in Great Britain, Austria, Greece, Malta, Cyprus as national policy (map IR 02 – Firms with Internet access) and in a widespread way, for the same goal, the institutions (especially at a municipal level, Fig. 21) in Greece, Romania, Hungary, Slovakia, Poland, Latvia, Swiss, Malta, Cyprus as national policy, in the North of Scandinavian Peninsula as regional policy (map IR 03 – Available e-government services);

**Figure 21:** Internet users (CEIS, 2006)



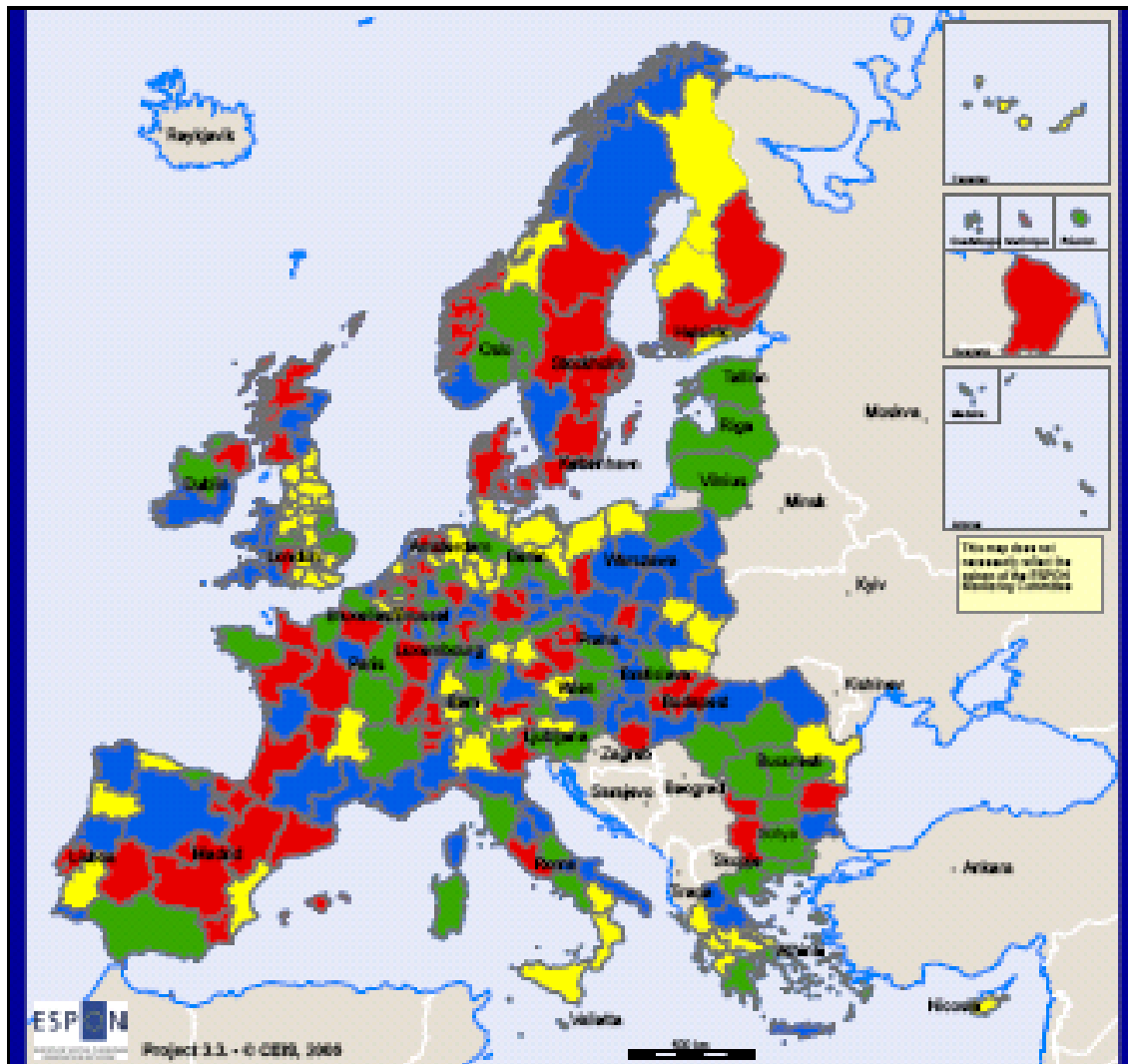
Regional population with internet access: calculated as % of regional population having internet access at NUT80 \* regional population

	High	> 1240509
	Medium high	751980 - 1240509
	Medium low	387313 - 751980
	Low	<387313

© European Commission for the geographic coordinate system and the map projection. ESPON, 2006  
Origin of data: Eurostat, 2007, 2008, 2009, 2010

Figure 22: Firms with internet access (CEIS, 2006)

MAP IR 02 - Firms with internet access



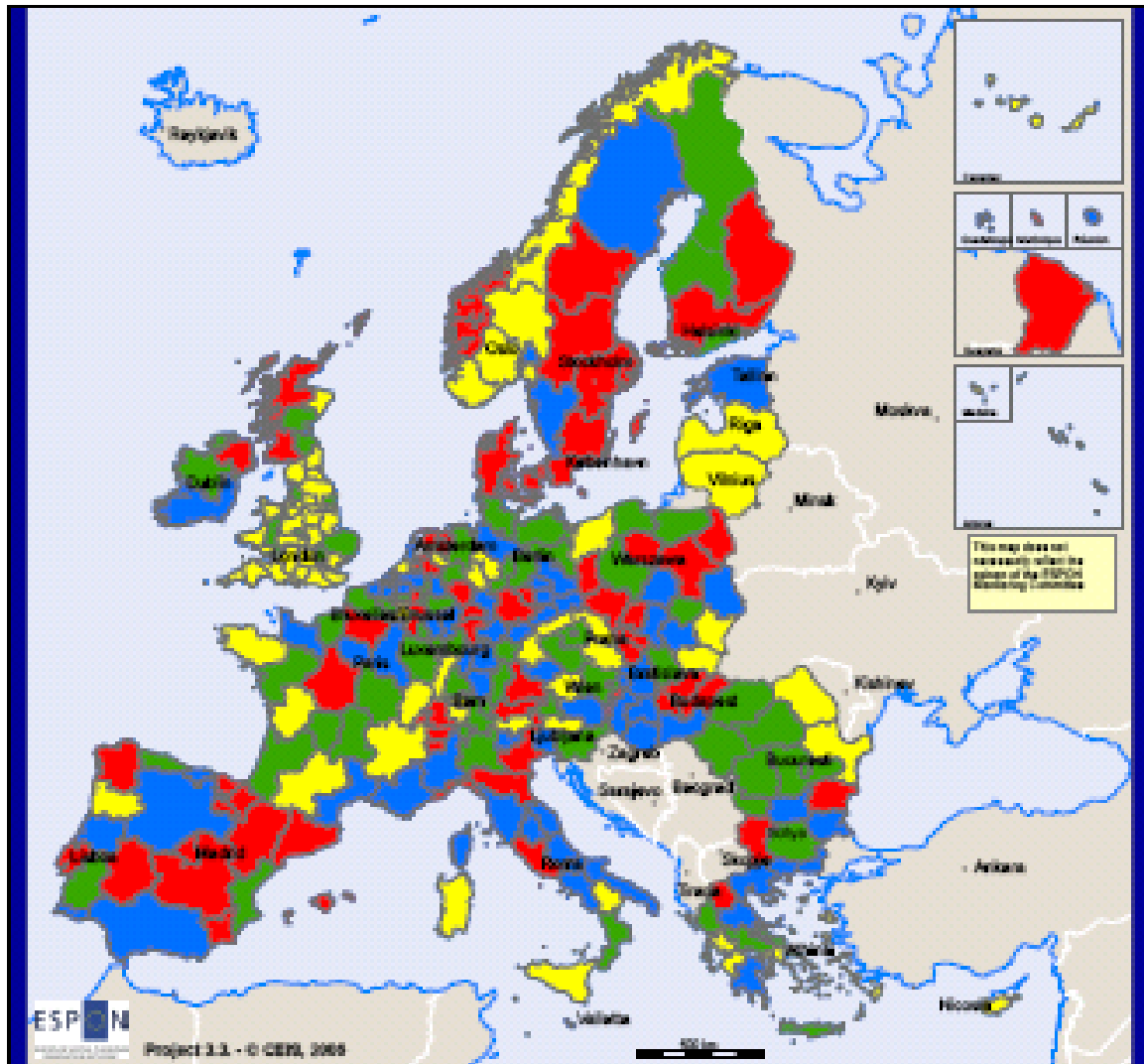
Regional Firms with Internet access calculated as % of regional enterprises having internet access at NUTS0 + regional population

High	>1904359
Medium high	1209010 - 1904359
Medium low	722800 - 1209010
Low	<722800

© European Commission (European Centre for the Development of the Regions) 2007, 2008, 2009  
Origin of data: Eurostat (regio, 2005 - 2006 - 2007 - 2008)

Figure 23: Available e-government services (CEIS, 2006)

MAP IR 03 - Available e-government services



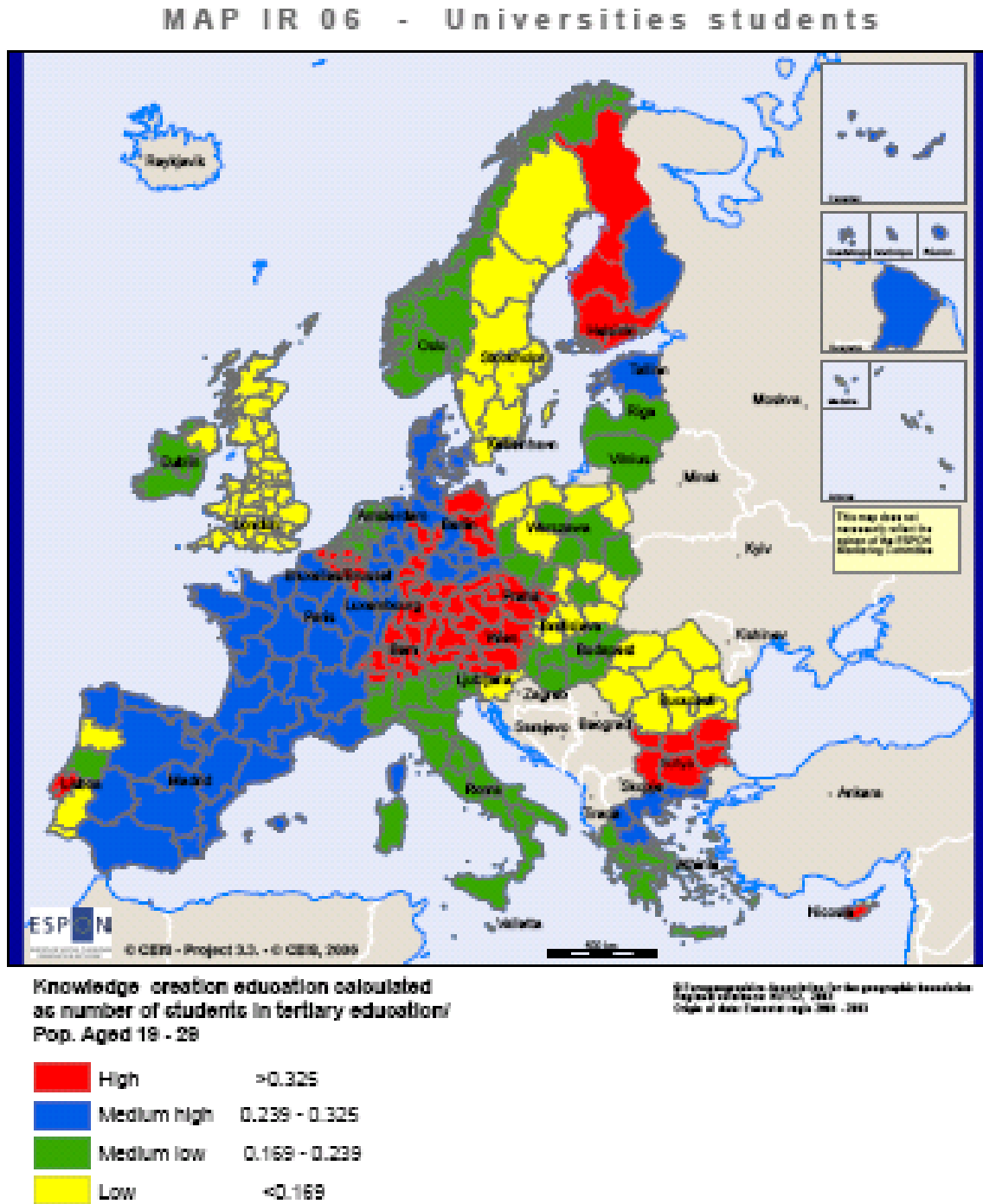
Public institutions available e-government services calculated as number of public institution at Nuts0 with the available e-government services out of those defined in the survey \* regional population

High	>1018564
Medium high	521547 - 1018564
Medium Low	223014 - 521547
Low	<223014

© European Commission, Directorate for the Geographic Information Systems, 2006, 2009  
Origin of data: Eurostat, 2006, 2009



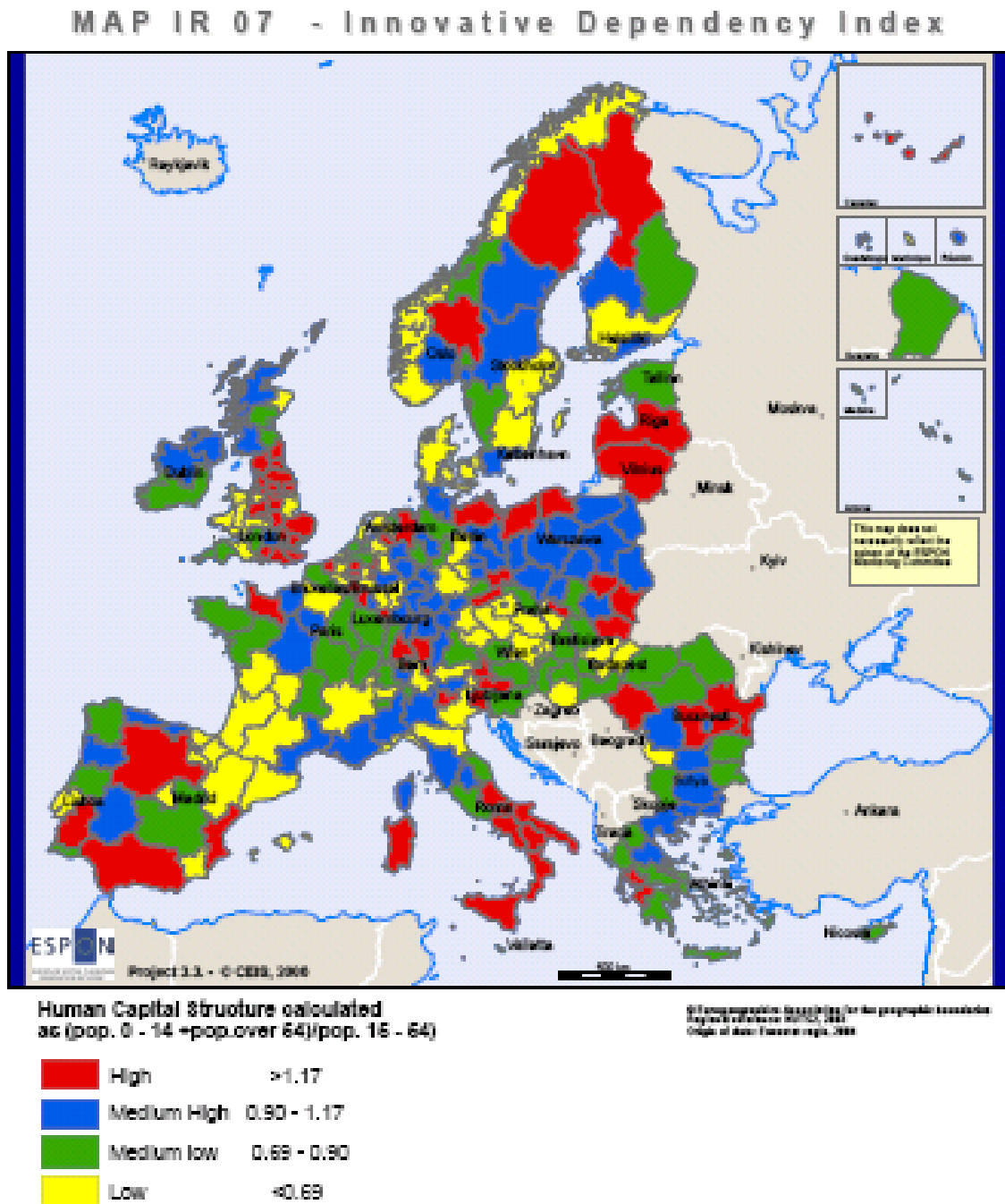
Figure 24: Universities students (CEIS, 2006)



- promoting co-operation projects among virtual stakeholders beyond the North-South vertical axes linking the Scandinavian Peninsula, to Cyprus; Switzerland should be included in these projects;
- concentrating in Hungary, Greece, Cyprus, Malta some projects for life-long learning education (map IR 09 – Population in life-long learning) to sustain the re-employment of ageing people and for a professional adjustment of the young human capital in all of Europe, where the Human Capital structure and the

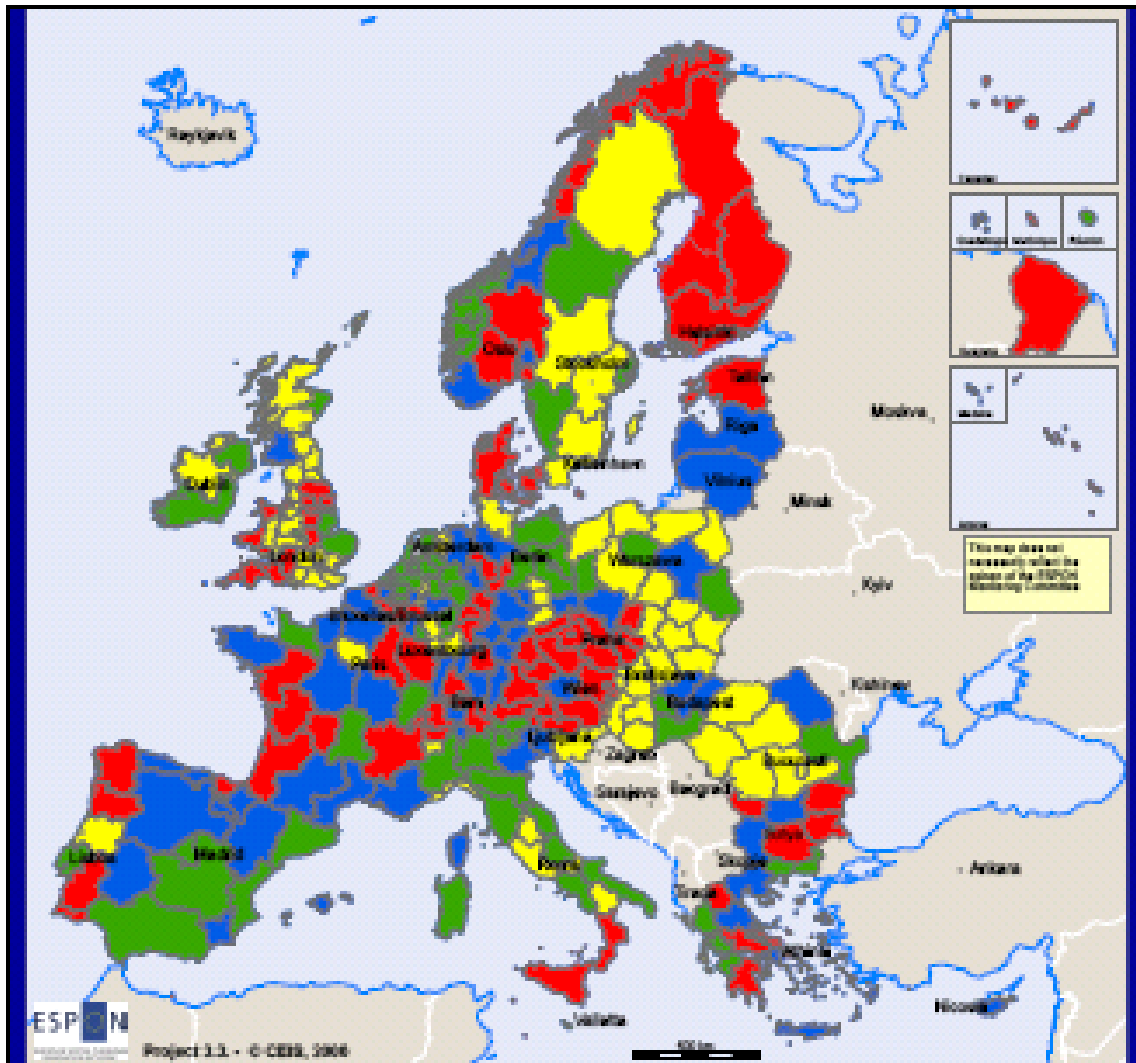
Innovative dependency Index (map IR 07) are generally not homogeneous and medium-low (map IR 011 – Human Capital);

**Figure 25:** Innovative Dependency Index (CEIS, 2006)



**Figure 26:** Population with tertiary education (CEIS, 2006)

**MAP IR 08 - Population with tertiary education**



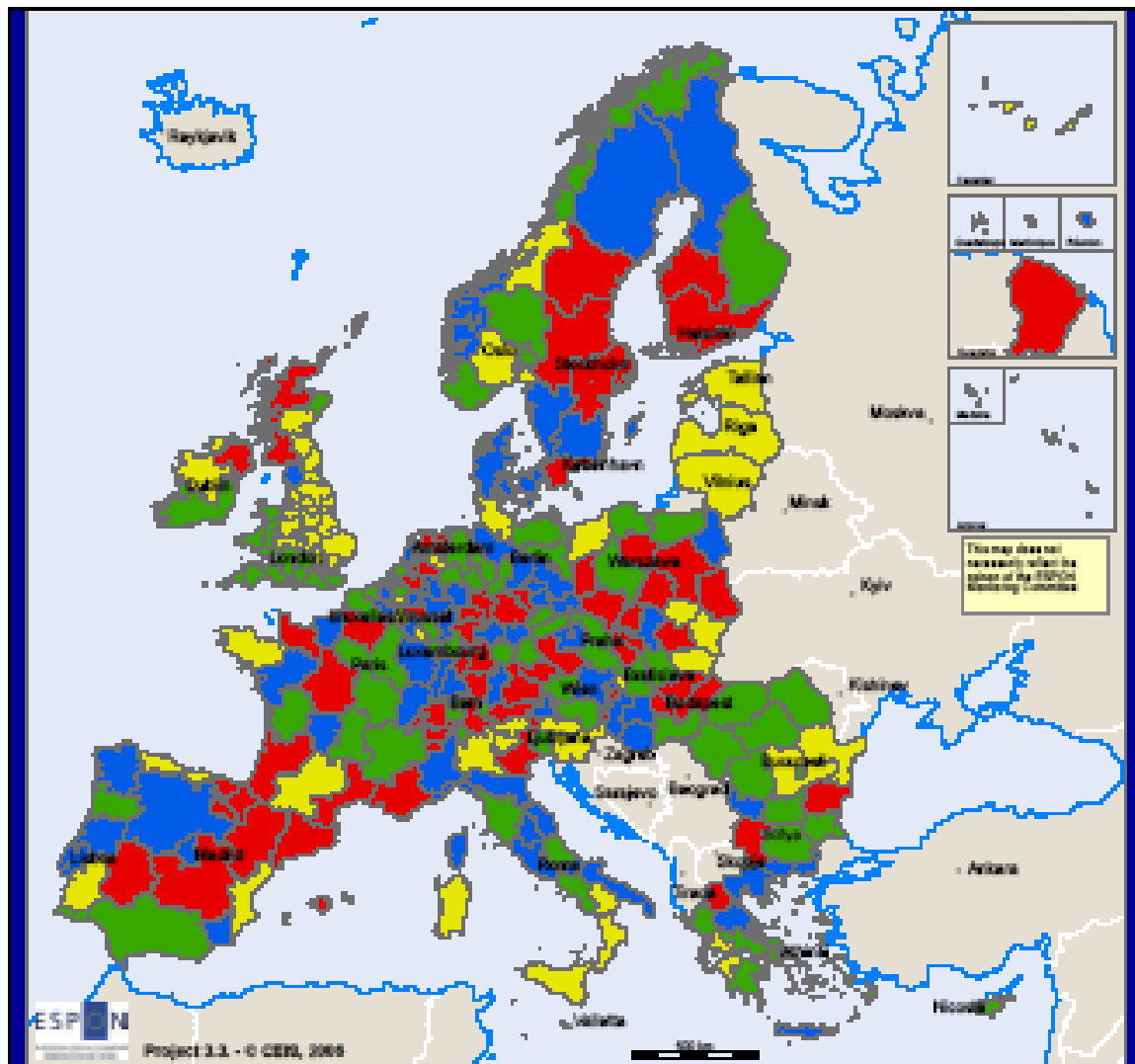
- Human Capital education calculated as population with tertiary education/Total Population (In %)
- |             |               |
|-------------|---------------|
| High        | >4,12%        |
| Medium high | 3,31% - 4,12% |
| Medium low  | 2,46% - 3,31% |
| Low         | <2,46%        |
- sustaining at the same time all European Union access to a tertiary education level (map IR 08), so that it could reach by 2010 the medium level of Great Britain, Denmark, Sweden and Lithuania, using direct co-operative forms to transfer technological know-how from more innovative regions. All European regions will have to be sustained in the continuing development of innovative structures for transferring knowledge;
  - focusing attention towards infrastructure that allow the sustaining of R&D at the regional scale (map IR 13), using as performing benchmarking the experiences of

Ireland, Finland, Sweden, Norway and Estonia with regard to Eastern countries, such as Poland, Hungary and Romania;

- sustaining the new entry countries in reaching before 2010 the positive average values in the TLC (map IR 14) sectors measured in the 'Y' zone, which involves the regions of Western Great Britain and Scandinavian Peninsula in the North-East down to the Mediterranean area, including some regions of France; sustaining the completion of the net in France, Italy, Greece, Spain and Portugal.

**Figure 27:** Population in life long learning (IGS, 2005; ESPON 2.2.1)

MAP IR 09 - Population in life long learning



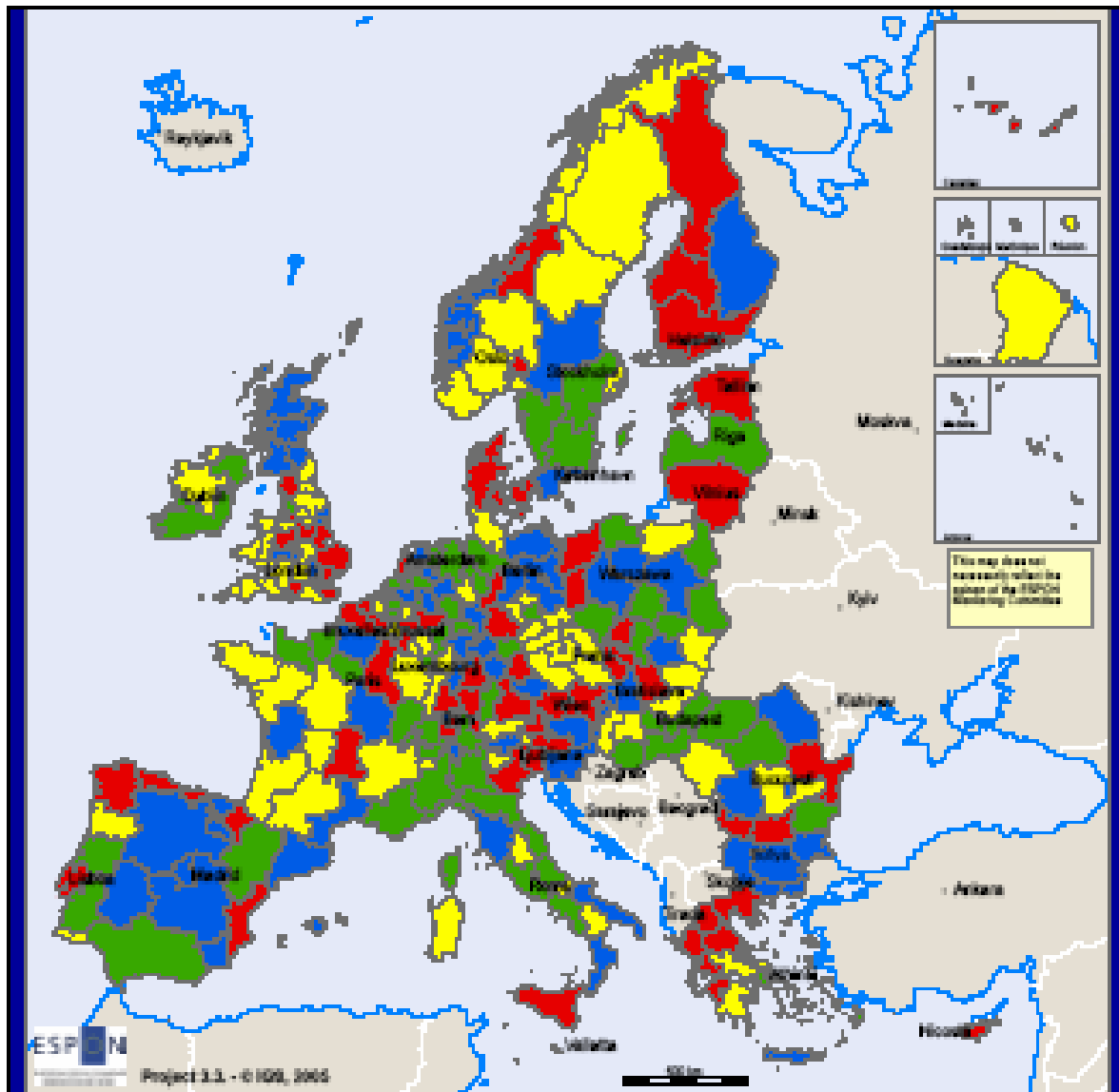
Human Capital education calculated as participation of adults aged 25 - 64 in education and training (for 1000 adults)

High	>103.40
Medium high	55.20 - 103.40
Medium low	29.10 - 55.20
Low	<29.10

© European Commission, Directorate-General for the Geographic Information Systems, 2005  
Origin of data: Eurostat, 2005

Figure 28: R&D infrastructure (IGS, 2005; ESPON 2.2.1)

MAP IR 13 - R&D Infrastructure



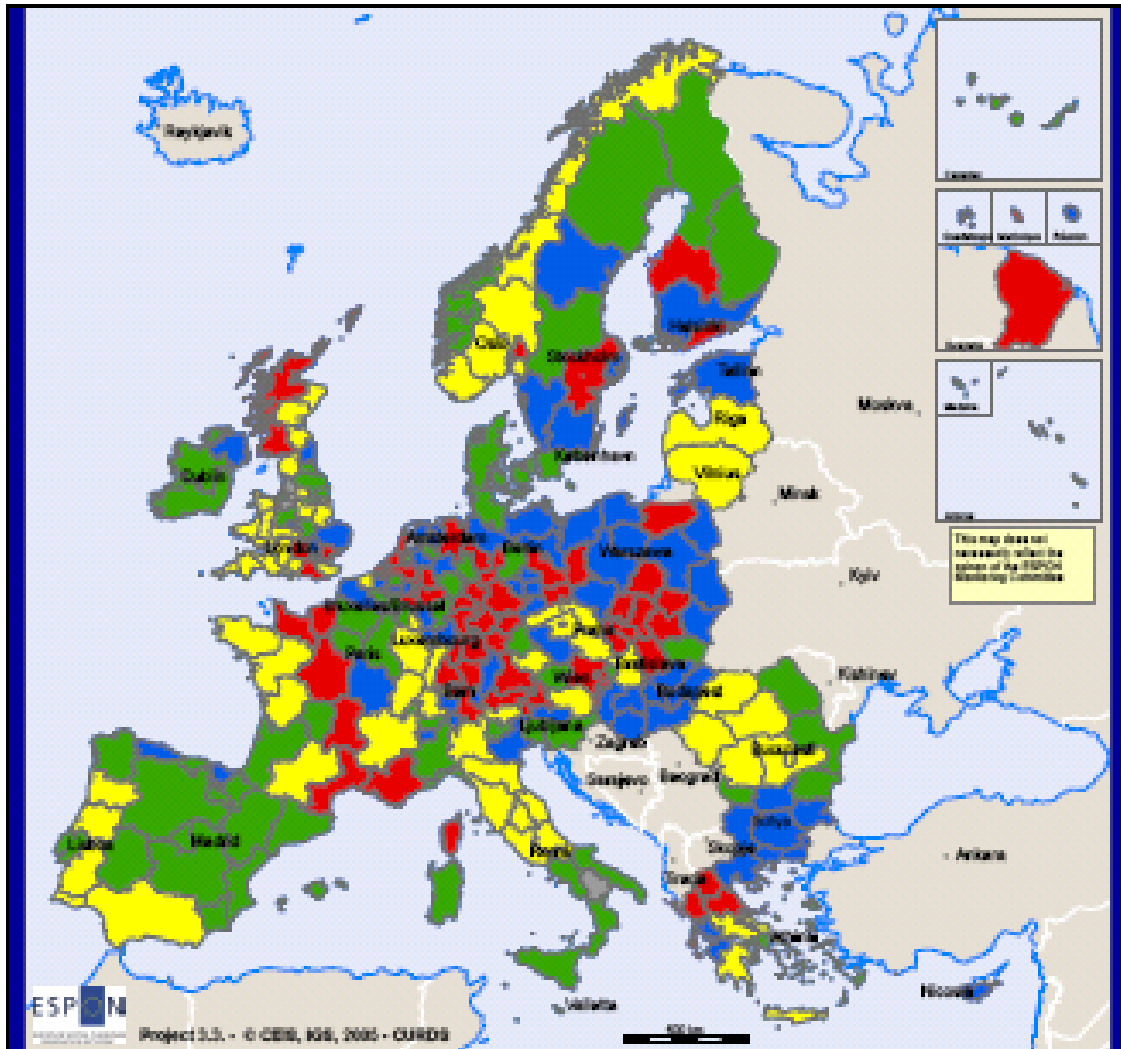
R&D Infrastructure calculated as (Number of universities + 2\*NP of BIC's + 3\* NP of Science Parks)/total Population

- A  $\geq 0,125$
- B  $0,07 - 0,125$
- C  $0,03 - 0,07$
- D  $< 0,03$

© Geographisches Institut für Raumforschung  
Regionalentwicklung (GIR), 2003  
Origin of data: Survey performed from the data  
collected in official statistics of the Ministry of  
Regional Development and Statistics, 2003  
ESPON project 3.3.1  
European population, 2001 - 2003 - 2004

**Figure 29:** Level of Telecommunication Development (CEIS, 2005; IGS, 2005; ESPON 1.2.2)

**MAP IR 14 - Level of Telecommunication Development**



**Old and New Technologies**

	<b>a</b>	>7
	<b>b</b>	6 - 7
	<b>c</b>	4 - 6
	<b>d</b>	<=4
		no data

All non-geographic descriptions for the geographic identification  
Regional indicator: IGTIC, 2005  
Origin of data: ESPON project 3.3 (access to the  
final report: p. 156, 2007 - 2008)

Looking at EU enterprises (particularly SMEs), they are believed to serve as an engine of economic growth. This proposition is supported by results of other indicators from Global/Local Interaction, Quality, Resources and Funds.

In particular, three mechanisms have been identified to promote a significant impact of businesses on increasing the ICT growth of regional systems:

- enterprises must serve as a vehicle for knowledge spillovers, which may become accessible and commercialised by large enterprises through technology transfer or acquisition
- enterprises must increase the amount of competition in the input market, particularly in terms of the competition for new ideas and human capital embodied in knowledge workers
- enterprises must increase diversity in the market, which can spill over to generate productivity increases in existing enterprises.

An important implication of the external impact of enterprises is that their contribution to regional development must not be restricted to the economic sector, but also spills over to impact non-enterprises, particularly into co-operative programs and projects.

The most significant effects in the Lisbon/Gothenburg Strategy obtainable through the application of the sectorial policies are listed in 4 matrices; in the following page, the first matrix is shown (Table 3).





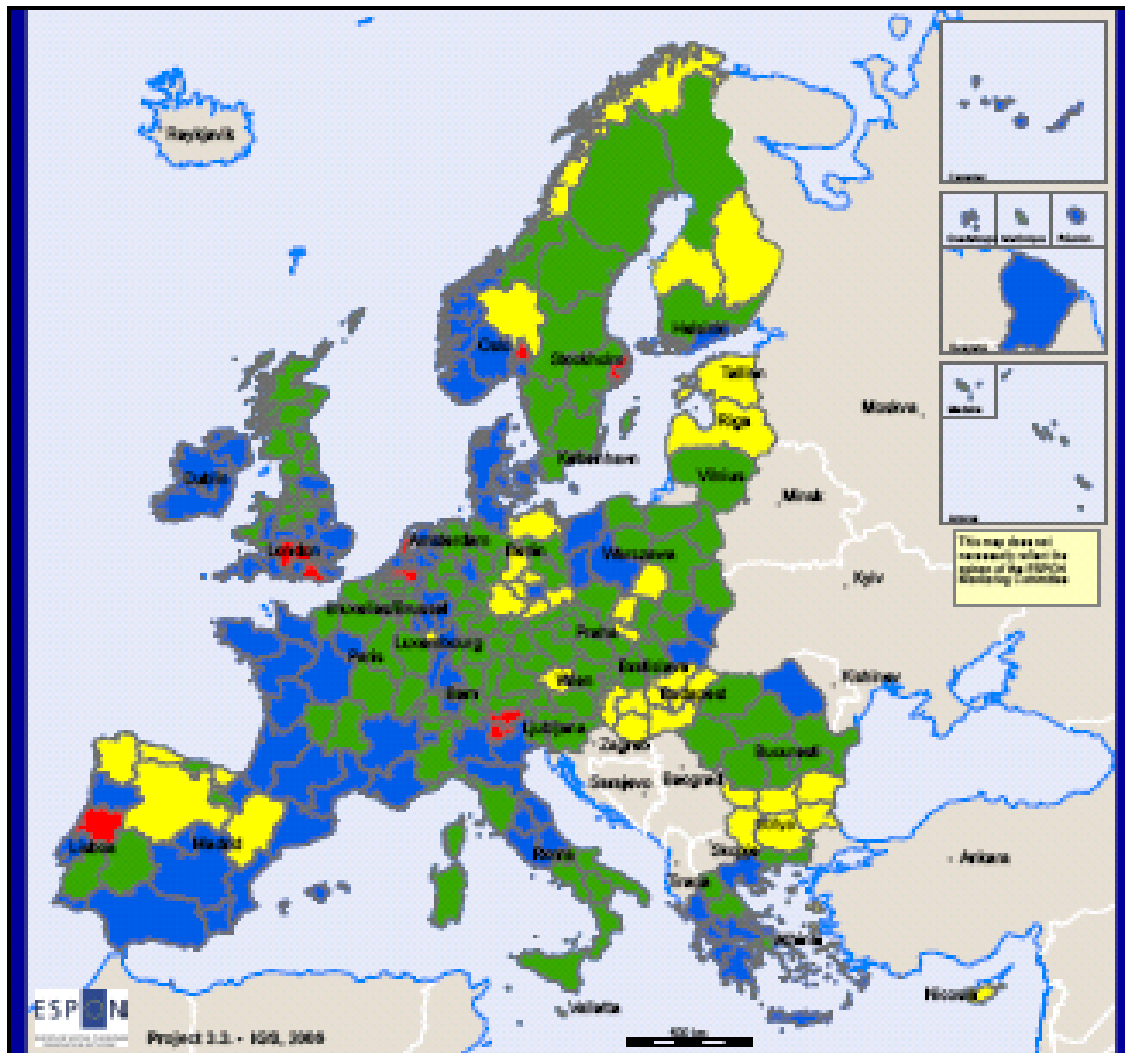
## *Global/Local interaction*

To sum up, the Global/Local interaction (Fig. 30) highlights just a few regional cases as positive (capital regions) balanced references to an EU regional benchmarking.

The positive references in respect of Global/Local interaction are even more evident looking at the territorialisation of the spatial values of the determinant synthesis (Fig. 31 and Fig. 32), where the territorial concentrations with a true gift for sustaining virtuous outside relations are few, among which are Lombardia, Emilia Romagna and Lazio in Italy, much more often corresponding with capital-regions: Ile de France in France, Inner London in Great Britain, Centro in Portugal, Madrid in Spain and the Helsinki Region in Finland. A high propensity towards interaction is measured as well in the Pentagon, in the frontier areas and in Central Italy, thus demonstrating: how European citizens are basically more interested in keeping and strengthening local relations, also through specific investment actions (considered as “marginal” in respect to the Lisbon/Gothenburg objectives) independently from the trans-national relational potential of the resources; how this depends, for enterprises too, upon an attitude to privileging endogenous cohesion (even through a strict relationship with the local government), more than upon an evaluation of the perspectives offered by the European market of trans-national investments.

**Figure 30:** Global/Local Interaction: synthetic composite index final values (CEIS, 2006)

**MAP GL 42 - Global Local Interaction:  
Synthetic Spatial Composit Index**



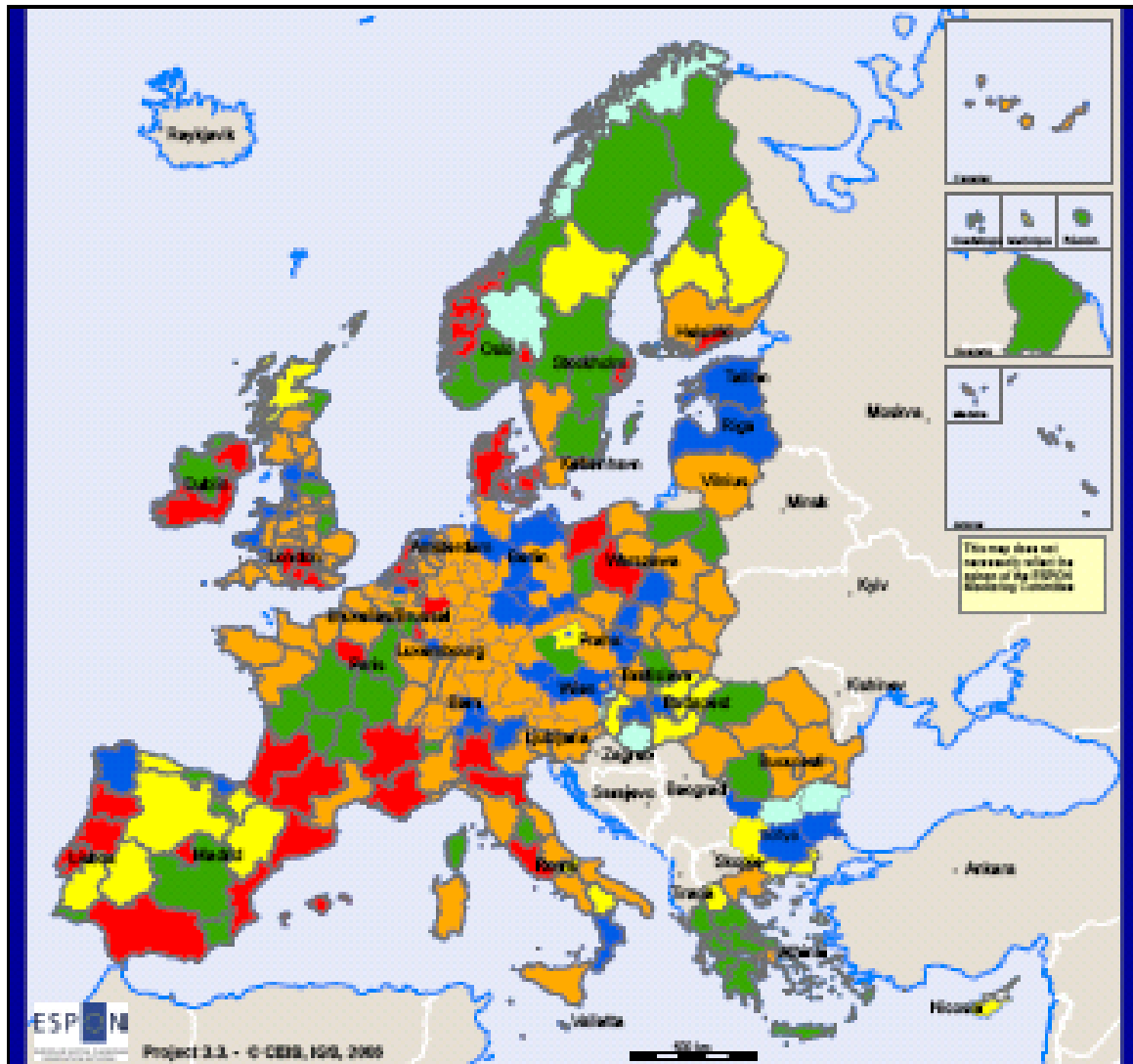
values obtained combining social cohesion reElaborations + risk of social exlusion and social wellness attitude

- High
- Medium high
- Medium low
- Low

© 2006 geographic observations for the geographic coordinates Regional observatory ESPON (2006) Original data: CEIS, 2006

**Figure 31:** Territorial G/L: final values at NUTS2 (CEIS, 2006)

**MAP GL 43 - TERRITORIAL Global Local Interaction**



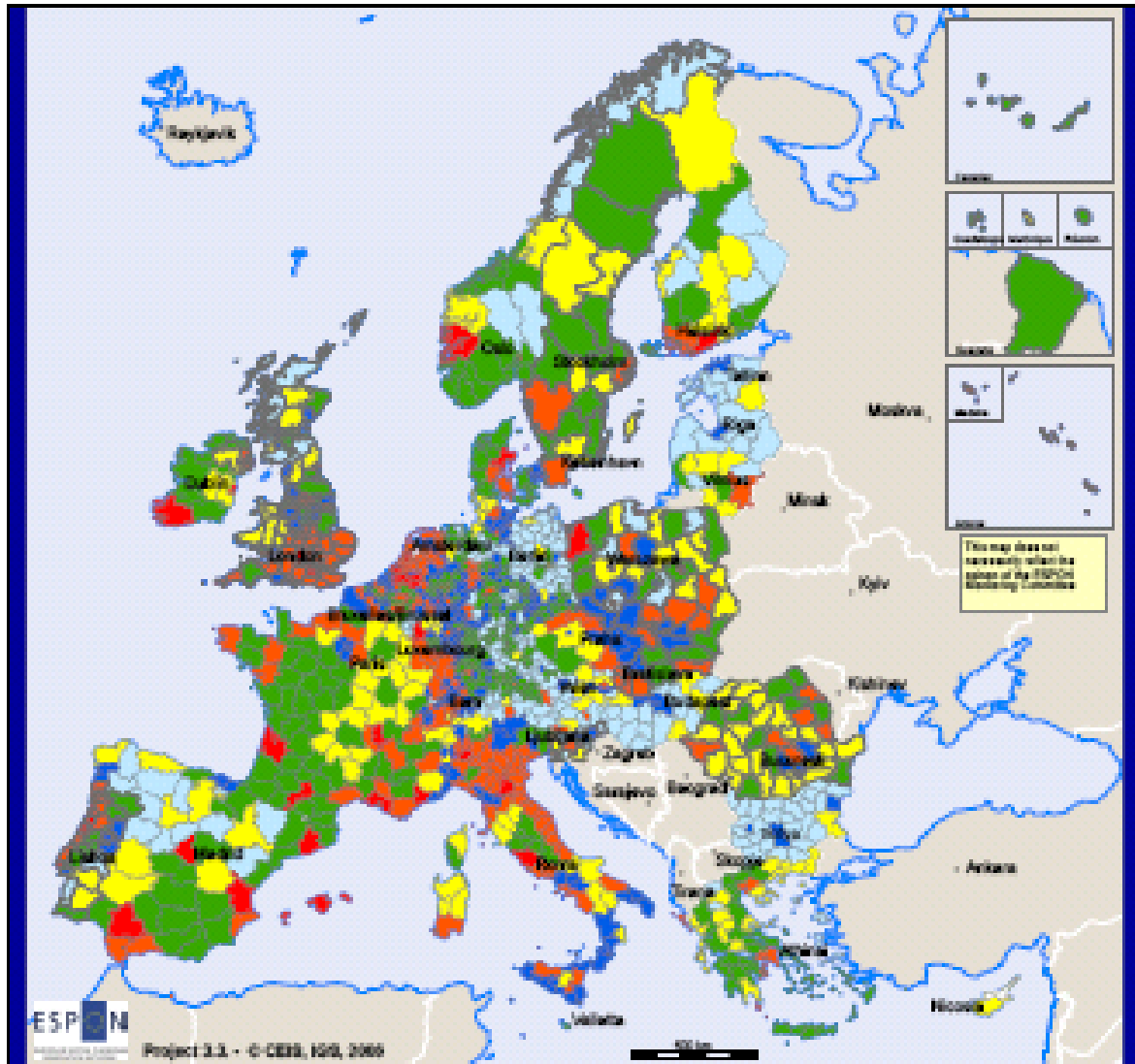
Values obtained combining Global Local: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© European Spatial Planning Observation Network for the geographic information system  
Regional information: NUTS, 2006  
Data of year: CEIS, GIS, 2006

**Figure 32:** Territorial G/L: final values at NUTS3 (CEIS, 2006)

**MAP GL 44 - TERRITORIAL Global Local Interaction**



Values obtained combining Global Local:  
Synthetic Spatial Composite Index and TTS -  
Territorial typologies at NUTS3

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© Territorial typologies description for the geographic Association  
Applied Programme NUTS3, 2006  
Origin of data CEIS, 2006

The research, first of all evaluating the considerable impact of the international agreements on environmental issues that involve the European Union and its countries, suggests both the countries and the regions accept (or at least subscribe to) a series of “rules” (environmental/territorial governance), well portrayed by the main treaties and agreements on the subject of environment and development, to definitely govern internal relations between states or organizations (maps GL 01 and 02).

However, results being partially reassuring in this case, since international agreements on environmental issues have been acknowledged – although not always implemented - in a vast majority of the Union, we propose to limit the first test stage to new entry countries, to unify the environmental subject currently pursued in different forms.

An adequate support will have to be given through co-operation projects (such as INTERREG) targeted to those countries having trouble in making the international strategic directives in matter of environment effective: this is also the case with Ireland and Austria and, obviously, the enlargement countries, showing clear signs of an endogenous structural difficulty, valuable as well in the capacity of a “shifting” approach which distinguish France and Germany.

Further support has to be addressed to the issue of the quantity and quality of environmental protection interventions, especially in the field of trans-national/regional and international co-operation involving primarily Finland, Austria, Portugal, and to a small extent Slovenia, Bulgaria, Czech and Slovak Republics (maps GL 01-02).

Figure 33: General Environmental Concerns (CEIS, 2006)

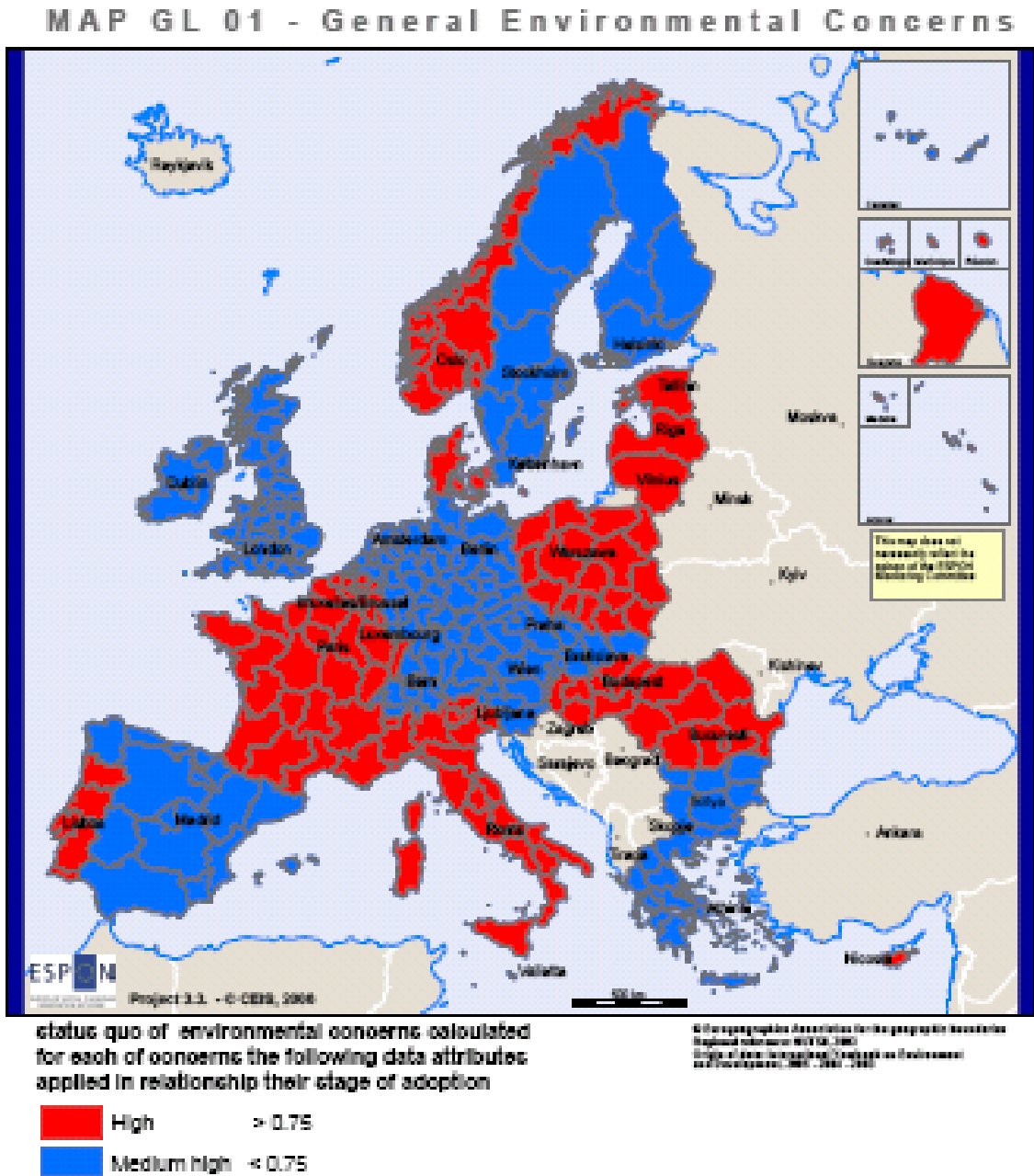
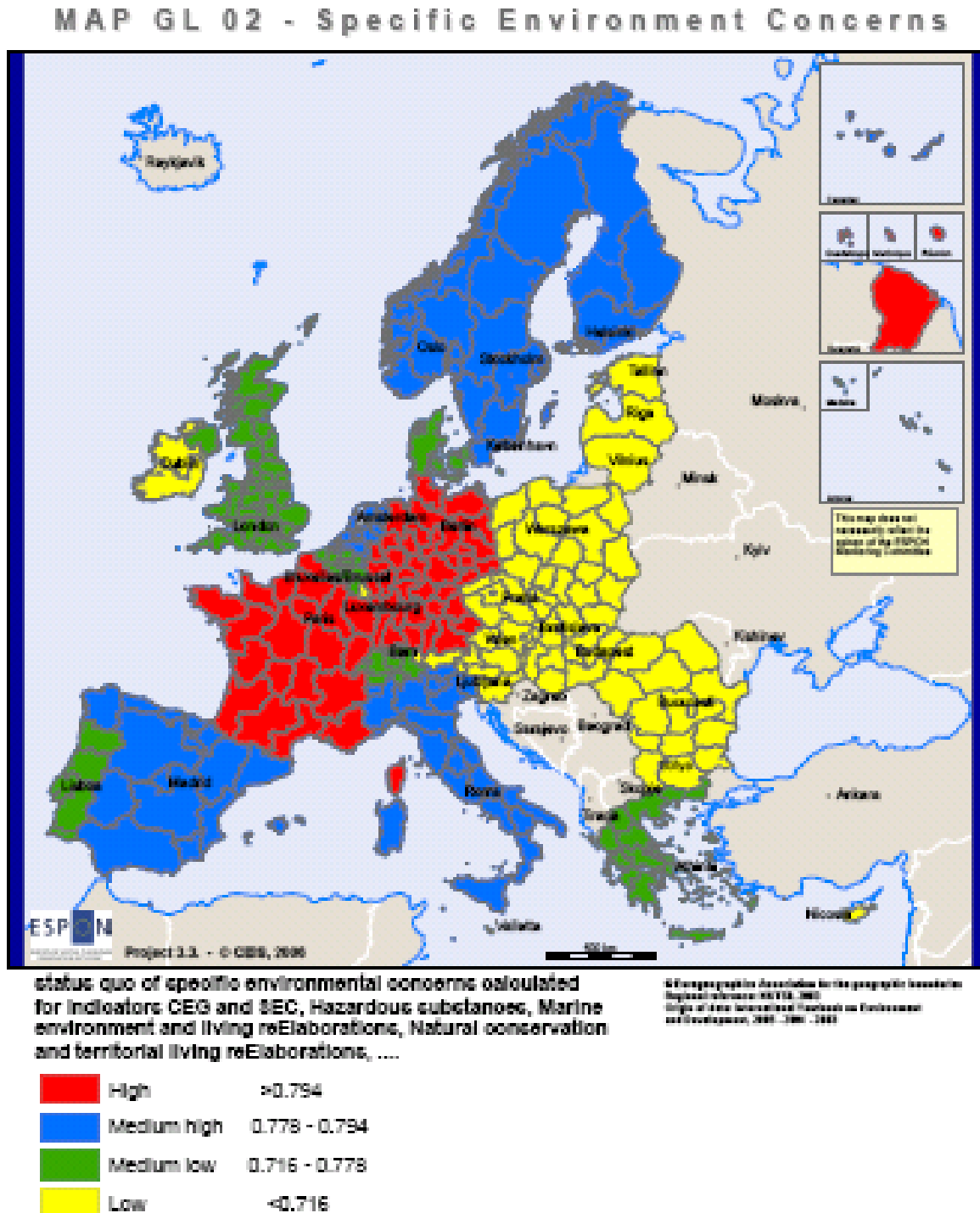


Figure 34: Specific Environmental Concerns (CEIS, 2006)

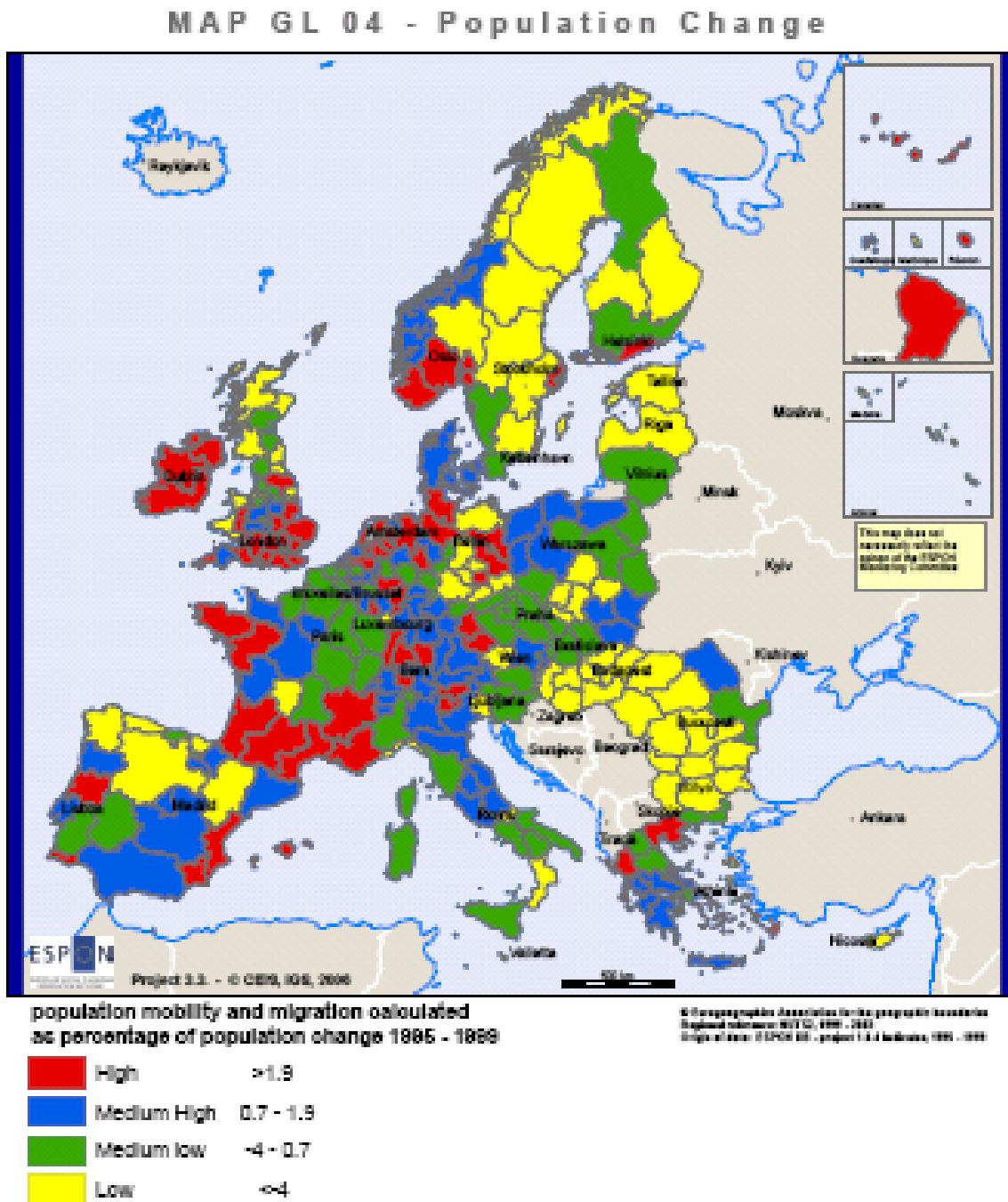


A clear strong point in the 2007-2013 European Policy can be represented by the government of the so-called demographic “change”, which currently weighs negatively upon Ireland, South-East of England, North-West and South-West of France, the French Overseas territories, North and South-West of Germany, Netherlands, Denmark and the Metropolitan region of Oslo. It also weighs upon single regions, as the Centre of Portugal, Comunidad Valenciana and Región de Murcia in Spain, Trentino-Alto Adige in Italy, Espace Mittelland in Switzerland,

Iperiyos and Kentriki Makedonia in Greece, Sør-Østlandet and Agder Og Rogaland in Norway and the metropolitan regions of Stockholm and Helsinki (map GL 04 – Population change).

This detected trend also requires providing European region-capitals with a relevant role regarding the settling and reception of migrant populations. Generally, interventions are required to confirm the preference of the European population towards (even temporary) residential choices able to offer a better life quality in urban-rural areas.

**Figure 35:** Population Change (ESPON 1.1.4)



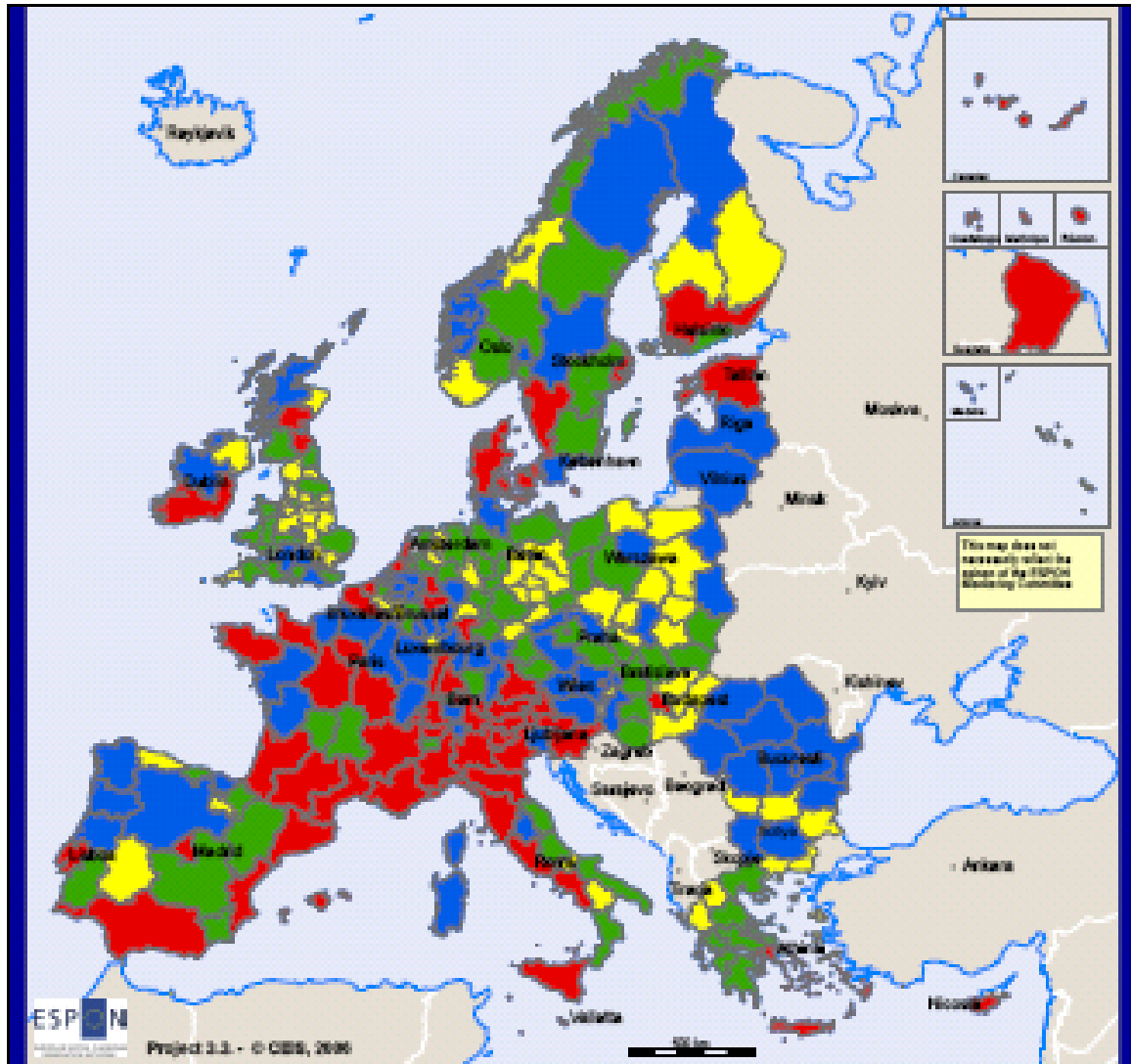


Concerning sectorial policies related to the change and the mobility of the population, tourism is a certain and quantifiable indicator of the globalisation phenomena. It shows very high levels inbound (see map GL 05 - Tourists inbound, Fig. 36) in Ireland, Denmark, Slovenia, many French and Italian regions and with acknowledged appeal, such as Northumberland in Great Britain; Sydsverige in Sweden, Etelä-Suomi in Finland, West-Vlaandere in Belgium, Köln, Gießen, Oberbayern in Germany; Espace Mittelland in Switzerland; Salzburg, Tirol, Kärnten in Austria; Algarve in Portugal; Andalucia, Catalunya, Comunidad Valenciana and the islands in Spain; Kriti in Greece; these areas could eventually enter dedicated trans-regional projects. The European Capitals contribute with high values.

The performance of regional tourism outbound The performance of regional tourism outbound (see map 06 - Tourists outbound, Fig. 37) is even more relevant, thanks to the mobility of the young European population. So on the whole there are only a few effectively critical cases in Europe, which concentrate in areas with great historical and cultural value (in Greece and in the Mezzogiorno of Italy). Particularly for these areas, the new Structural Funds can contribute to outlining innovative development solutions, focused on promoting local identity, clearly less competitive in the short term, but able to propose market investments in sustainability.

Figure 36: Tourism inbound (CEIS, 2005)

MAP GL 05 - Tourism Inbound

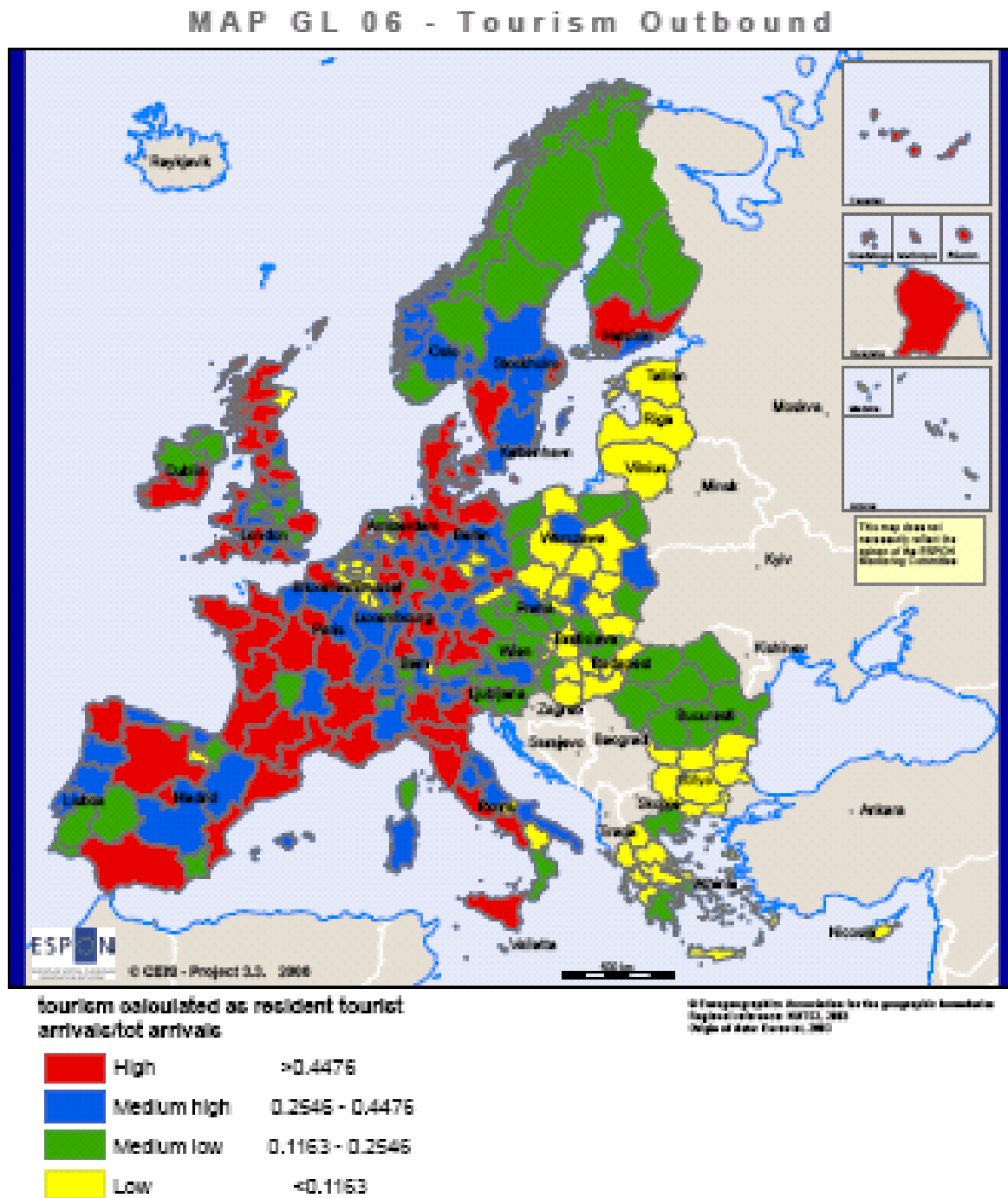


tourism calculated as non resident tourist arrivals/total arrivals

© European Spatial Planning Observation Network  
Map of Europe (2005), 2005 - 2006

<span style="color: red;">■</span>	High	>0.372
<span style="color: blue;">■</span>	Medium high	0.164 - 0.372
<span style="color: green;">■</span>	Medium low	0.066 - 0.164
<span style="color: yellow;">■</span>	Low	<0.066

Figure 37: Tourism outbound (CEIS, 2005)

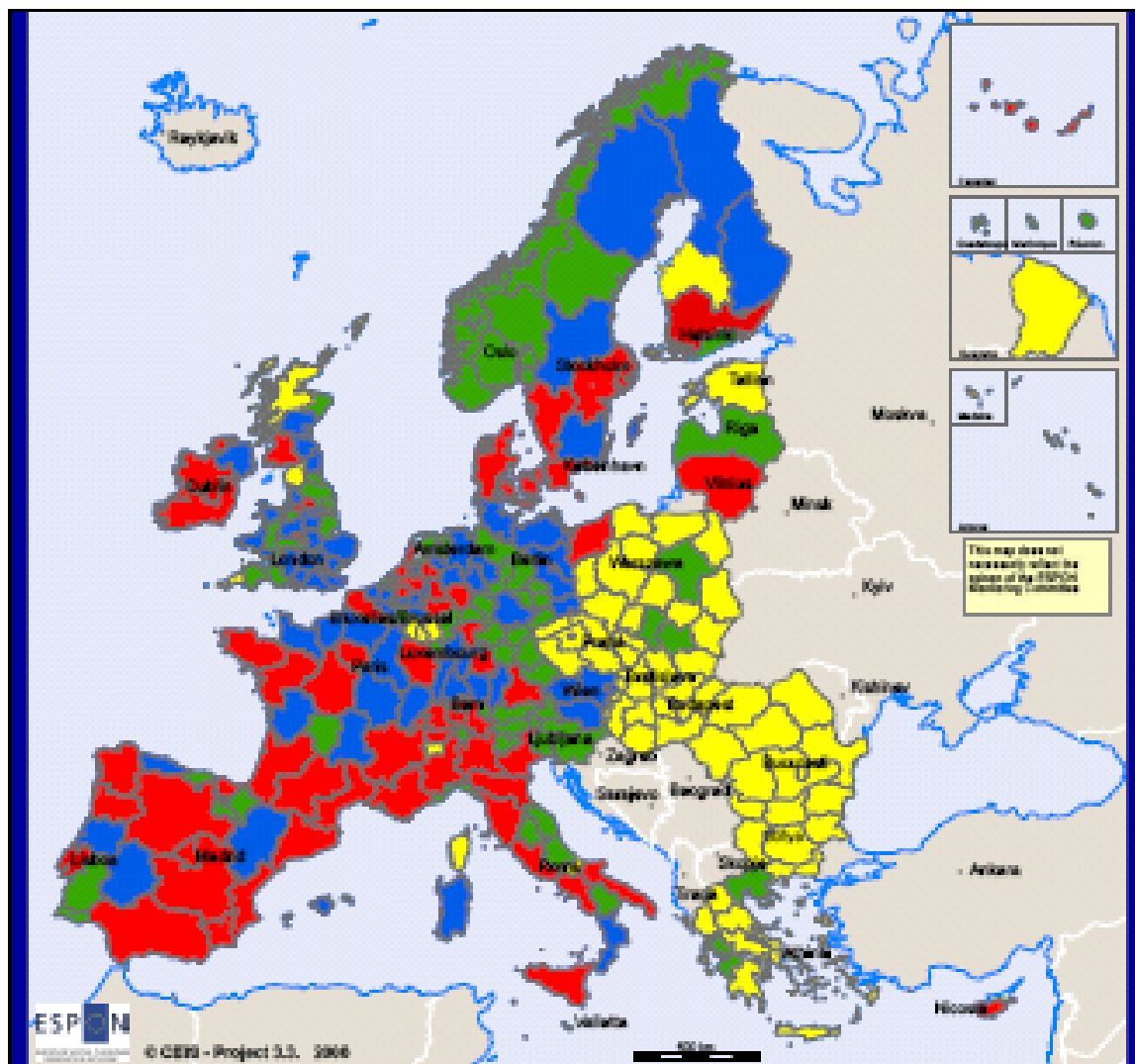


Exactly for these reasons, the regional analysis also recommends linking tourist development to youth mobility and educational motivations (maps GL 08, 09, 010) (see Fig. 38), guiding and sustaining familiar investments as a contribution to European human capital growth. At the same time the different positions in the development of the information and knowledge system in respect of global ICT demand have to be considered: Sweden, Ireland, Scotland more than England, Portugal, Spain, Romania and Estonia are appealing regions for the regional “inbound” mobility of youth and students; this phenomenon has reached considerable levels, confirming the disposition of this ‘class’ to interact with the global system, especially in this phenomenon «origin» countries, as Italy, France, Spain and Denmark.

The same considerations are sound for the research workers’ mobility (Fig. 39) (see maps GL 011, 012, 013), which strongly involves countries like Denmark, Switzerland, Slovenia, Estonia, Latvia and Lithuania, but also parts of France, Italy, Portugal and Spain (primarily the capitals). A good practice solution can be found in the organizational-managerial model of Finland, which attracts mostly researchers in the field of technology and can count on a strict relationship with the related enterprise system; so that Finnish researchers show a high propensity to build co-operative project networks in high-tech scientific sectors and, at the same time, a great willingness towards mobility; the same willingness that elsewhere in Europe can be found only in the region-capitals or similar areas (e.g. in Lombardia and Lazio in Italy; in the Slovak Republic and Romania, or in rural and tourist areas of France and Spain).

Figure 38: Students Inbound (CEIS, 2005)

MAP GL 08 - Students Inbound

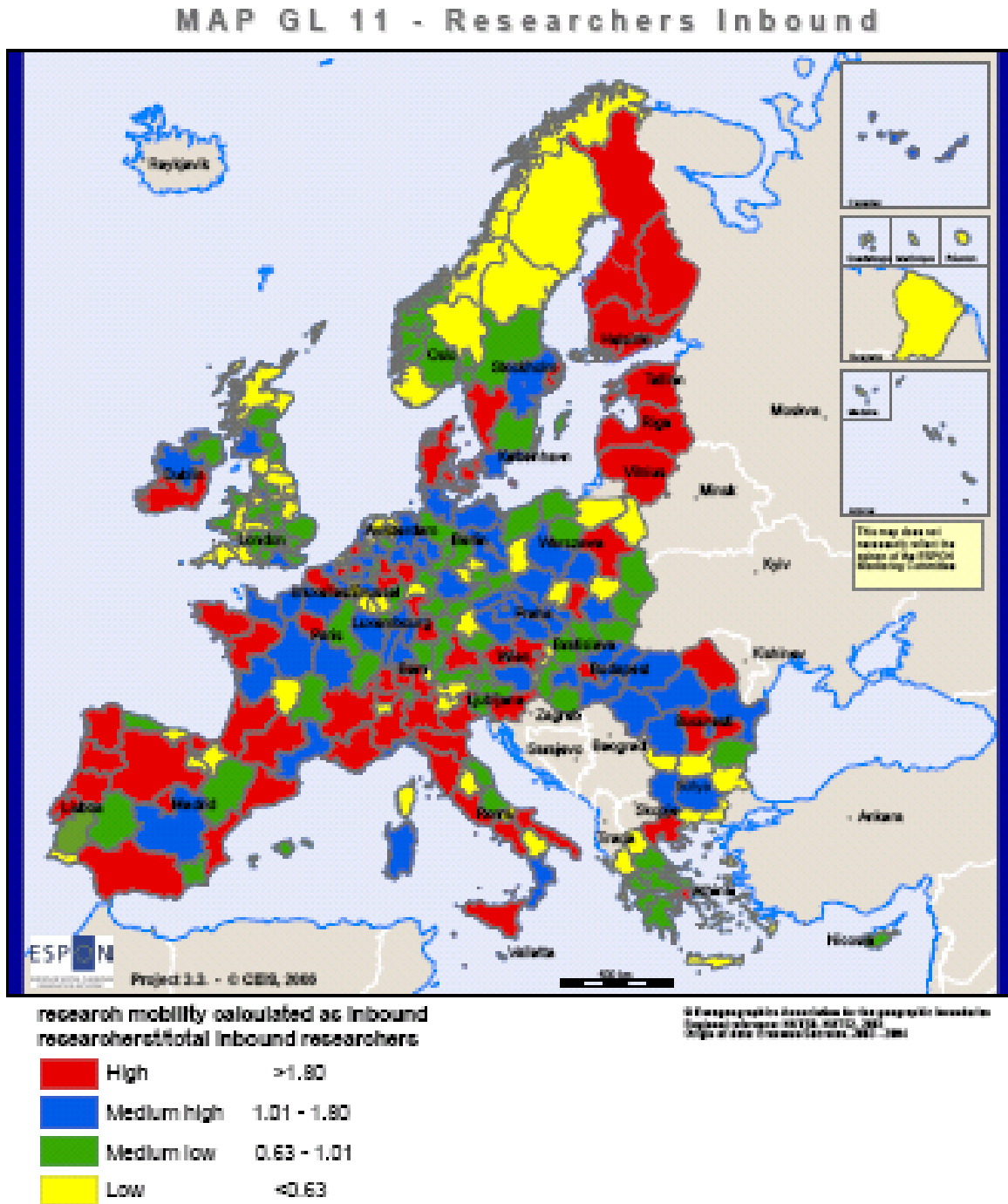


culture and global education calculated as  
inbound student/total inbound student

- High
- Medium high
- Medium low
- Low

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Europäische Kommission, ESPON, ESPON, 2005  
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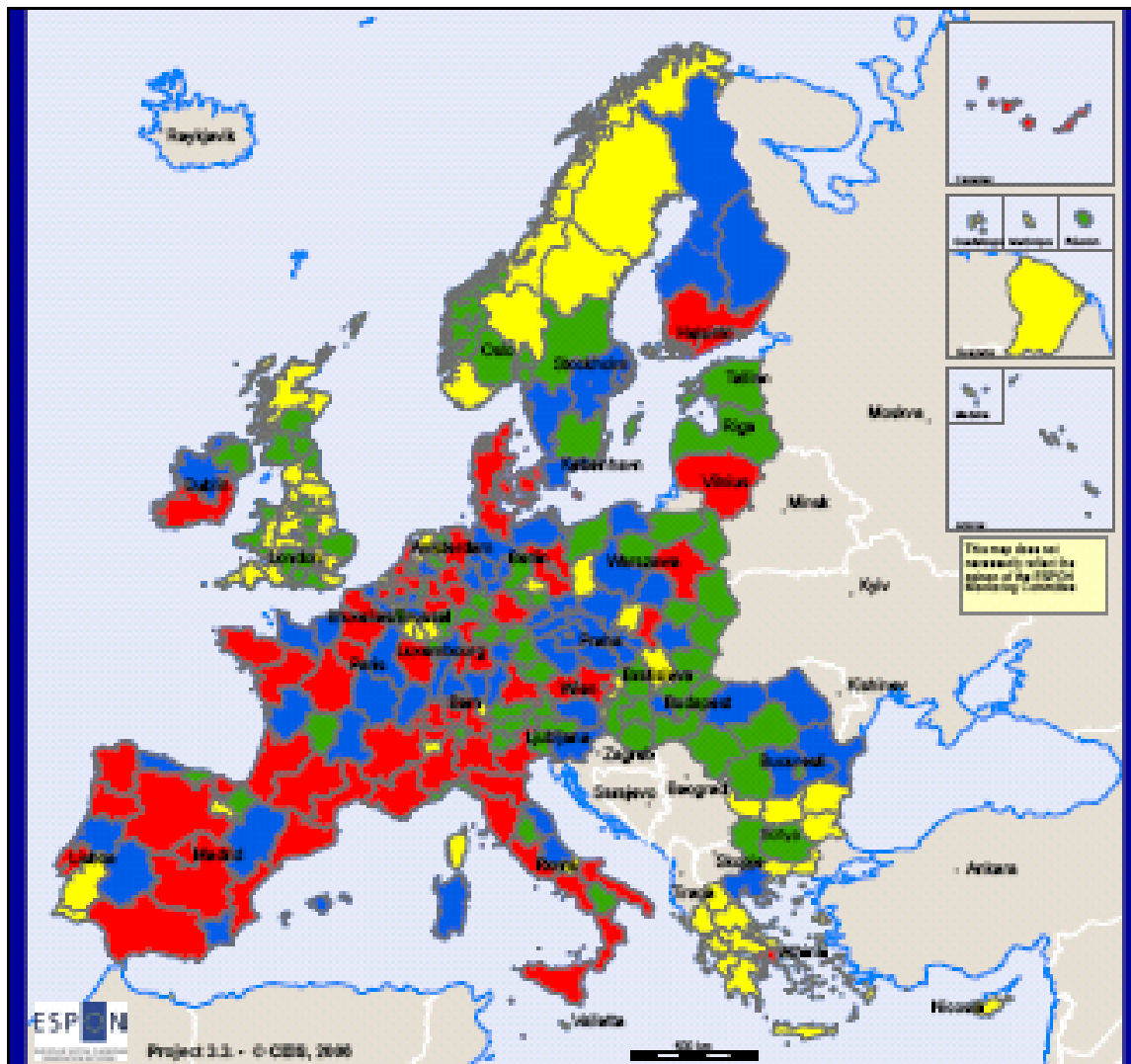
Figure 39: Researchers Inbound (CEIS, 2005)



These considerations are connected to the model and cultural exchange (map GL 14) the Union will have to pursue in order to achieve a full cohesion. Positive examples are given by Finland and some Capital regions (Vienna, London, Dublin, Madrid, Lisbon, Rome, Bucharest, Tallinn, Bern, Copenhagen, Stockholm, Helsinki) and regions as Andalusia in Spain or Nord - Pas-de Calais and Bretagne in France.

Figure 40: Students Outbound (CEIS, 2005)

MAP GL 09 - Students Outbound



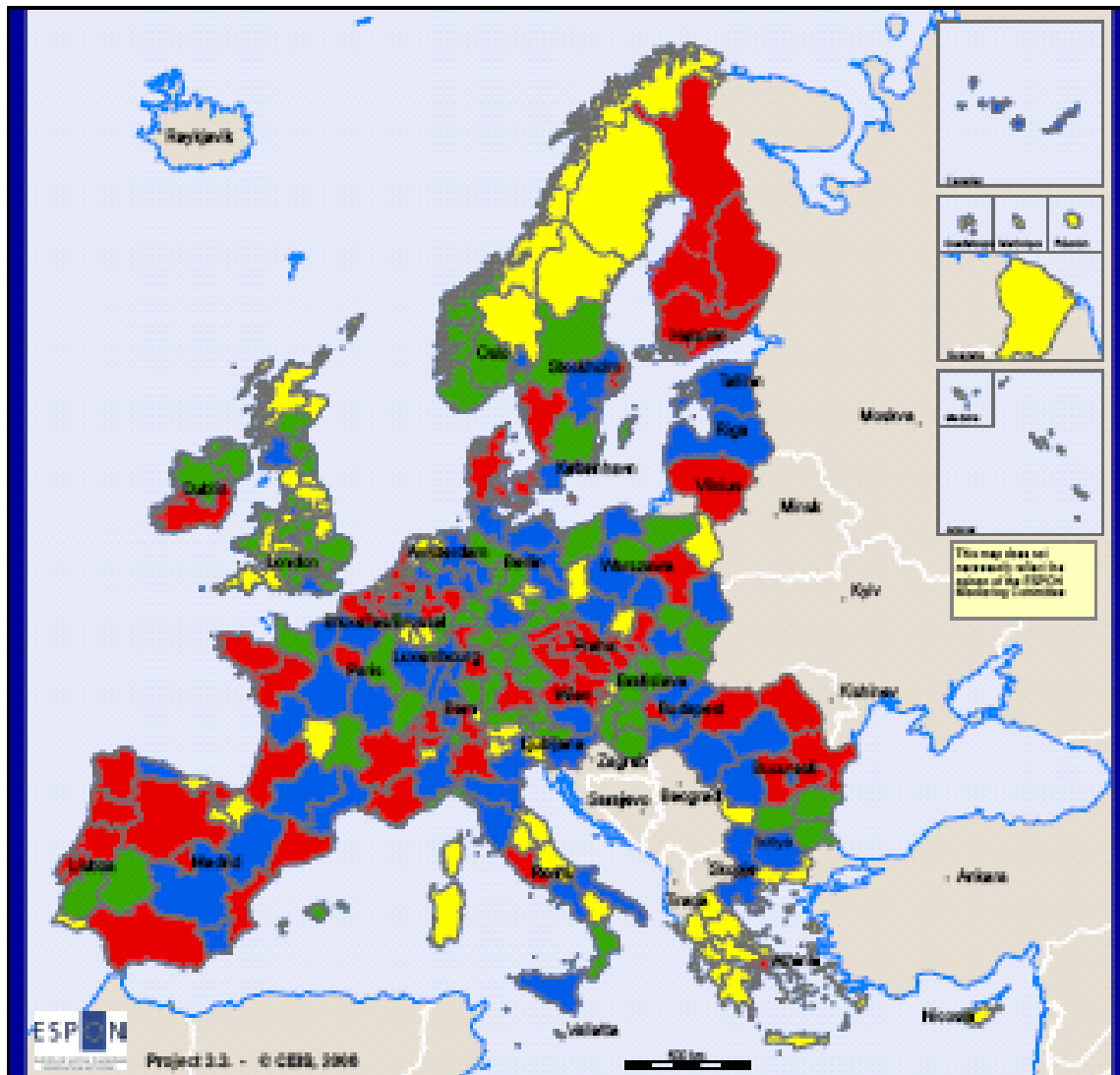
culture and global education calculated as  
outbound student/total outbound student

High	>0.0205
Medium high	0.0121 - 0.0205
Medium low	0.0062 - 0.0121
Low	<0.0062

All geographical data refers to the geographic coordinates  
Regional outline: NUTS, NUT3, 2005  
Origin of data: Eurostat Database, 2005 - 2006

Figure 41: Researchers Outbound (CEIS, 2005)

MAP GL 12 - Researchers Outbound



researcher mobility calculated as:  
researchers/total outbound researchers

Red	High	>0.74
Blue	Medium high	0.39 - 0.74
Green	Medium low	0.22 - 0.39
Yellow	Low	<0.22

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Original data: Eurostat/CEIS, 2005 - 2006

The European cultural model, differentiated from the economic and social point of view, must be able to count on a widespread mobility system to support the European population and to oppose the concentration measured in some regions, especially at the borders: Ireland, Inner and Outer London in Great Britain, Centro in Portugal, Comunidad Valenciana in Spain, on the Pays de la Loi-Bretagne-Poitou-Charentes axes and from Aquitaine to Rhône-Alpes in France, Trentino Alto Adige in Italy, the Alsace-Freiburg area on the France-Germany frontier, Koblenz and Schleswig-Holstein in Germany, Oslo region in Norway and the Stockholm region in Sweden.



Another theme to be transformed into structural measures is the influence that the regional economic system has on the quality of their Global/Local relations. If measured looking at the active population (see map GL 16), this influence confirms, in respect of the Centre-North of the EU, weak structural behaviours in the Mediterranean area (Centre of Spain and Centre-South of Italy), but also in the arch connecting Switzerland to Hungary-Bulgaria-Romania, involving many French regions. However, in many economically weak regions a higher capability of social interaction (social cohesion) is measured than in some regions of Italy's Mezzogiorno or the Scandinavian Peninsula.

**Figure 42:** Active population (CEIS, 2006)

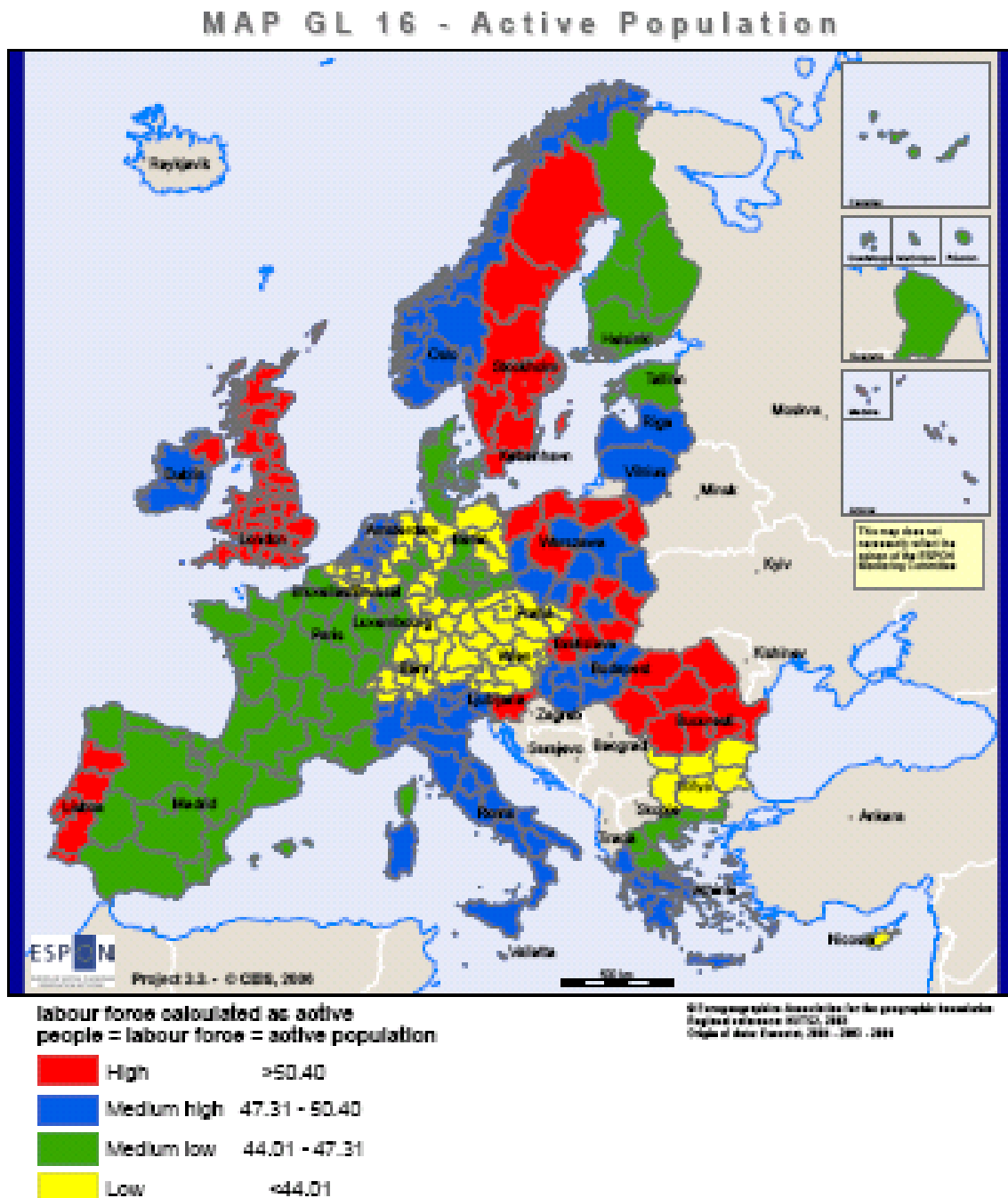
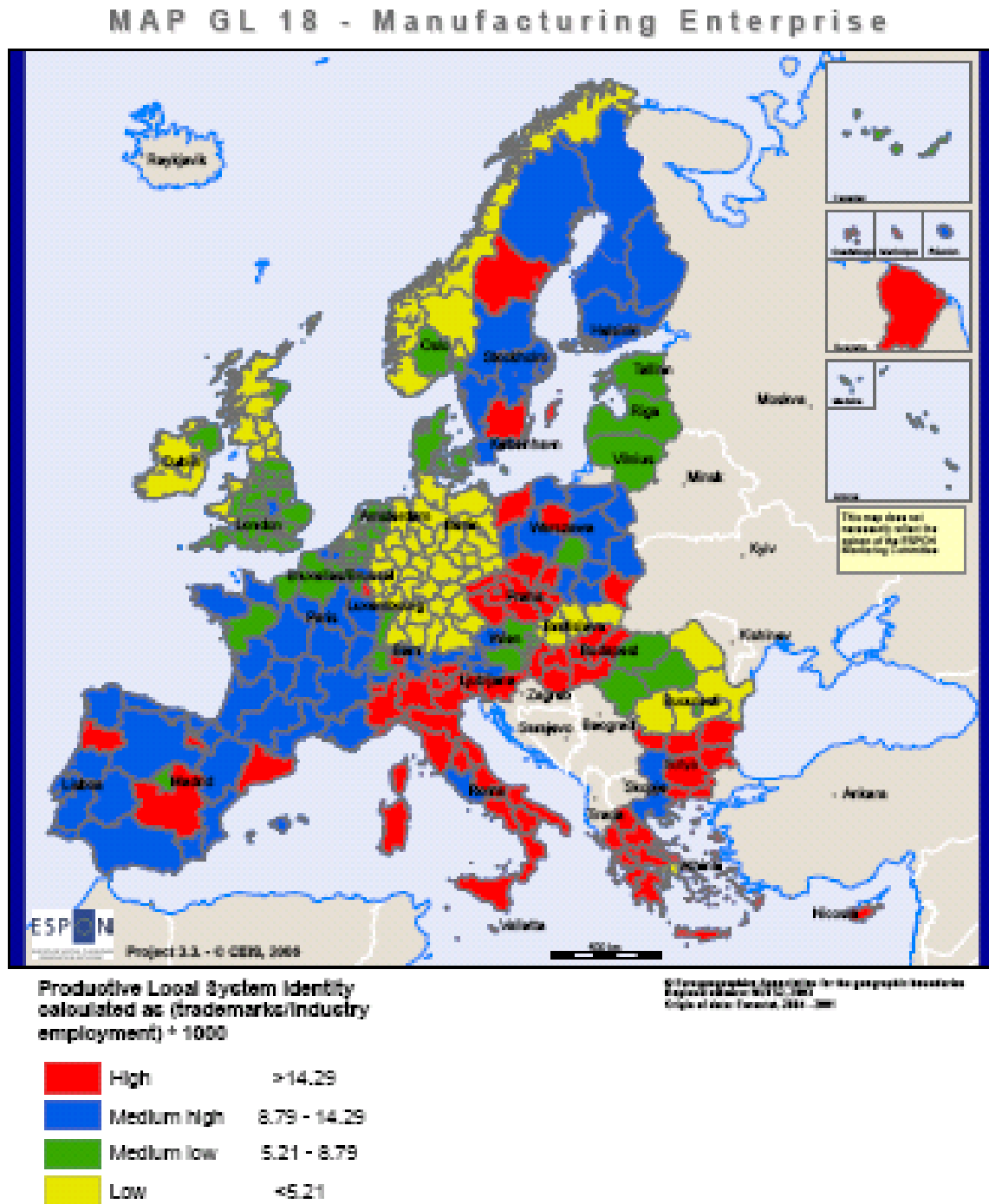


Figure 43: Manufacturing Enterprises (CEIS, 2006)



An analysis of the manufacturing enterprise employees (Fig. 43) (see map GL 18) adds further detail to the structural economic behaviour of the European regional system, strengthening the need to sustain, through Structural Funds, projects to combat the crisis which affected for instance Ireland, Norway, Finland and Switzerland. This kind of intervention could focus on productions with well-known brands, nowadays for instance virtually ignored in the Eastern countries, reminding of the necessity for a strong transformation in the European productive process, according to the Lisbon/Gothenburg criteria, starting from the activities of

production and exchange at a regional scale. The negative value of the regional productive identity (see maps GL 19 and GL 20) is indeed concentrated in areas where the impact of national political changes has been stronger (Finland Switzerland and Poland; capitals as Paris, Roma and Madrid) also due to “Euro effects” and resulting from problems of international safety. Some countries seem therefore to have lost their historical appeal (Greece, Denmark, Netherlands and Sweden), whereas others, although with not a few problems, still keep it (Switzerland, Great Britain and Belgium), joined by emerging countries, such as Estonia, Latvia and Bulgaria. For these countries it is strongly advised to take part in dedicated co-operation programs, involving the entrepreneurial system of the manufacture of the SMEs, providing for their revival in Ireland, Germany, Norway, Finland and Switzerland, through the combined support and the promotion of production with renowned brands.

Figure 44: Product trademarks (CEIS, 2005)

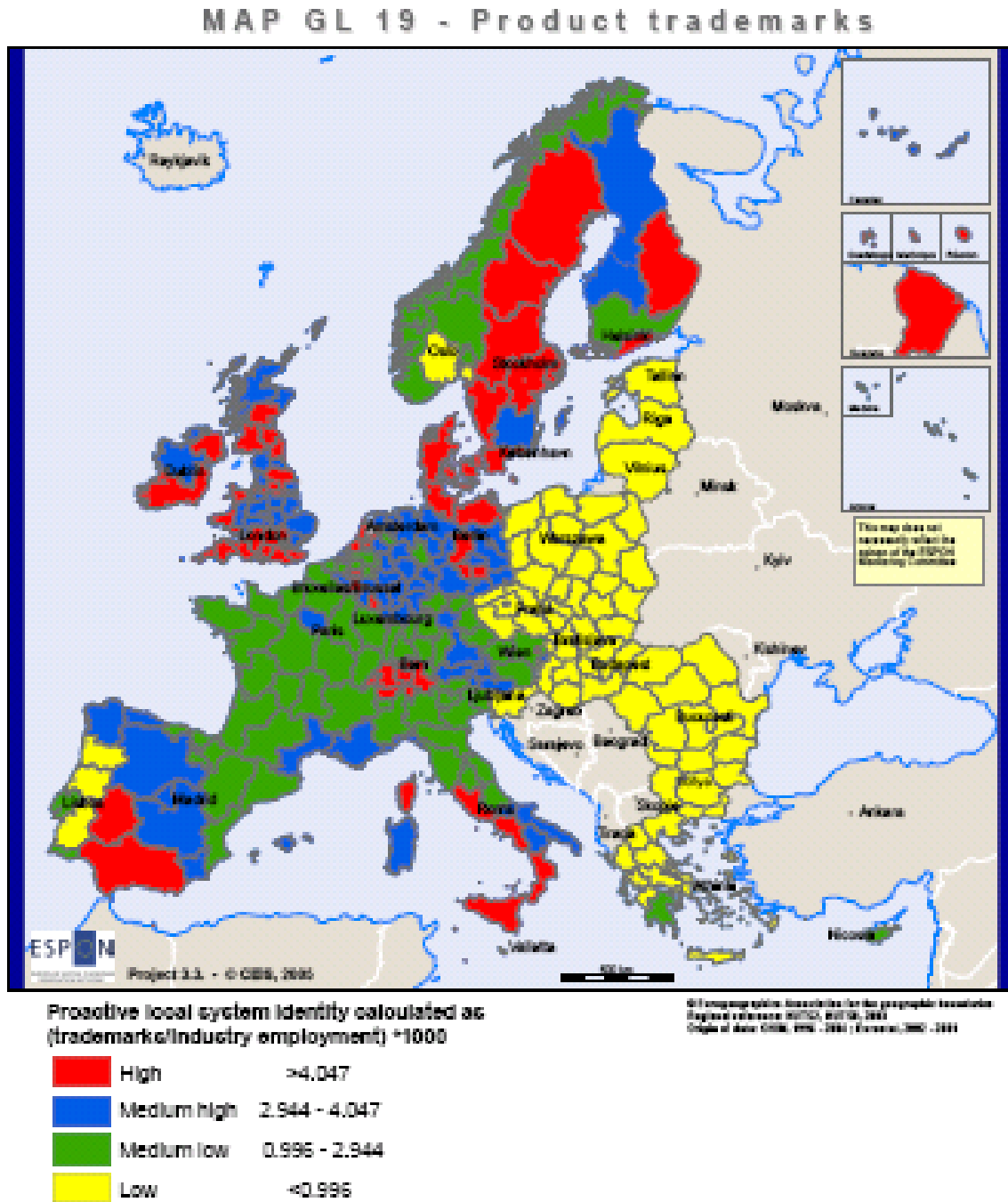
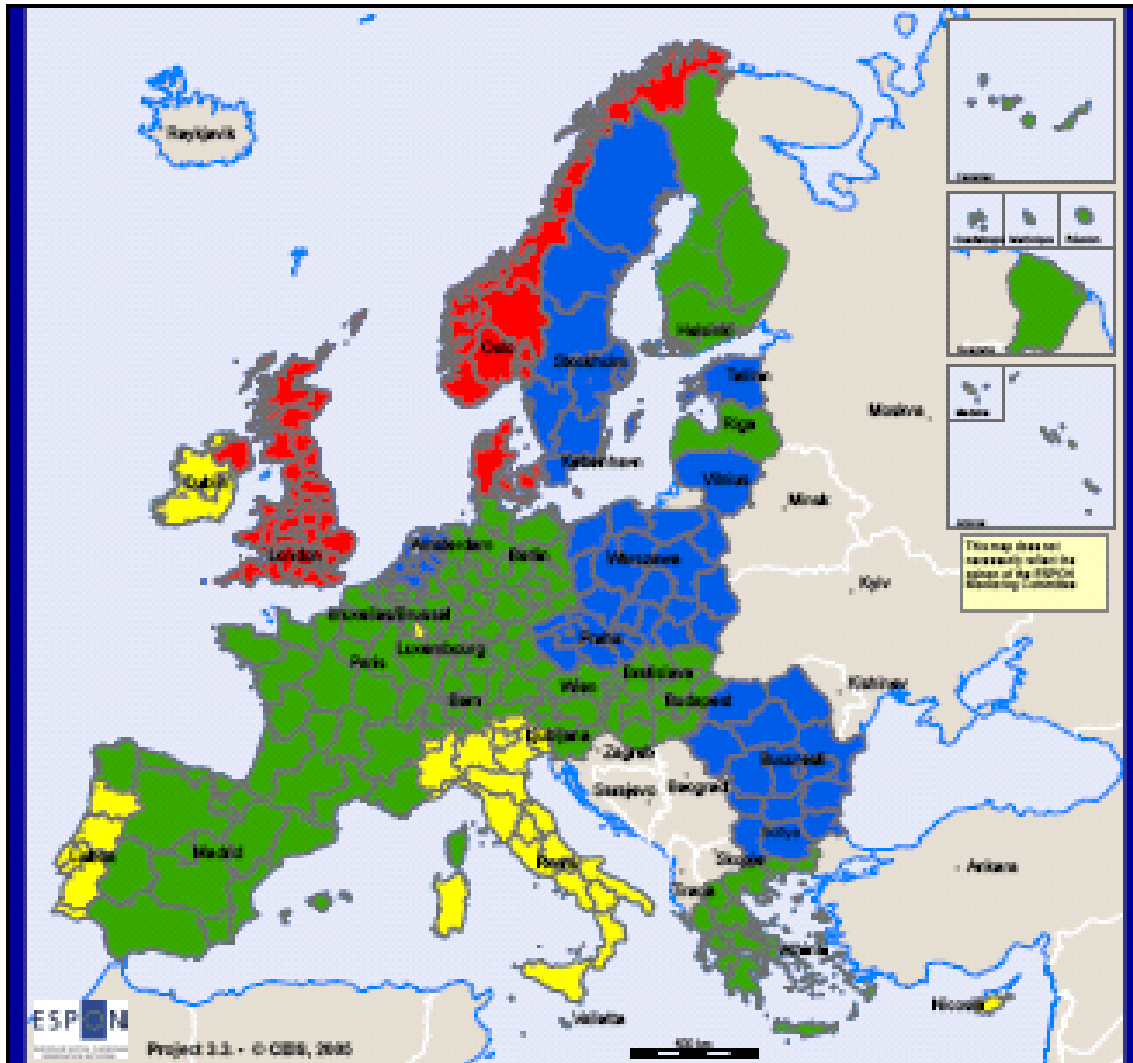


Figure 45: Energy Self-Sufficiency Index (ESPON 2.1.4)

MAP GL 21 - Energy Self - sufficiency Index



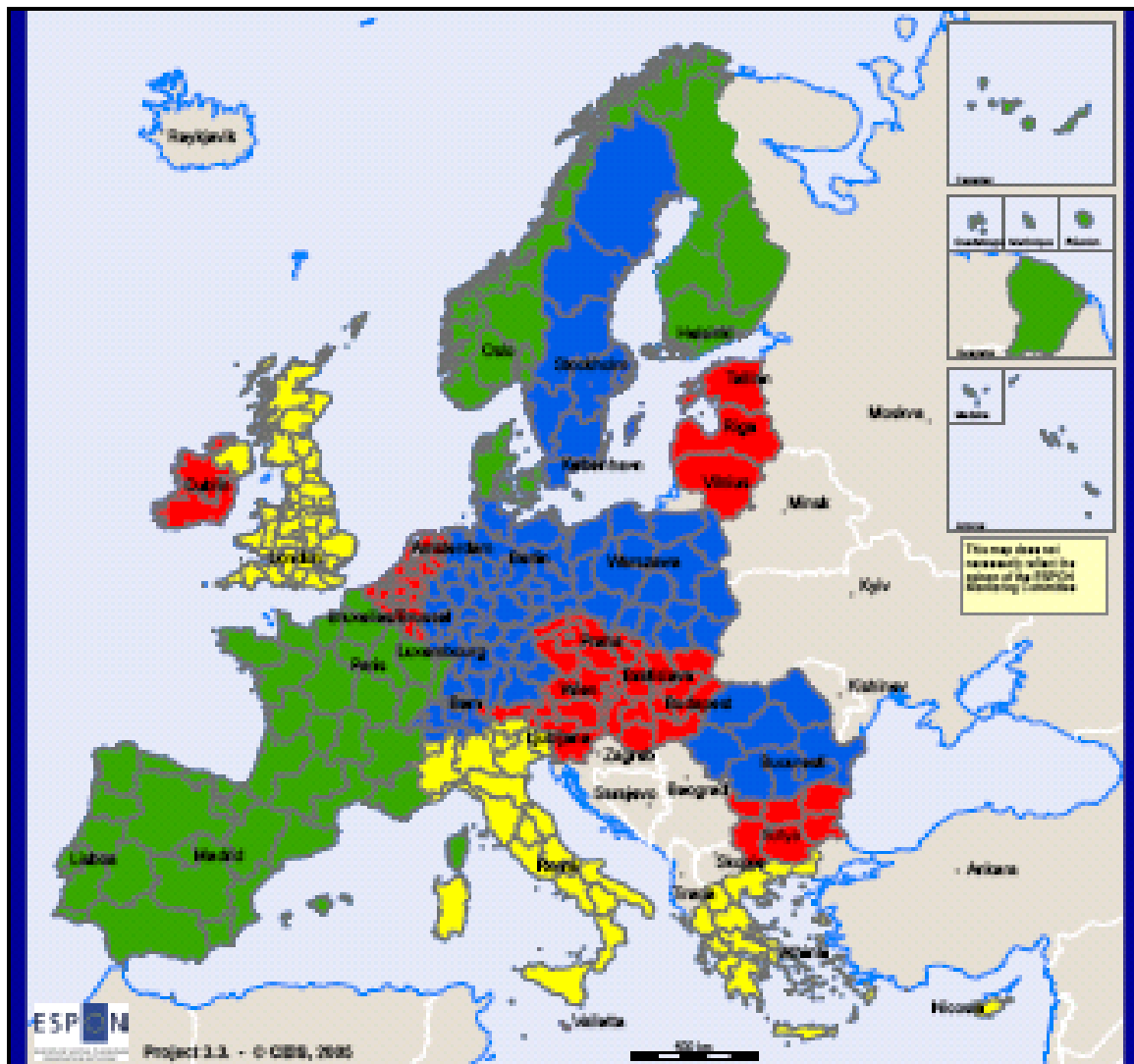
energy self - sufficiency index: calculated as geographical detail is limited to the national level

Red	High	>89
Blue	Medium high	50 - 89
Green	Medium low	15 - 50
Yellow	Low	<15

© European Commission for the geographic location  
Legend: ESPON 3.3 - 10/11/2005  
Date of issue: ESPON project 2.1.4, 2005

Figure 46: Trade integration of goods (CEIS, 2005)

MAP GL 23 - Trade integration of goods



Integration for internationalisation calculated as average value of imports and exports of goods divided by GDP, multiplied by 100 geographical

Red	High	>36.6
Blue	Medium high	29.2 - 36.6
Green	Medium low	20.7 - 36.6
Yellow	Low	<20.7

© Euro geographical Association for the geographic territories  
Regional reference: ESPON, 2005  
Map of data: Eurostat, 2005

Figure 47: Trade integration of services (CEIS, 2005)

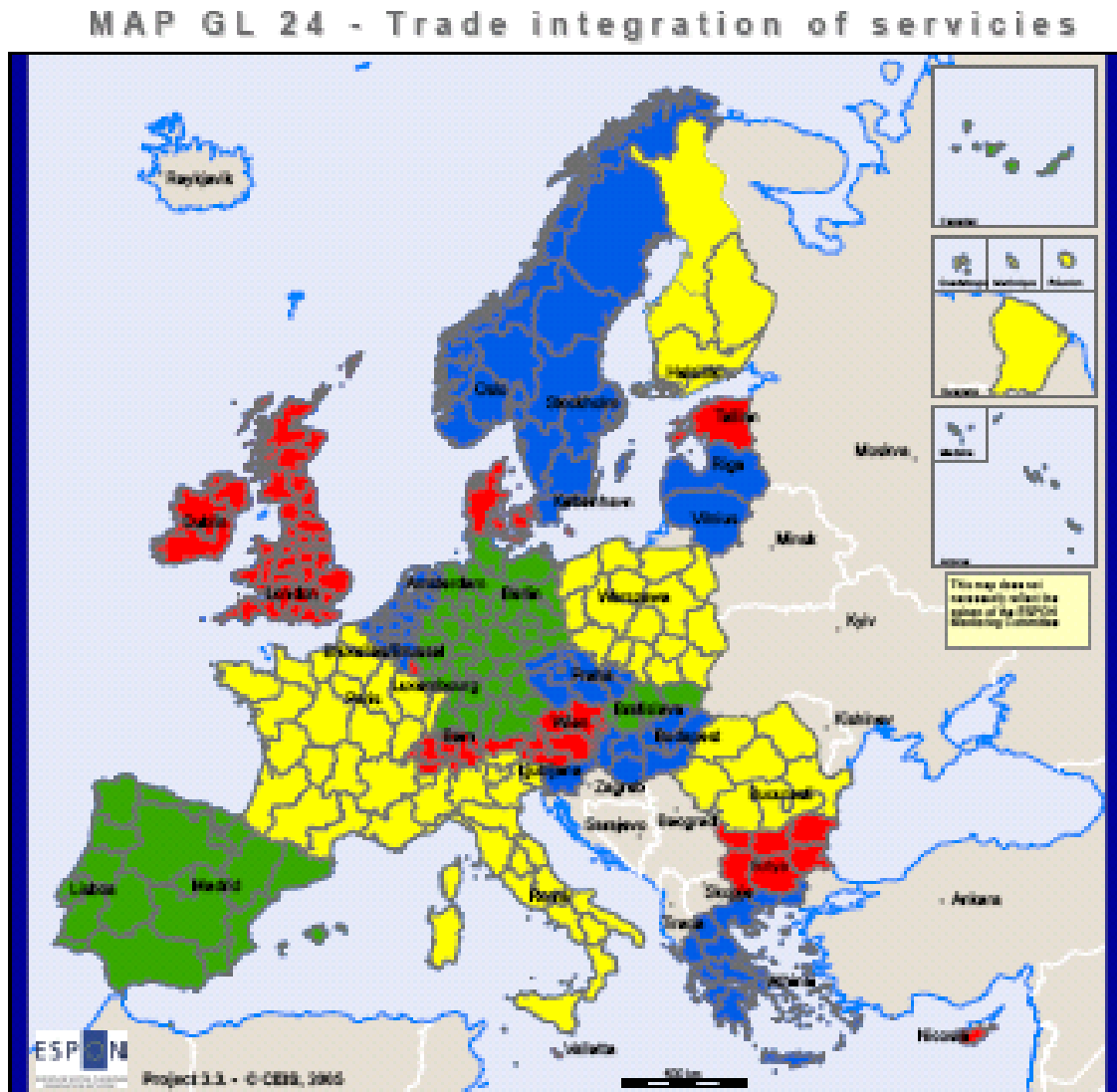


Figure 48: Foreign direct investments (CEIS, 2005)

MAP GL 22 - Foreign direct investments intensity



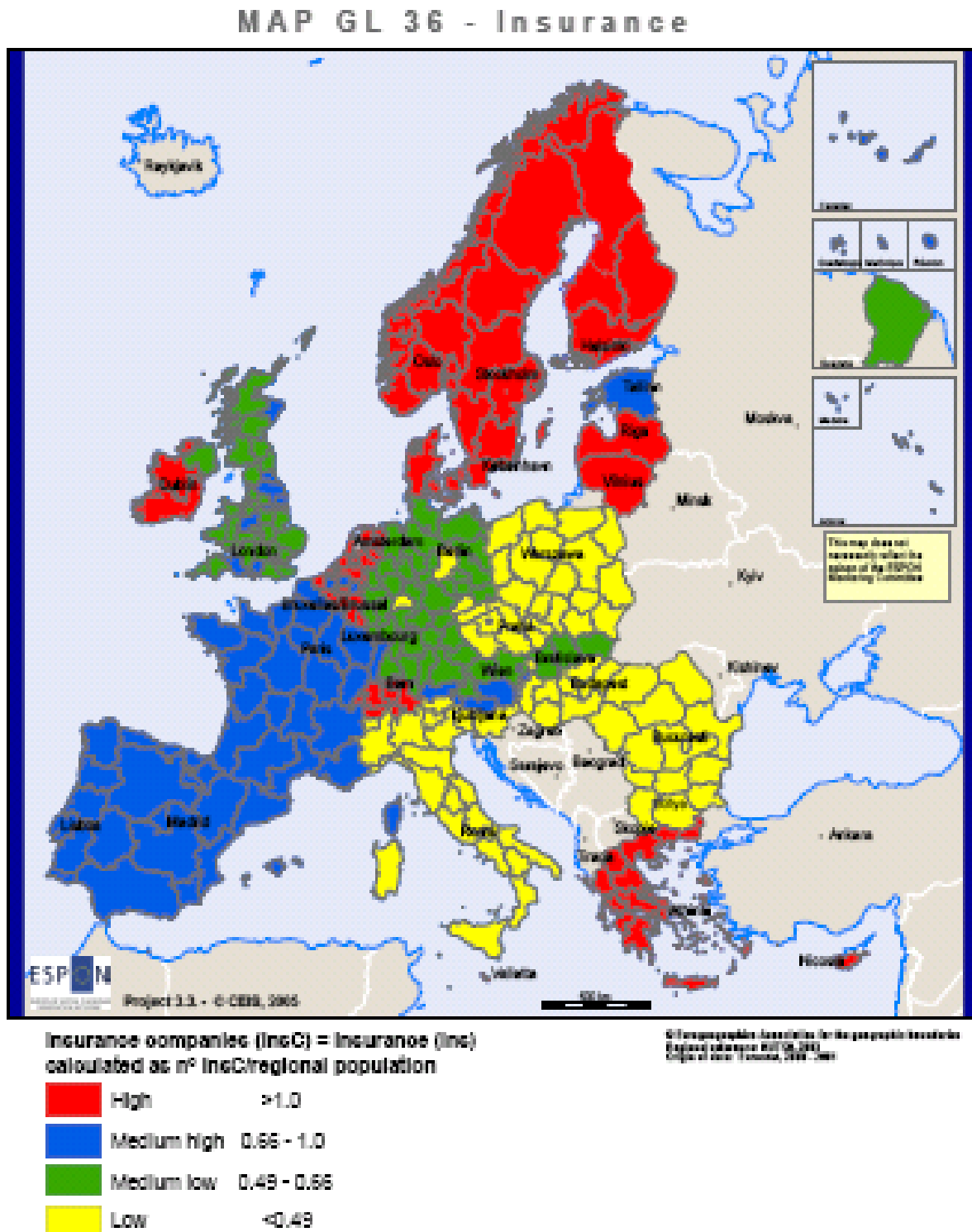
territorial appeal for internationalisation  
calculated as foreign direct investment  
intensity (FDI<sub>int</sub>) = territorial appeal

Red	High	>2.5
Blue	Medium high	1.6 - 2.5
Green	Medium low	0.5 - 1.6
Yellow	Low	<0.5

All maps geographic coordinates for the geographic coordinates  
(English reference: WGS84, 4326, 384)  
(style of data: European, 2005)

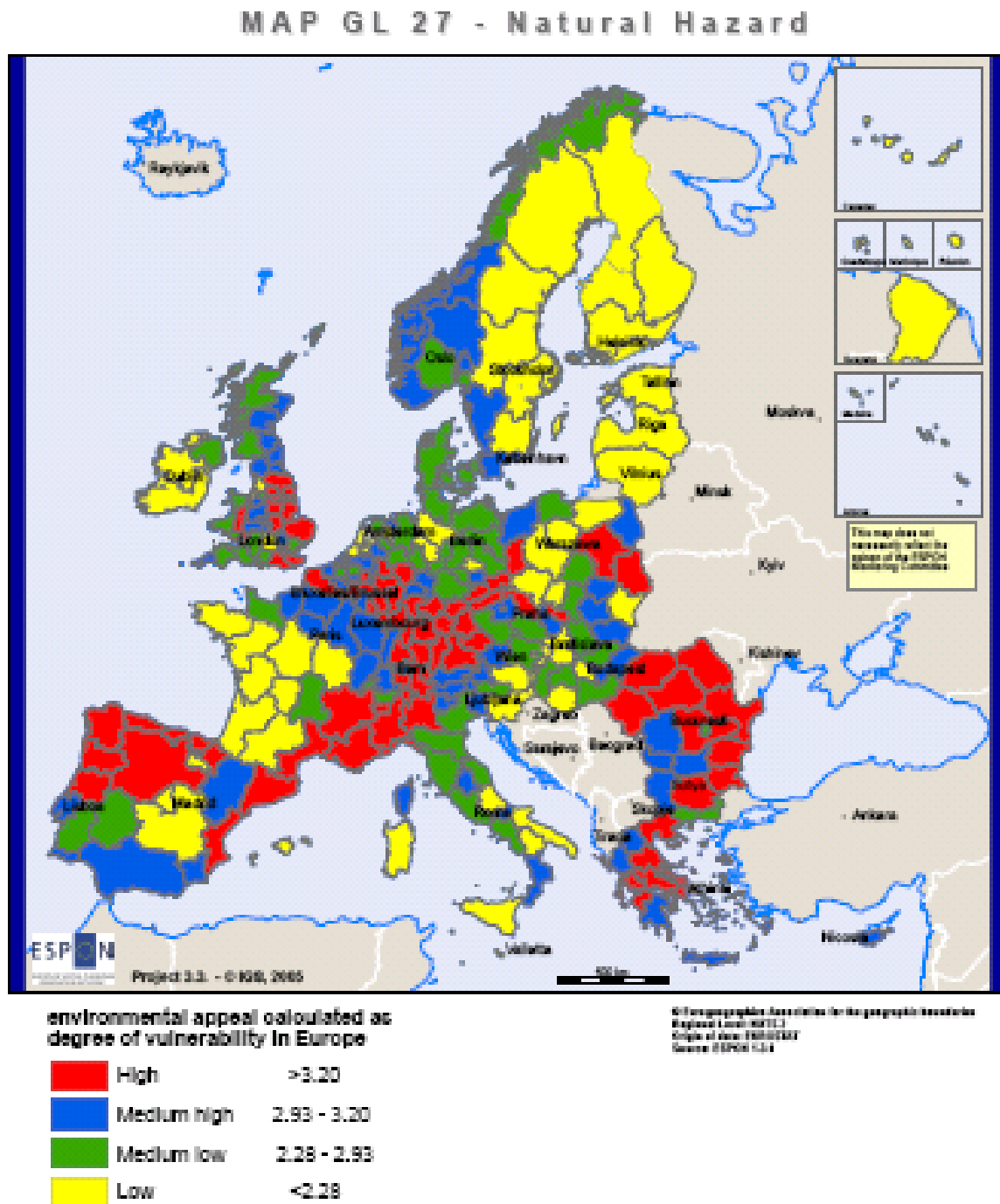


Figure 49: Insurance Intensity (CEIS, 2005)



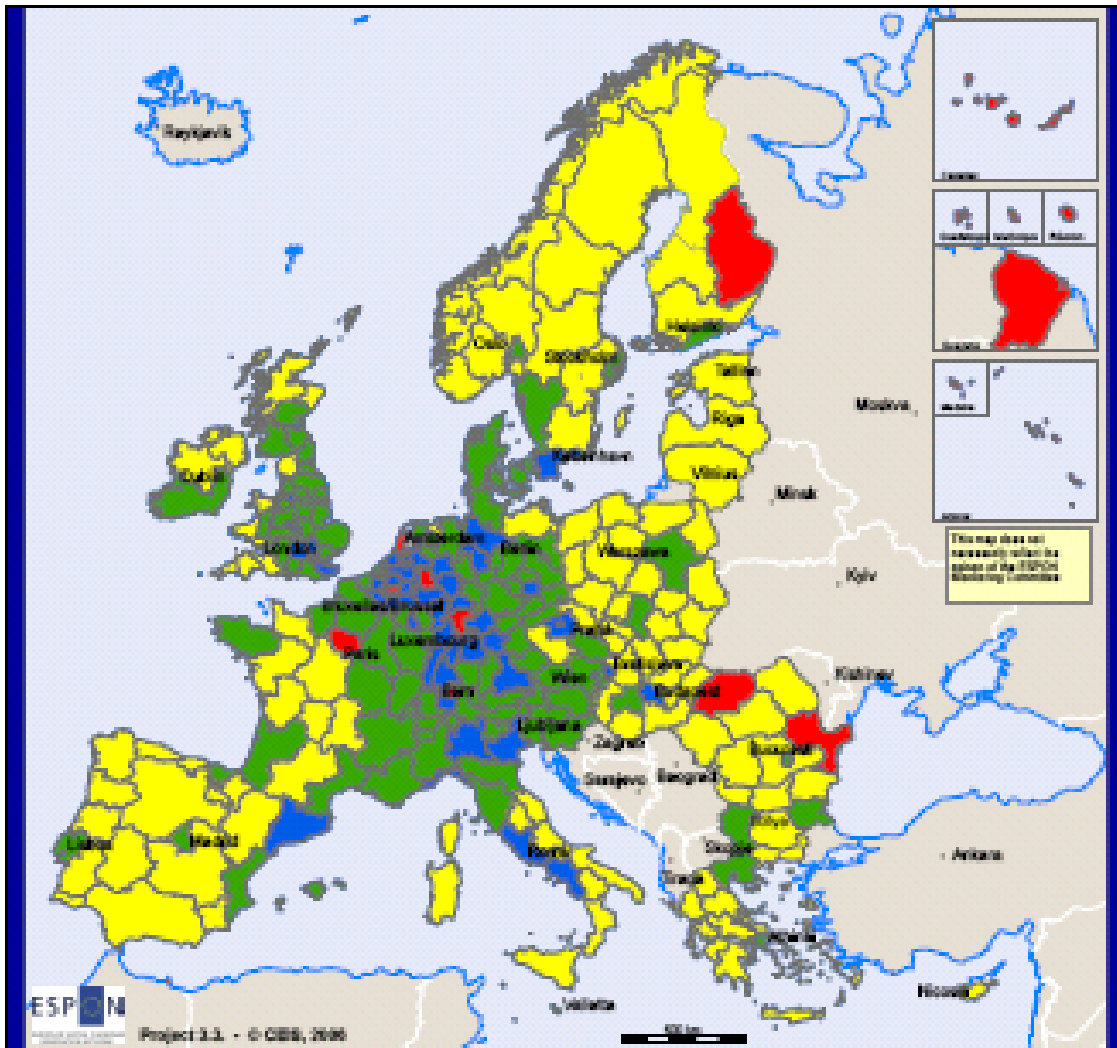
Another important indicator is represented by the position or internationalisation level (see map GL 26) achieved by regional systems. The measurements of Finland, Denmark, Estonia, France, Cyprus, Scotland, Ireland and some European capitals, could be considered as the target to be achieved in the mid term and through deep structural actions by Great Britain, Netherlands, Germany, and by urban areas like Madrid, Paris, London and Milan.

**Figure 50:** Natural Hazard (ESPON 1.3.1)



**Figure 51:** Typology Multimodal Accessibility Potential (ESPON 2.1.1)

**MAP GL 28 - Typology Multimodal Accessibility Potential**



structural funds spending before 2000 in relation to accessible population calculated as typology multimodal accessibility potential = accessibility

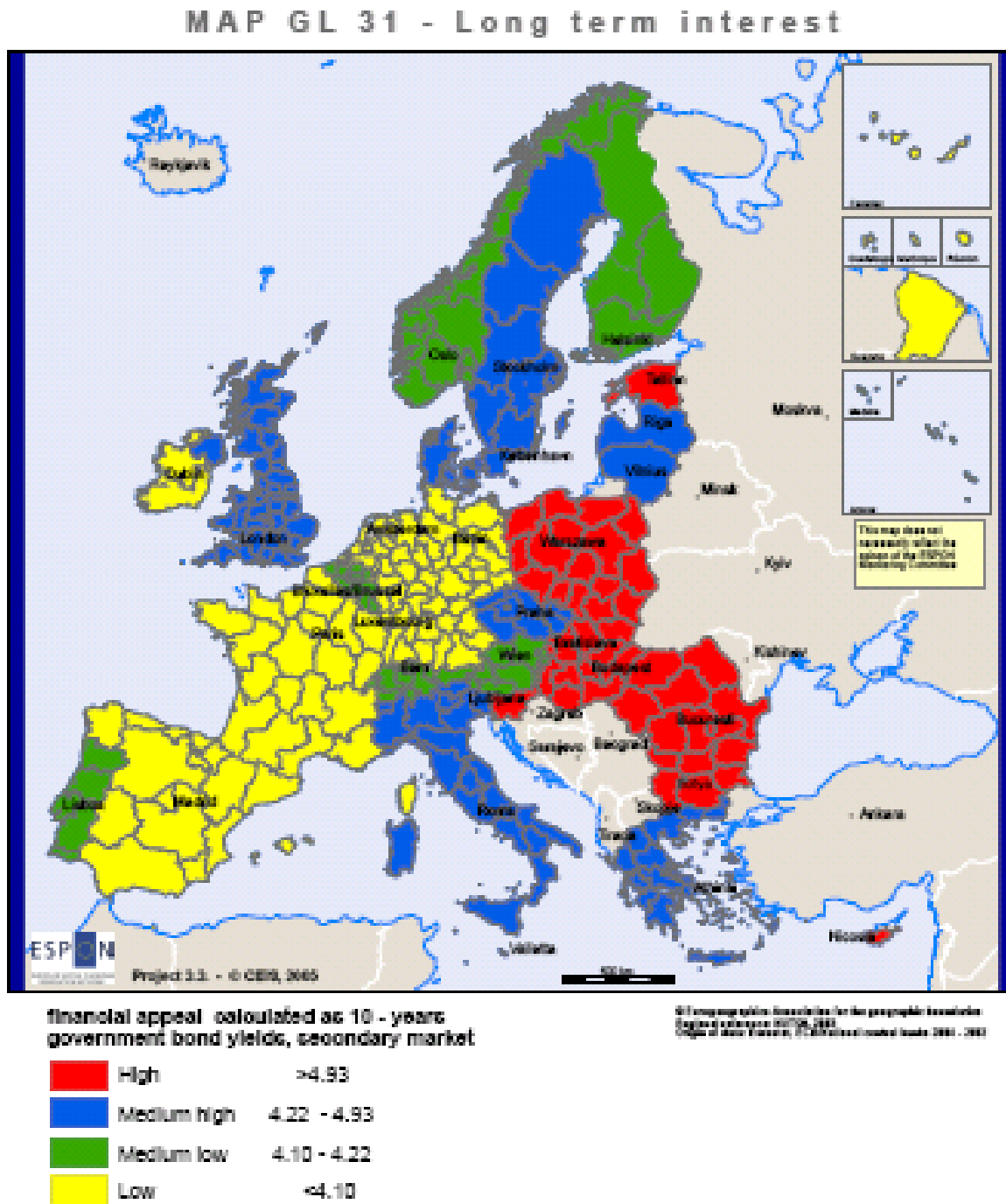
- central very central
- intermediate
- peripheral
- very peripheral

© European Commission, 2006  
Origin of data: ESPON 2006 - ESPON project 2.1.1, 2006

At the base of the structural interventions has to be posed the evaluation of the fiscal pressures (Fig. 11) (see map GL 29) or charge, lately the object of great debate. The high measures collected in those context where more entrepreneurial best practice cases are gathered (Ireland and Great Britain, Spain) or more a tendency is present towards receiving foreign direct investments (Estonia, Latvia, Lithuania, Bulgaria and Romania) which should make the Union consider which way to follow in the next five-year term. On this subject we advise, as a possible compensatory means, a direct action on the offer of advanced services to enterprises in contexts where taxation pressure is very low (France, Austria, Denmark, Norway, Sweden and Finland). This offer will have to be referred to the labour cost index (Fig. 12) (see map GL 30), nowadays fairly uniformly distributed, which can represent a first discrimination to the inclination towards the internationalised production, promoting regions where the value is very low (Spain, Cyprus, Estonia, Latvia and enlargement countries), being unfavourable to the 'Y' outlined by Belgium, Germany, Austria, Italy and Malta, and making it more difficult for these countries to attract foreign investments.

To explain the general economic situation of the EU, it has been useful evaluating the long-term interest rate as well (see map GL 31), as an indicator of value, both of national purchasing power and of the status of national savings. Its low measure in Poland, Hungary, Czech Republic, Bulgaria and Cyprus confirms what has been said before, but doesn't explain the position of Great Britain, Italy, Greece, Denmark and Sweden, where the measure is affected by the combined effect of the economic-financial indicators that produced a substantial imbalance in the average values of the "15 Europe", except Germany, whose general economic costs are excessively high compared to those which are too low in some conterminous enlargement countries (Poland, Czech and the Slovak Republic in primis).

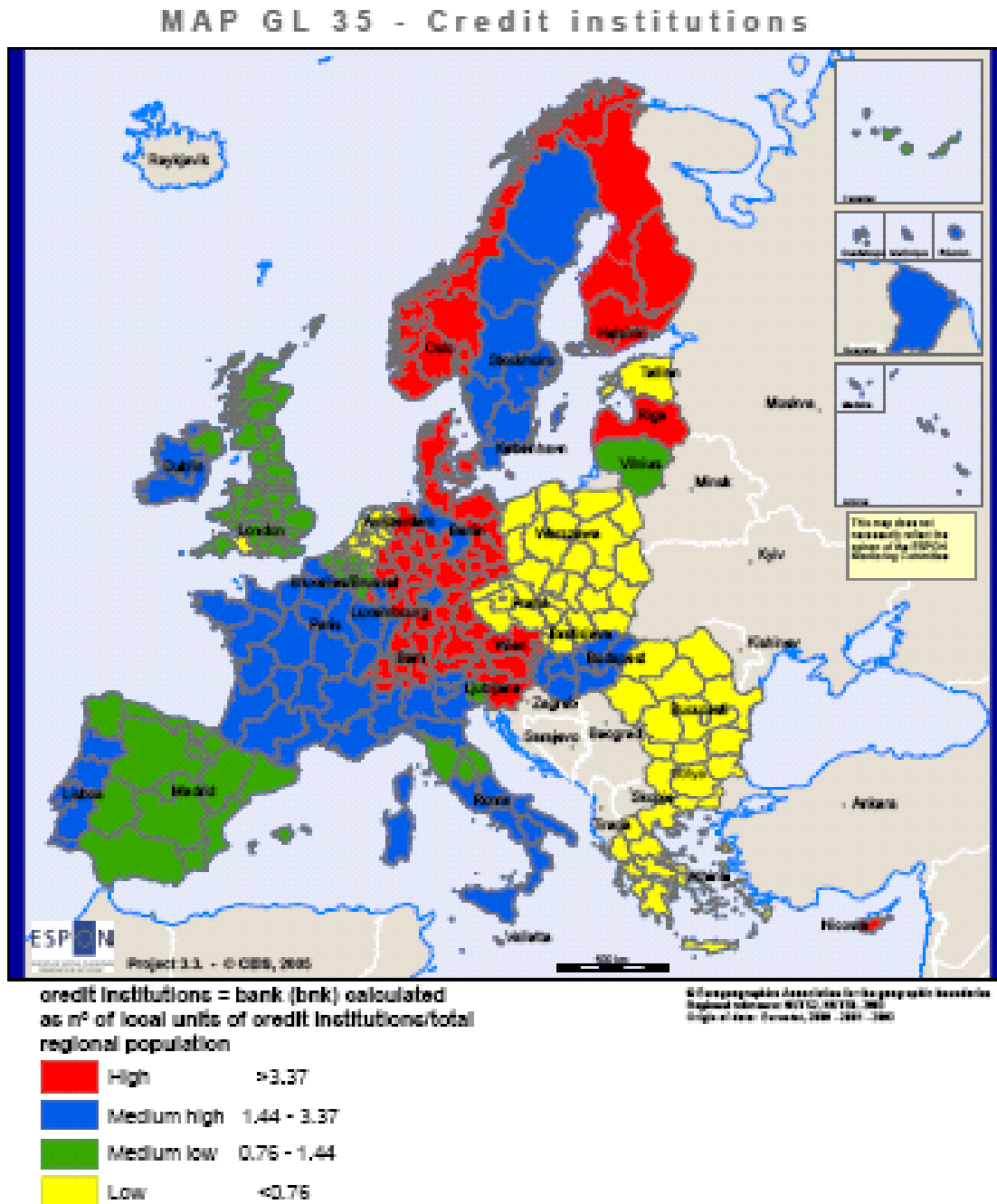
Figure 52: Long term interest (CEIS, 2005)



An important support to R&D should oppose the negative effects brought by market globalisation. In fact only the Finnish regions and Lisbon (!) effectively showed endogenous capabilities in Global/Local interaction, especially from the infrastructural point of view. Some mild exception is detected in the urban areas of Paris, Amsterdam, Bruxelles, Stockholm or in the regions of Centro e Alentejo in Portugal, Pais Vasco and Comunidad Foral de Navarra in Spain, Övre Norrland in Sweden, North Eastern Scotland, Valle d'Aosta in Italy, Corse in France and Ipeiros in Greece (urged to achieve a better active participation into INTERREG III projects 2000-2006).

The iso-line of economic interaction (see map GL 34) discriminates many regions: from those between the Atlantic Ocean and the Mediterranean (including the South of Italy), to the Eastern countries. The EU had looked at the regional Credit Institutions (see map GL 35) more than at the national ones as an important means to overcome this gap, promoting their action in sustaining local entrepreneurial activity. This proved to be positive for Ireland, France, Luxembourg, Switzerland, Austria, Germany, Norway, Finland, Sweden, Slovenia, Latvia, Cyprus and many regions, including Italian ones (such as Emilia Romagna). The growth of banks and credit institutions on a local scale has been joined by a parallel growth in the Insurance Companies (Fig. 49) (see map GL 36) (particularly in Ireland, Netherlands, Sweden, Denmark, Lithuania and Greece), which also assumed the role of manager for a part of the international trade exchange. The synthetic index "credit & insurance" (see map GL 37), higher in central-north Europe, could be taken as the positive threshold value by many countries, as for instance Great Britain, since the weighted distribution of the Insurance Companies, indicator of the inclination towards the investment and savings protection, appears to be fairly good in the whole European system. From this point of view, only the regions between Germany and Austria, where more than elsewhere the effects of the modernization in the national system were relevant; or Romania, seem to be in need of restructuring interventions (pre-access support) to reinforce the endogenous model in sustaining trans-national relations, currently dominated with competitive advantage positions by Great Britain and France, and (to a lesser extent) by Spain, Belgium and the Netherlands.

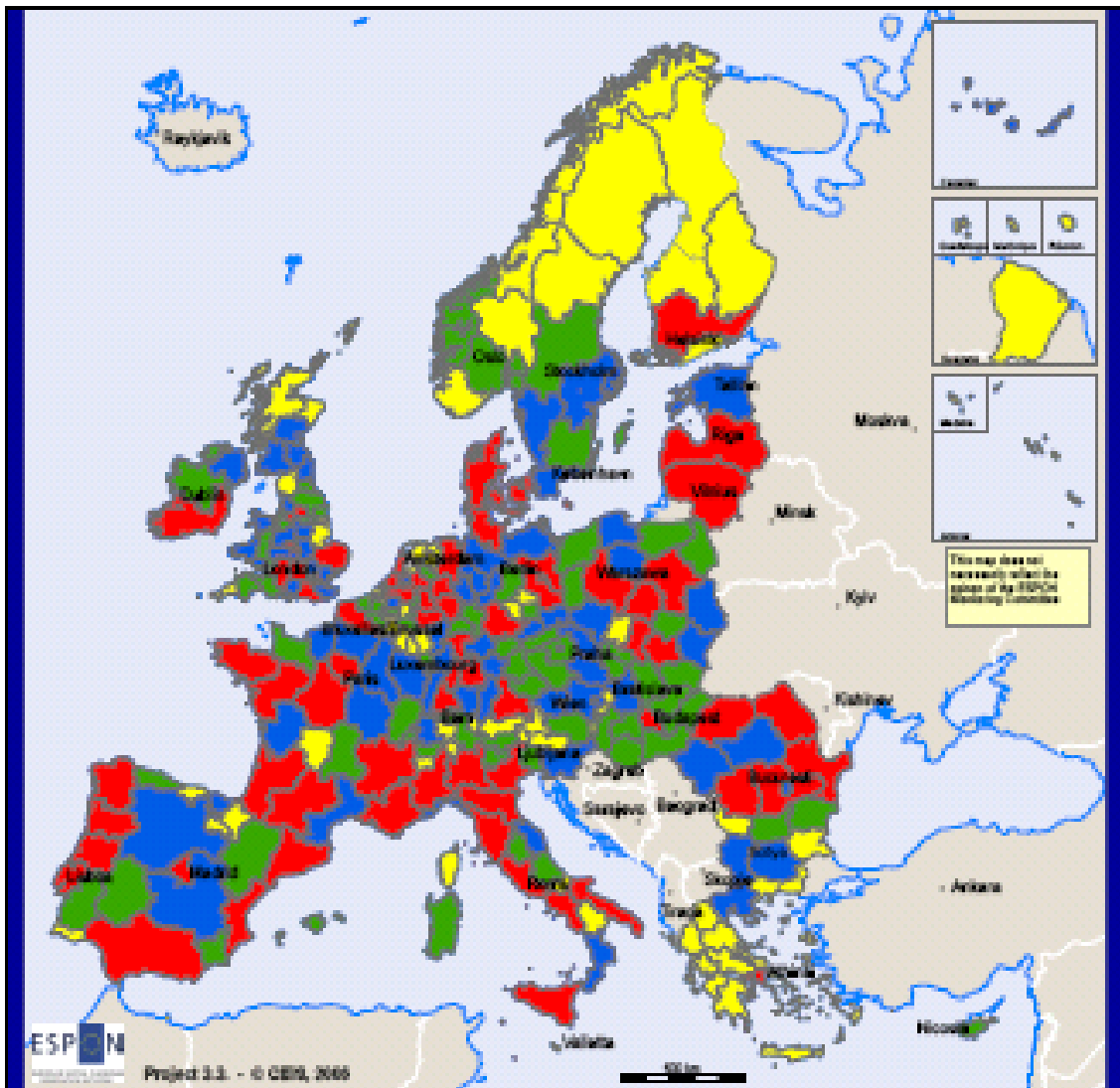
Figure 53: Credit Institutions (CEIS, 2005)



If the territorial management and organisation (see map GL 40) appear as a priority, it can however count on an attitude in local management and organisation which is sufficiently uniform, although fragmented, all over the European territory. The good practice cases are represented by Spain, France, the Rhine Valley in Germany, Denmark, Ireland, the South-east of England, the coast of Belgium-Holland, Finland, part of Sweden and Poland, and, last, Italy and Greece. In Finland, Denmark and Switzerland they can represent a starting point in the co-operative project transfer, also in terms of capability of financial interaction.

Figure 54: Companies (CEIS, 2005)

MAP GL 38 - Companies



companies calculated as number of regional employers (naoe A,B,C,D,E,F,G,H,I,K)/total EU employers

Red	High	>0.0045
Blue	Medium high	0.0027 - 0.0045
Green	Medium low	0.0015 - 0.0027
Yellow	Low	<0.0015

© Eurogeographic Association for the geographic coordinate system reference to EPSG:31466  
Map of data: Eurostat, 2005 - 2006



Figure 55: Stock market capitalisation (CEIS, 2005)



stock market capitalization calculated as billions of euro - NSA (annual average on monthly data) geographical detail is limited to the national level NUTS0

	High	>842.745
	Medium high	519.98 - 842.745
	Medium low	57.14 - 519.98
	Low	<57.14

© Eurogeographical Association for the geographical foundation Regional Conference 2007/08, 2007  
Origin of data Eurostat, 2005 - 2006

### 3.4 Quality

The Lisbon strategy is based upon 4 great structural reforms which have their completion in the fifth action field proposed by the European Council of Gothenburg in 2001: sustainability, in whose respect economic, social and environmental effects of all policies must be evaluated in order to be an integral part of the decisional process (see also the European Council of Barcelona in 2002, the «European Environmental VI Action Plan» on environment and the Perspective of Johannesburg, 2002).

In the perspective of a sustainable European policy, the national and regional quality must be considered an overriding and combined measure of phenomena ranging from climatic change to deterioration and poverty (health, safety, quality of life), to the not self-sustainable economic and social systems in the great urban areas (irrational use of resources, energy wastage, waste management, noise pollution and air pollution due to traffic congestion), so that the EU gives a uniformed and balanced answer to the big issues involving the relations between infrastructure, environment, citizens' health and safety (exposure to electromagnetic fields, to noise pollution, to new integrated technologies of mobile telephony and to electric energy availability). The new general policies will have to be the result of sectorial actions and policies directly connected to the territorial dimension of the development.

The general Quality level in the spatial view (Map Q 44, Fig. 56), shows how Europe has an attitude towards positioning on low levels of quality, in particular along two parallels axes: 1) the north-south axis that goes from Germany to Italy; 2) the north-south axis that goes from Poland to Greece<sup>14</sup>. Low values are also recorded in Spain, Ireland and Great Britain, while high Quality levels are observed in Portugal, France, Austria, Hungary, Netherlands, Lithuania and in the Scandinavian Countries.

Instead, looking at the territorial dimension of Quality (Map Q 45 NUTS2 level, Fig. 57) the situation change and Europe acquire an overall high level. So the regions (at NUTS2 level) that have a territorial typology with high urban influence improve their value, moving up in the quality scale. Low values are pinpointed in the Centre of Spain and France, South of Portugal, Greece, Czech Republic, Hungary (excepted the region of Budapest), Sweden, and the less anthropic regions of Finland.

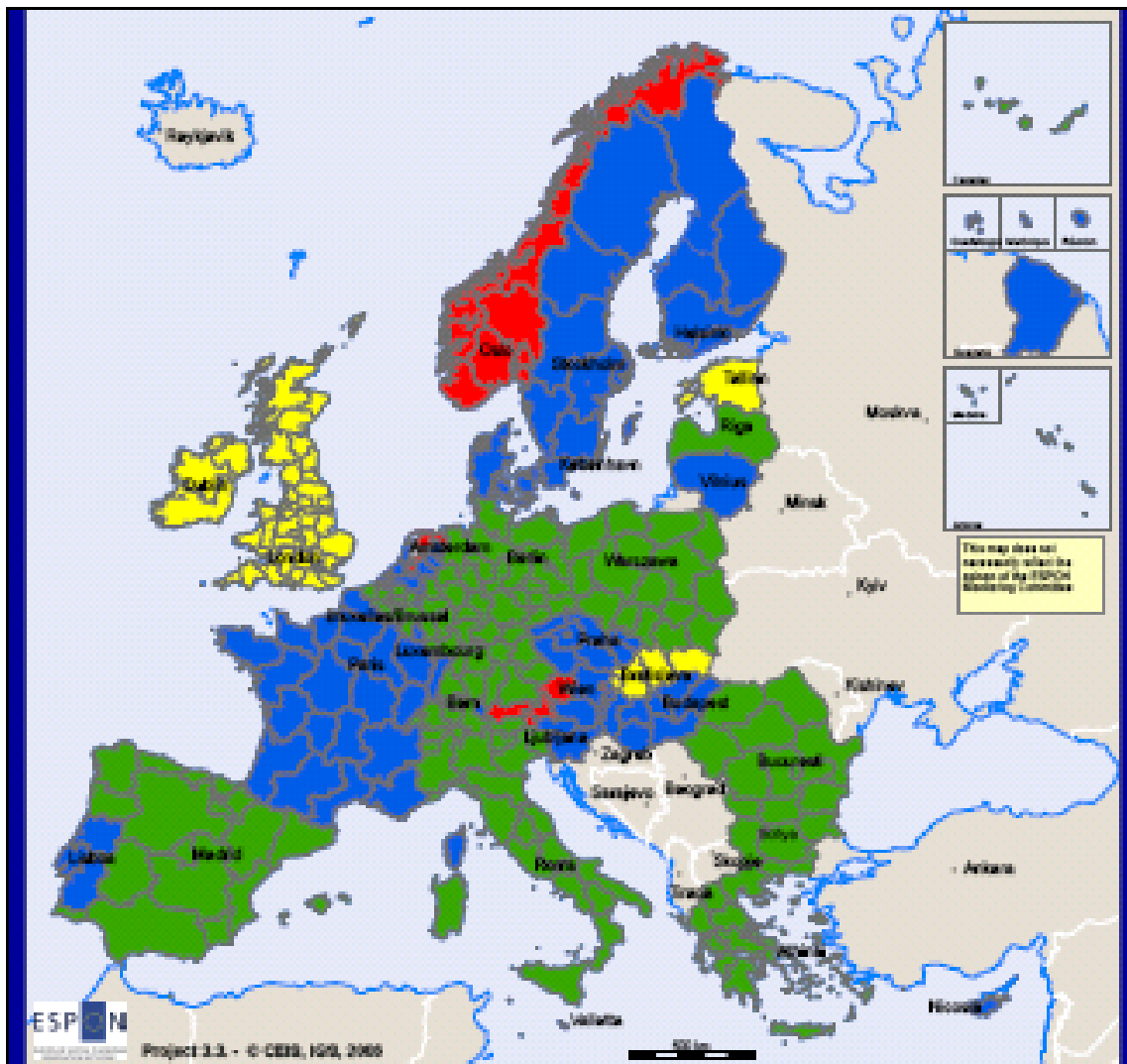
Looking at the territorialisation at NUTS3 level, the European layout shows a more similar dynamics to that of the spatial dimension ( Map Q 45 NUTS3 level, Fig. 58).

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<sup>14</sup> The two axes are joined in the peak creating a "horseshoe" shaped area.

**Figure 56:** Quality: composite index final values (CEIS, 2006)

**MAP Q 44 - Quality: Synthetic Spatial Compositi Index**



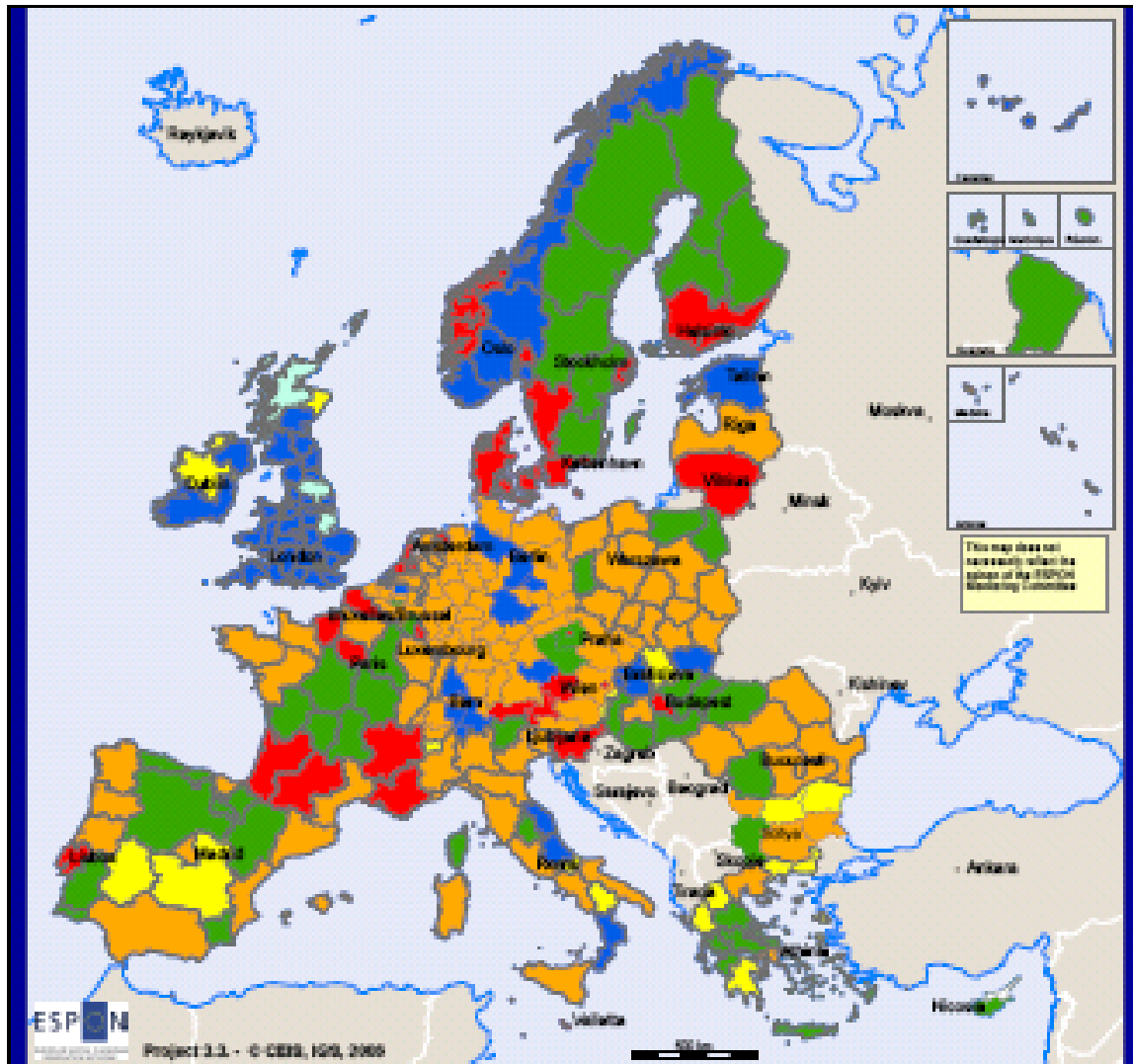
Values obtained combining social quality and cohesion and status quo (quality)

- High
- Medium high
- Medium low
- Low

© The geographic coordinates for the geographic boundaries  
European Commission 1997-2006  
Original data: CEIS, 2006

**Figure 57:** Territorial Quality: final values at NUTS2 (CEIS, 2006)

MAP Qty 45 - Territorial QUALITY



Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© The geographic Association for the geographic Institute for  
Regional Research (IGIR), 2006  
Map of data: CEIS, 2006

Figure 58: Territorial Quality: final values at NUTS3 (CEIS, 2006)

MAP Qty 45 - Territorial QUALITY



Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© Geographische Association der Europäischen Länder  
Revised version of TT2, 2005  
Single author: CEIS, CEIS, 2005

The project registered, for instance, that in the future some cases of pollution could also take place in the regional economies with the highest per capita expense, where the use of appropriate technologies is still low.

In this direction the concept of “territorial quality” has been interpreted in the project both as an economic process, and mostly as a *social cohesion process* leading to the definition of targeted actions and policies in order to build an efficient and effective regional economic system (solidarity, creativity and high life quality) to play an important role in territorial planning and social policies.

But all that is insufficient to grant a successful increase of territorial quality to support development. It is therefore necessary that the Union would institutionalise the concept of quality and permanently include it in the decisional processes (institutionalised governance) so as to establish a connection between economic and social progress for a global development to be coherent and sustainable.

This is typified by the behaviour of the European enterprise, to whom the concept of territorial quality has become synonymous with success in competitiveness, as testified by the achievement of appropriate certifications (ISO or EMAS), followed by the enlarged concept of social responsibility (i.e. Territorial more than Corporate Social Responsibility<sup>15</sup>) considered as a useful and necessary instrument of cohesion and competitiveness.

The effects of an action in quality on European regions could inspire many variations:

- broadening and strengthening the internal market;
- ensuring open and competitive markets inside and outside Europe (trans-frontier, trans-national and trans-regional co-operation policies);
- improving national European regulations;
- widening and improving European infrastructure;
- increasing and improving investments towards R&D;
- simplifying innovation, TLC’s adoption and a sustainable use of the resources;
- contributing to a steady European industrial fundament which would adopt certification systems and CSR as means of cohesion and competitiveness;
- attracting a greater number of people in the job market and increasing job market’s flexibility;
- increasing investments in human capital by improving education and expertise;
- improving the preservation of public health and environment in the communitarian policies, as an opportunity of sustainable development

In the following pages the typologies with the strongest impact are analysed.

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<sup>15</sup> European Council of Lisbon, *Green Book*, on July 2001

### Quality of life

In respect of the objectives of the Lisbon Strategy, the overall achievement of a good level of life quality has to be sustained by policies addressed to guarantee adequate economic conditions to fulfil families need (measured through per capita GDP, level of consumer prices and occupancy<sup>16</sup>) and an adequate level of all the non-economic aspects that contribute to health, such as public health, commonly considered an indirect indicator of productivity and economic dynamism.

European policies for public health service only confront the problem of optimising the costs/efficiency reports in health expenses, whereas poor was the attention given towards creating synergies between health, environmental policies and life quality. New directives have been even recently outlined by the EU, in order to achieve a stronger collaboration relationship among Countries (common objectives, national action plans and a common report by Commission or Council), connecting to the field of policies for social and economic cohesion.

The indicators fit for evaluating *quality of life* show as, concerning economic variables, many regions can count on a solid base for co-operative development. The level of the Economic Variables (Map Q 05) shows how a structural interventions is necessary in the new countries, as well as in Portugal, South of Spain, some southern regions of Italy and in the centre of Greece. The good performances of the Pentagon's area and Scandinavian Countries are predictable, while less predictable is the good dynamics of the economic variables in Ireland.

However a still variably distributed GDP (per capita per purchasing power) (Fig. 15, Map Q 01) requires new and more incisive structural actions, especially in the South of Italy and Spain, in Portugal, Greece, and the French overseas regions, so that they could reach the high values of Austria, Luxemburg, Denmark, Belgium, Île-de-France and many regions-capitals<sup>17</sup>. These high values in the centre of EU15 prove like the pentagon's area, and his extension to the Scandinavian countries, is strong into the economic variables yet. With reference to *the consumer prices index* (Map Q 04, Fig. 60), there is a clear need for interventions of assimilation in the enlargement countries towards the steadier economies of Spain, Portugal, Italy, Cyprus, Netherlands, Denmark and South of Ireland. Also the dynamics of labour suggest structural actions (*level of employment*) (Map Q 03) such as those adopted in the South of Germany, Ireland, England, Austria, Netherlands, North-East of Italy, and some regional enclaves<sup>18</sup>. The level of employment in the New Countries shows as these new economies have started a reforms' process that is obtaining good results.

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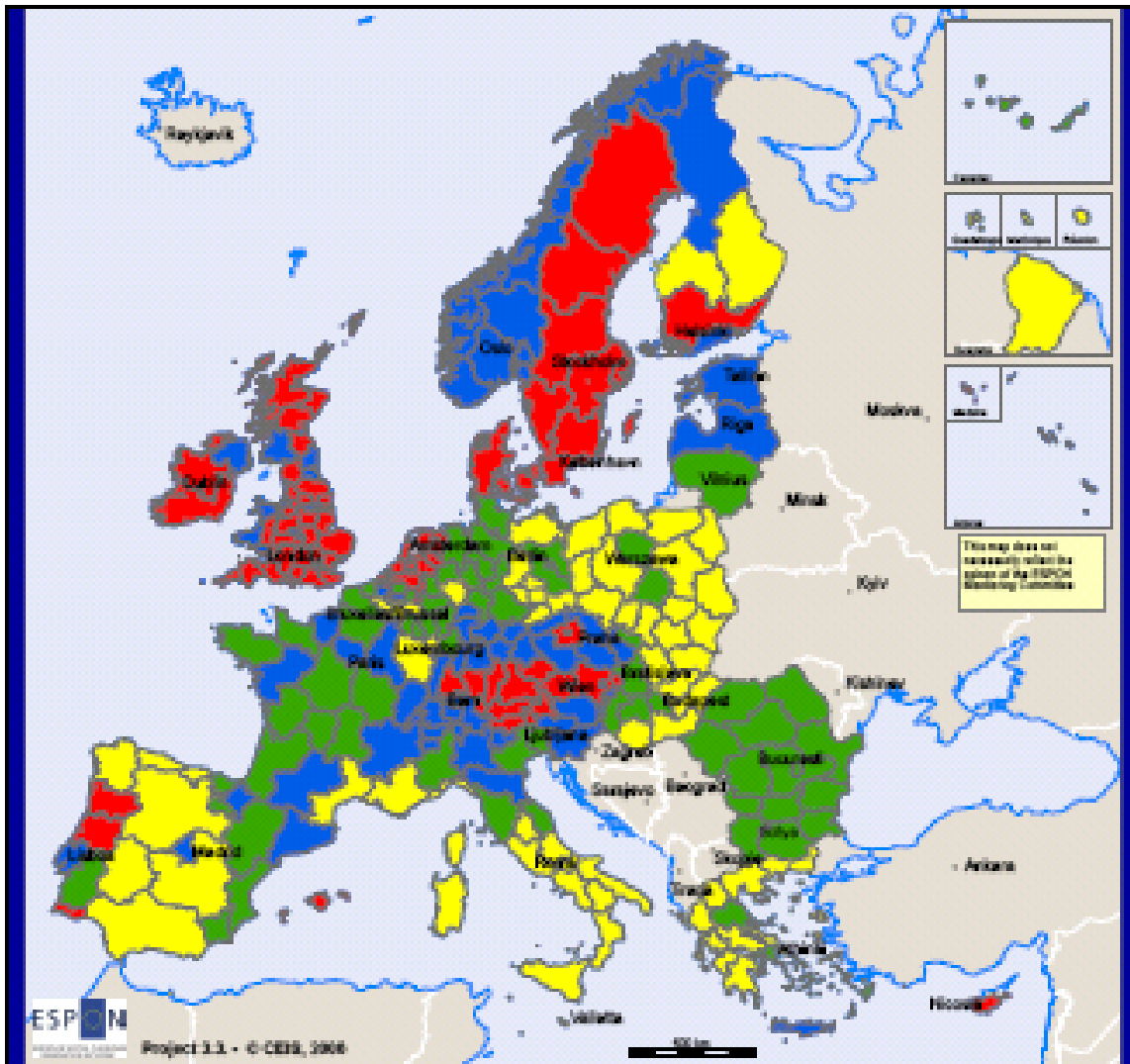
<sup>16</sup> Through occupancy revival with creation of new and better job offers, through human resources education and the reduction of occupancy gap.

<sup>17</sup> The Comunidad de Madrid, London and Inner London, North-East and East in Scotland, South of Ireland, Noord and Zuit Holland in Netherland.

<sup>18</sup> Açores in Portugal, Közép-Magyarország in Hungary, Småland med öarna in Sweden, Tees Valley in Scotland, Cyprus.

Figure 59: Level of employment (CEIS, 2006)

MAP Q 03 - Level of employment



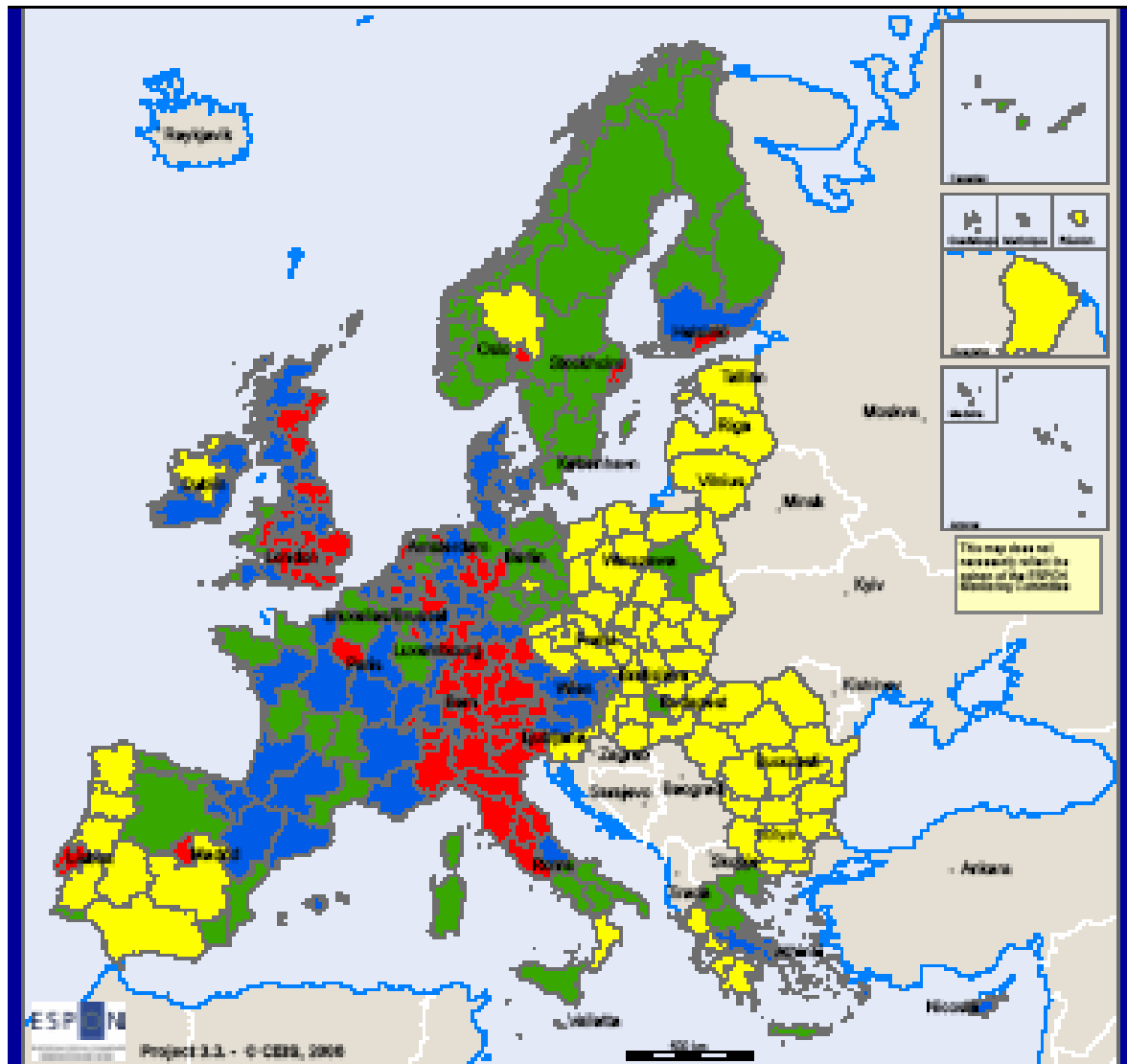
Regional percentage of employees calculated as level of employment - number of employees/population (%)

High	>56,20%
Medium high	51,60% - 56,20%
Medium low	47,40% - 51,60%
Low	< 47,40%



Figure 60: Consumption per Capita (CEIS, 2006)

MAP Q 02 - Consumption per Capita



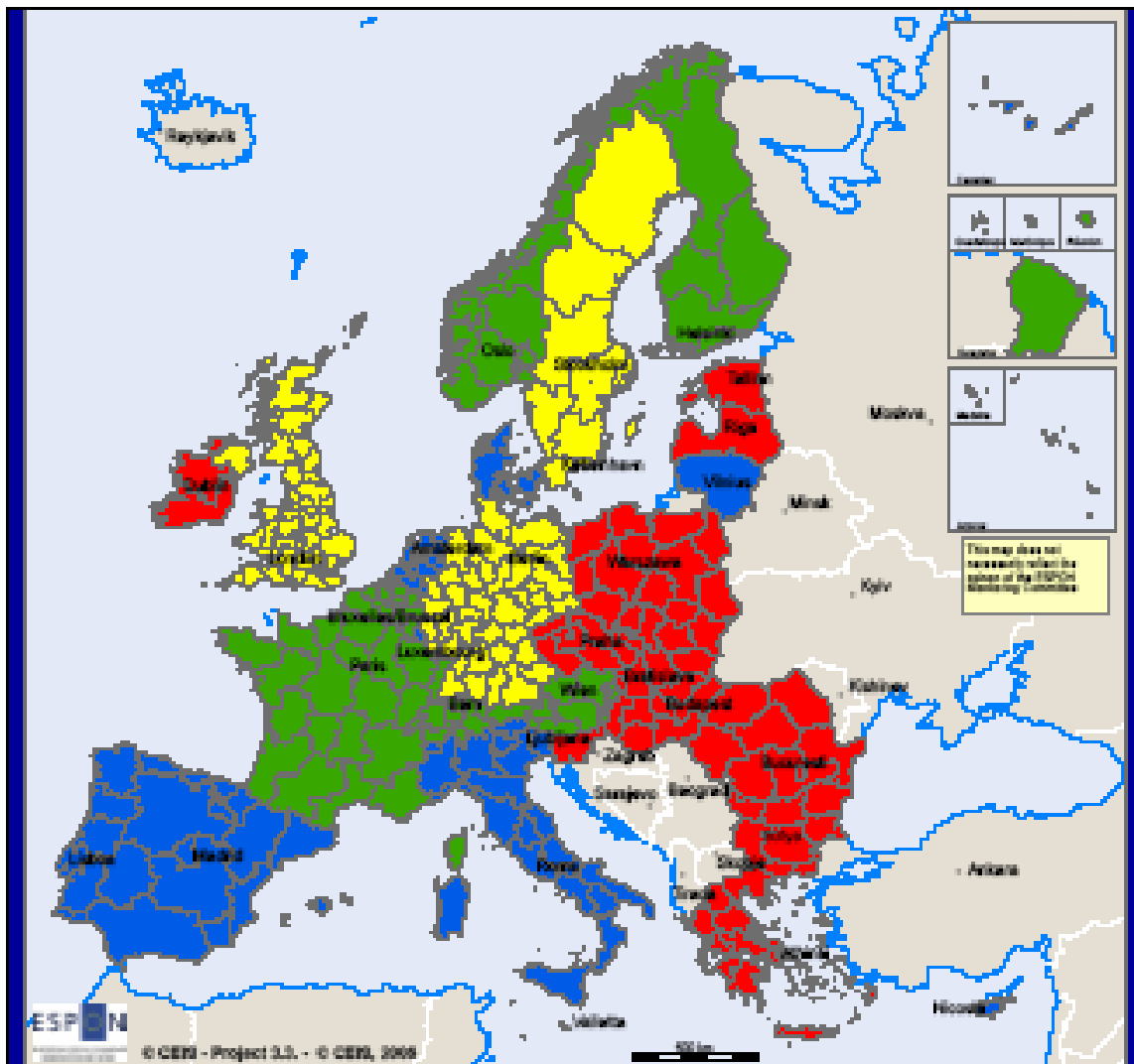
Level of Regional consumption per capita calculated as Consumption aggregates (market prices)/population

<span style="color: red;">■</span>	High	$\geq 13721,07$
<span style="color: blue;">■</span>	Medium high	10910,85 - 13721,07
<span style="color: green;">■</span>	Medium low	8597,07 - 10910,85
<span style="color: yellow;">■</span>	Low	$< 8597,07$

©1 Geographical Association for the geographic coordinates England and Wales 2002, 2003, 2005  
Origin of data: Eurostat, 2006

Figure 61: Consumer-price index (CEIS, 2006)

MAP Q 04 - Consumer - price Index



Level of national consumer price index calculated as harmonized index of consumer prices geographical detail is limited to the national level

<span style="color: red;">■</span>	High	> 129.1
<span style="color: blue;">■</span>	Medium high	118.3 - 129.1
<span style="color: green;">■</span>	Medium low	114.1 - 118.3
<span style="color: yellow;">■</span>	Low	< 114.1

© The geographic Association for the geographic observation  
European observatory (ESPON, 2006)  
Group of nine countries, 2006

On the other side, thinking about Life Quality some structural actions for the *Infrastructural variables of Cohesion* (Map Q 11) should be implemented in several areas of Europe, and specifically in the peripheral regions. This sector shows a concentric rings structure indeed, with high values in continental Europe and lower values in the peripheral regions.

Structural actions in the areas of occupancy, innovation, economic reforms and social cohesion anyway, must address the complex of economic variables to sustain the quality of life in the South of Spain and Italy, in Greece and in the well known, although in de-industrialization process, regions of Itä-Suomi and Pohjois-Suomi in Finland, in spite of an intense period of Structural Funds utilization.

In fact, we observe that the value of the economic variables is affected by different situations, such as the de-localization process which involved nearly all European industrialization's historic regions facing the opening up of the global market. From this point of view, Estonia, Poland, Slovak Republic, Hungary, Slovenia, Romania, Bulgaria or the South of Italy represent more flexible models than Germany or Great Britain.

### *Environmental Quality*

The Action Program on environment (which covers a 10 year period starting from 22 of July 2002) can still be considered as a long term planning instrument of EU activities in 4 sectors: 1) climatic change, 2) nature and biodiversity, 3) environment, health and air quality, 4) natural resources and waste. The seven priority thematic<sup>19</sup> strategies however currently developed, require more detail, since, as of today, no strategies have as yet been definitely adopted; especially considering the effects of the recently enforced Kyoto Protocol<sup>20</sup> in the 141 subscriber countries, which should trigger "flexible mechanisms" based on the market, to accomplish projects linked to "clean development".

The Union has to burden ("joined implementation" starting from 2008) with sustaining/financing, coherently with Lisbon goal, those projects able to spread the most innovative technologies (for instance, for emissions' reduction) in the old and new countries, fixing consistently 2012 as deadline for the follow-up activities of the first period of fulfilment.

To sustain this common policy objective, the evaluation of environmental quality used direct and indirect indicators (for instance, air quality and water consumption, waste – production and recycling -, climatic change and natural hazards, etc.). The result of this evaluation (Map Q 22) shows how strong policies in support of environmental quality should be implemented in Portugal, Spain, Greece and Austria. A good level in environmental quality is present in continental Europe and in the new accession countries.

The results of the analysis suggest the consideration of policies and actions on air quality (Map Q 18) as a priority in almost all the "old" countries, and specifically in Austria, Spain, Portugal, Greece, Ireland and Finland<sup>21</sup>, whereas it has to be noted the low level of CO<sub>2</sub> emission in all the new accession countries, as well as in Germany and Luxembourg. In the same way the policies towards a renewable use of waters and the containment of freshwater abstraction (Map Q 19) have to be a

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<sup>19</sup> Already in a relationship with a list of the European thematic strategies from 2001.

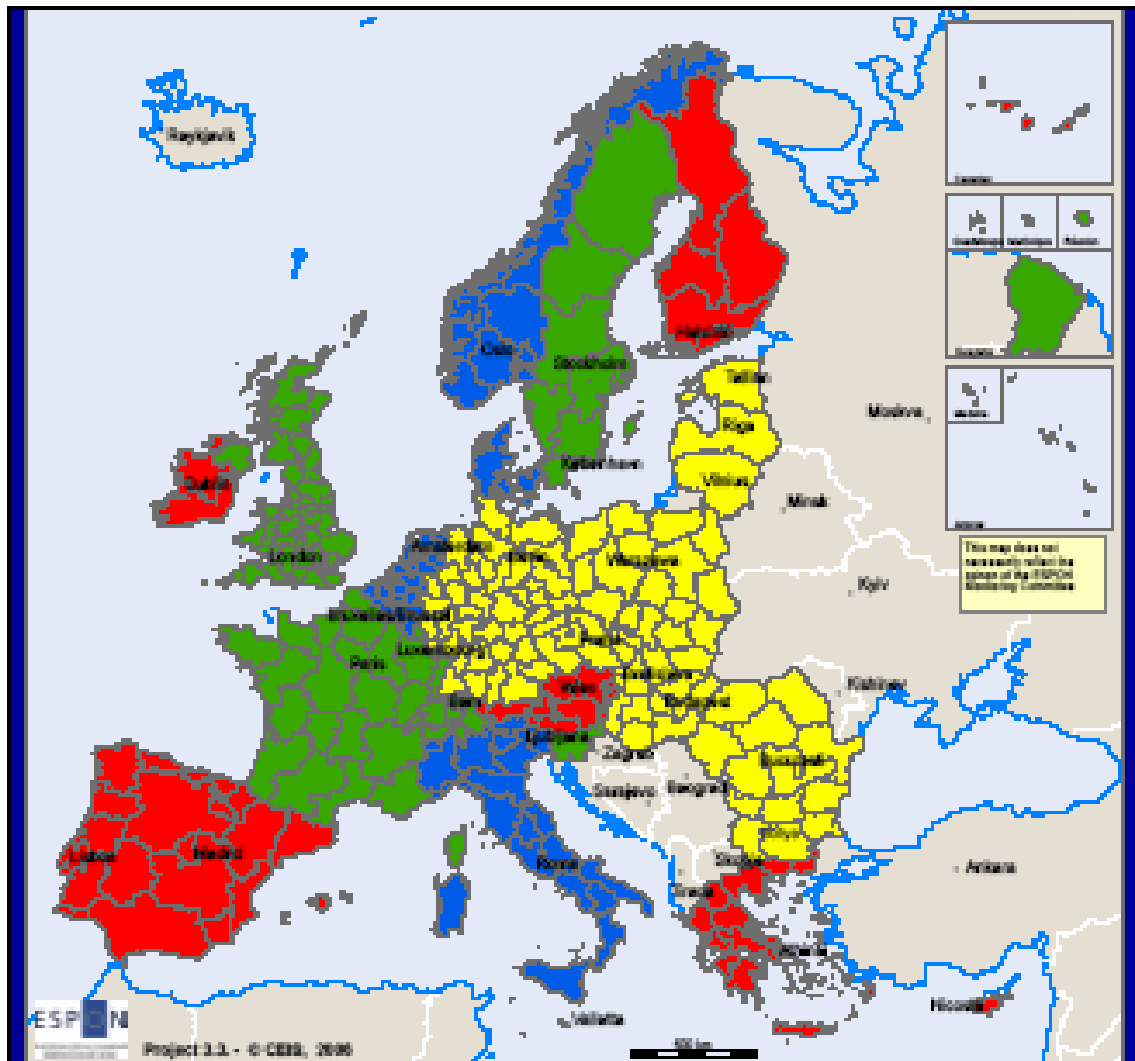
<sup>20</sup> *ONU Convention on Global climatic changes*, Rio de Janeiro, 1992.

<sup>21</sup> Medium high values are also recorded in Italy, Belgium, Netherlands and Norway.

priority for Spain, France, Germany, Luxembourg and Italy, while a good level of freshwater management is recorded in the great majority of the new accession countries (with the exception of Hungary). Therefore, the Natural Resources Status (Map Q 20) shows a good level in Great Britain, France, Germany and in all the new countries, while requires new and more incisive structural actions for all the other countries of the EU 15.

**Figure 62:** Total greenhouse emission (CEIS, 2006)

**MAP Q 18 - Total greenhouse emission**

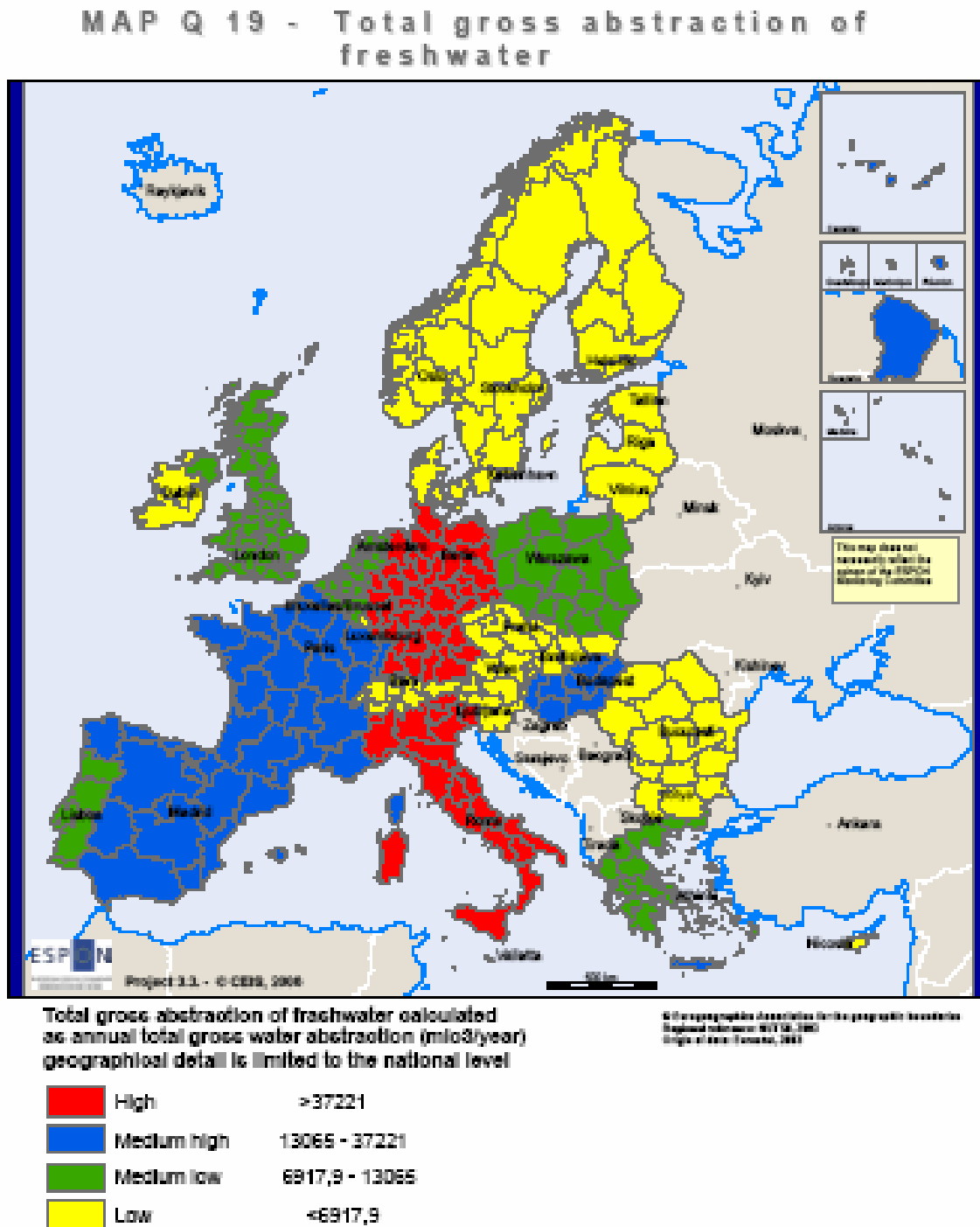


Total greenhouse gas emission calculated as percentage change since base year and targets according to Kyoto protocol/EU council decision for 2008 - 2012 (in CO<sub>2</sub> equivalents)

<span style="color: red;">■</span>	High	>116,80
<span style="color: blue;">■</span>	Medium high	98,50 - 116,80
<span style="color: green;">■</span>	Medium low	81,60 - 98,50
<span style="color: yellow;">■</span>	Low	<81,60

© The geographic Association for the geographic location Regional reference: NUTS 2006 Origin of data: Eurostat, 2006

**Figure 63:** Total gross abstraction of freshwater (CEIS, 2006)

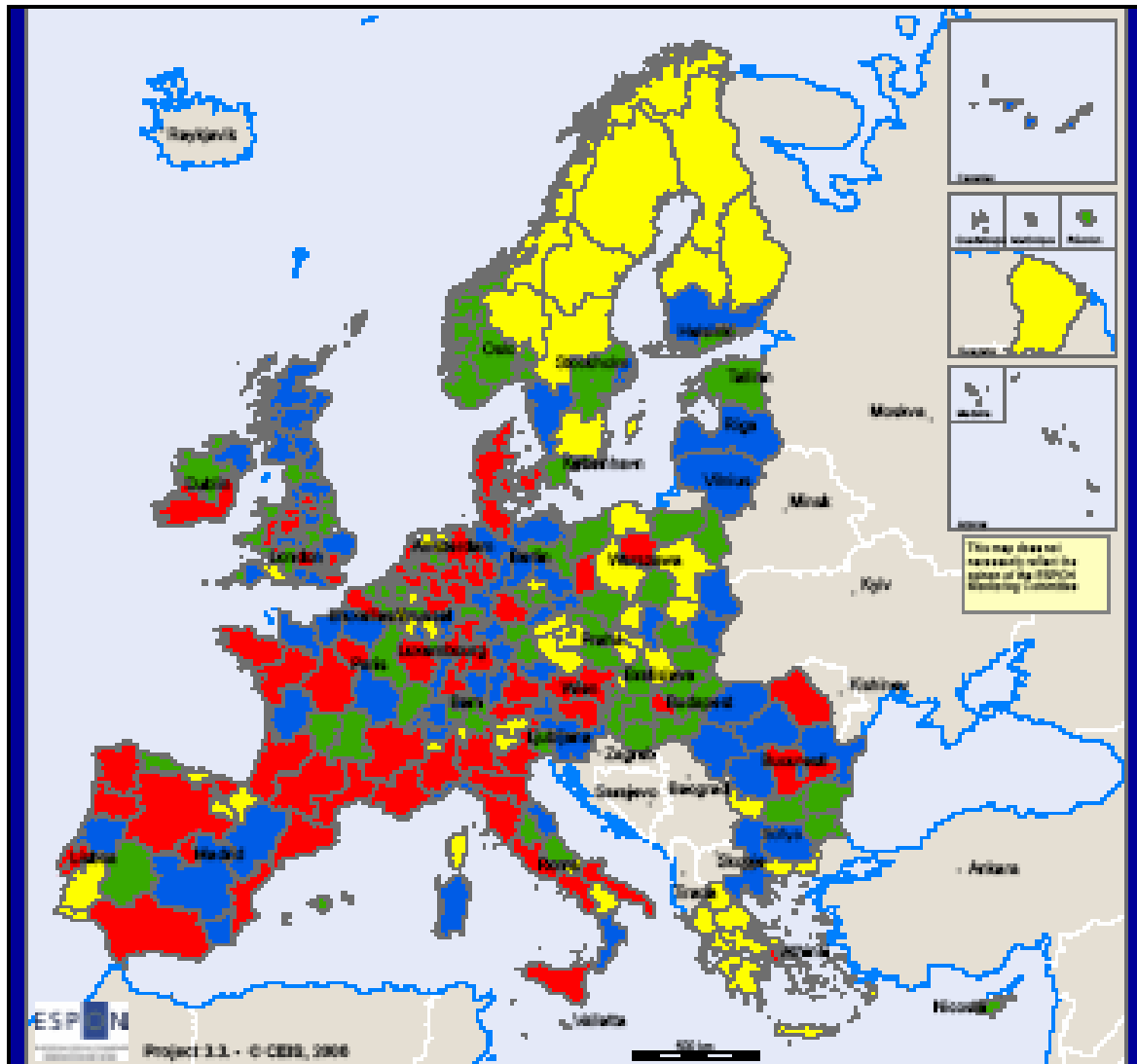


Concerning waste, average per capita production is quite high in Spain, Switzerland, Belgium, Luxembourg, Netherlands, Denmark and Cyprus if compared to the rest of EU (medium-high in Italy). The generation of municipal waste (Map Q 13) shows a medium-low level for the large part of EU, except for a vertical strip including Norway, Sweden, some areas of Poland, Czech Republic, Bulgaria and Greece, and some regions of the Mediterranean axis (Portugal, Spain and Italy). About the level of hazardous waste production (Map Q 14, Fig. 50), this is mostly

high in Portugal and medium-high in Spain, except for the peripheral zones; it is still evidently high in the north, in Norway, Sweden, Finland and Latvia, while medium-high values are recorded in Great Britain, in contrast with the medium-low values of Ireland; high values are shown also in some regions of Poland, in Czech Republic and in parts of Hungary and Greece.

**Figure 64:** Municipal waste generation (CESI; 2006)

MAP Q 13 - Municipal waste generation



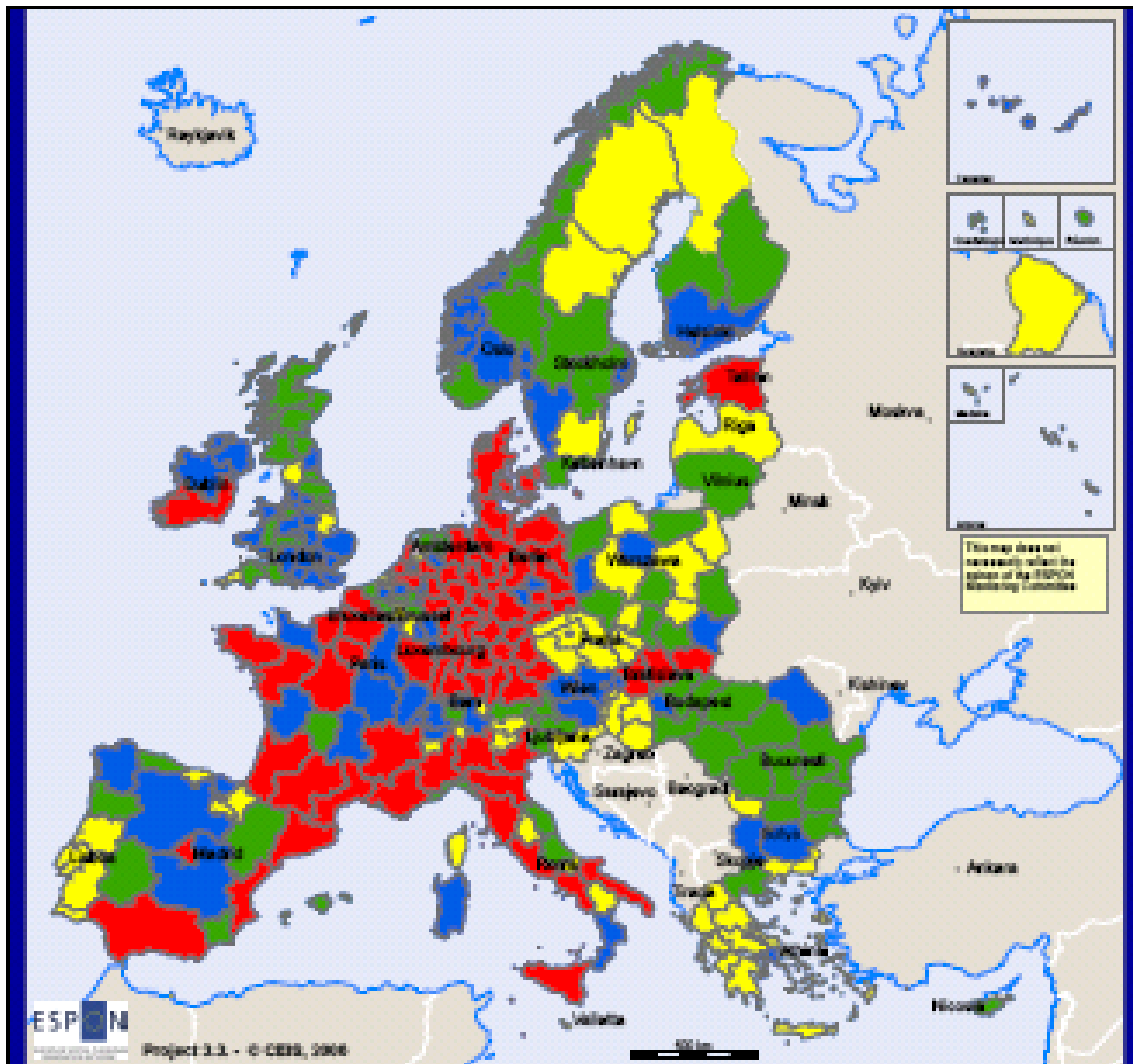
Generation of municipal waste (tons) calculated as municipal waste of Nuts0 (t) \* regional population/national population

<span style="color: red;">■</span>	High	>1171,20
<span style="color: blue;">■</span>	Medium high	744,50 - 1171,20
<span style="color: green;">■</span>	Medium low	392,90 - 744,50
<span style="color: yellow;">■</span>	Low	<392,90

© European geographic Association for the geographic observation  
European reference: 00112\_2003  
Origin of data: Eurostat, 2003

Figure 65: Hazardous waste generation (CEIS, 2006)

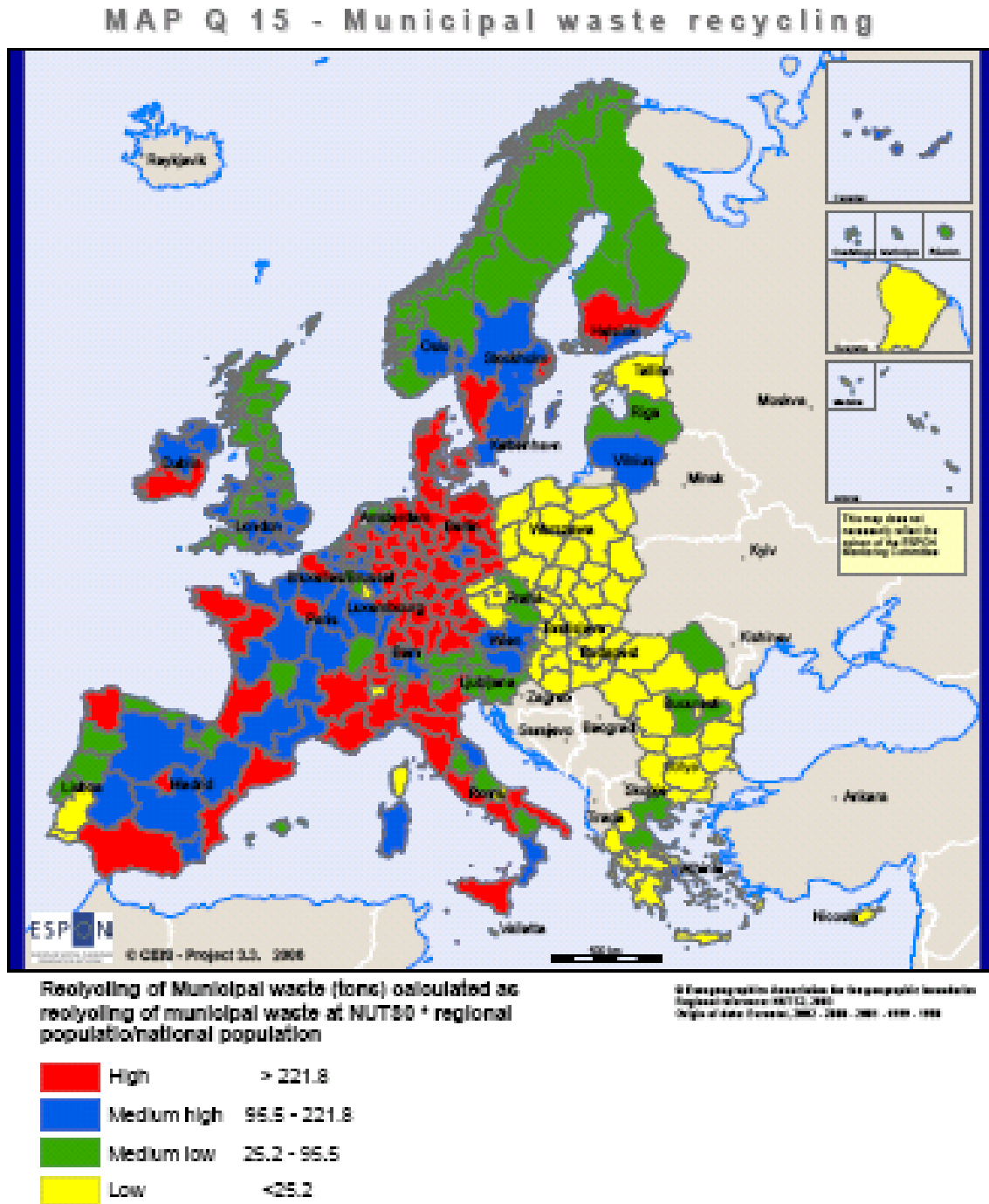
MAP Q 14 - Hazardous waste generation



Generation of hazardous waste (tons) calculated as recycling of hazardous waste at NUTS0 (t) \* regional population/national population

High	>253,20
Medium high	116,20 - 253,20
Medium low	62,10 - 116,20
Low	<62,10

Figure 66: Municipal waste recycling (CEIS, 2006)



The sectorial policies dedicated to waste recycling (Map Q 15, Fig. 66) still have to be strongly supported, especially in the «Pentagon» area and along the axis stretching from Spain to great part of Italy, as well as in the south of Norway, Sweden, Finland and in the whole region of Lithuania. On the other hand, no action seems necessary for the new accession Countries and Greece.

In detail, the level of Waste (Map Q 16) points out the necessity of rigorous intervention in all the “old” countries (except for Portugal, Scotland and Wales in UK, some regions in the centre of France and Italy, Greece, Luxembourg and



Austria). The “new” countries (except for Lithuania) have a good waste management.

The risk of natural catastrophes (Map Q 17), present in the Mediterranean area, in the North of Spain and in that Central Europe area symbolised by a «scorpion», is such that it is necessary to think about supporting an integral group of sectorial policies, directed also to protecting all the natural resources still widely available in Poland, Latvia, Romania or in Italy and Greece. On the other hand, a low level of natural hazard, considering their geomorphologic structure, is present in the Balkan countries.

Some countries (Great Britain, Germany and Poland) but also the wide region that spins around the Italian-Austrian Alpine range appear to have the strongest potential contribution to climate change (Map Q 21) that the Gothenburg strategy would like to oppose.

### *Government quality*

Over the last years the EU urged the Institutions to practice the «culture of clear dialogue», confirming the principle of «good governance» which determines participatory processes addressed to reinforcing democracy and to creating new partnerships which would improve the quality of decisions and be a supplementary guarantee for their accomplishment.

The five principles at the basis of the good governance and of the changes proposed in the White Book<sup>22</sup>: openness, participation, responsibility, efficiency and consistency, have difficulty in application at all government levels: global, European, national, regional and local, strengthening a closer interaction between the local and regional authorities and the civil society, involving European and national associations, right from the beginning of the policies' elaboration.

Looking at the political-social aspects of government quality (Map Q 30), these can be measured through the citizens' confidence level in the EU and through the level of participation into political life, which is high in the smallest countries or in the so called «suburbs». Nevertheless the exercise of governance is really good in a few countries only (Italy, Greece, Belgium and Denmark). This result reflects what happens with the level of citizens' confidence in EU institutions (Map Q 26, Fig. 68) where there is a continental Europe with a low (or medium-low) level of confidence and “peripheral” countries with a great confidence (Portugal, Spain, Italy, Greece, Slovenia, Romania, Bulgaria, Czech Republic, Estonia and Lithuania). With regards to the level of public participation (Map Q 29, Fig. 73), the north-south axis (Scandinavian countries – Italy - Greece), with a high level of participation, is the dividing line of the EU, since both on its right and its left there are countries with a low level of participation.

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<sup>22</sup> White Book "European governance" 25 July 2001 (COM(2001) 428 def.).

Figure 67: Citizen confidence in UE Commission (CEIS, 2005)

MAP Q 23 - Citizen confidence in EU Commission

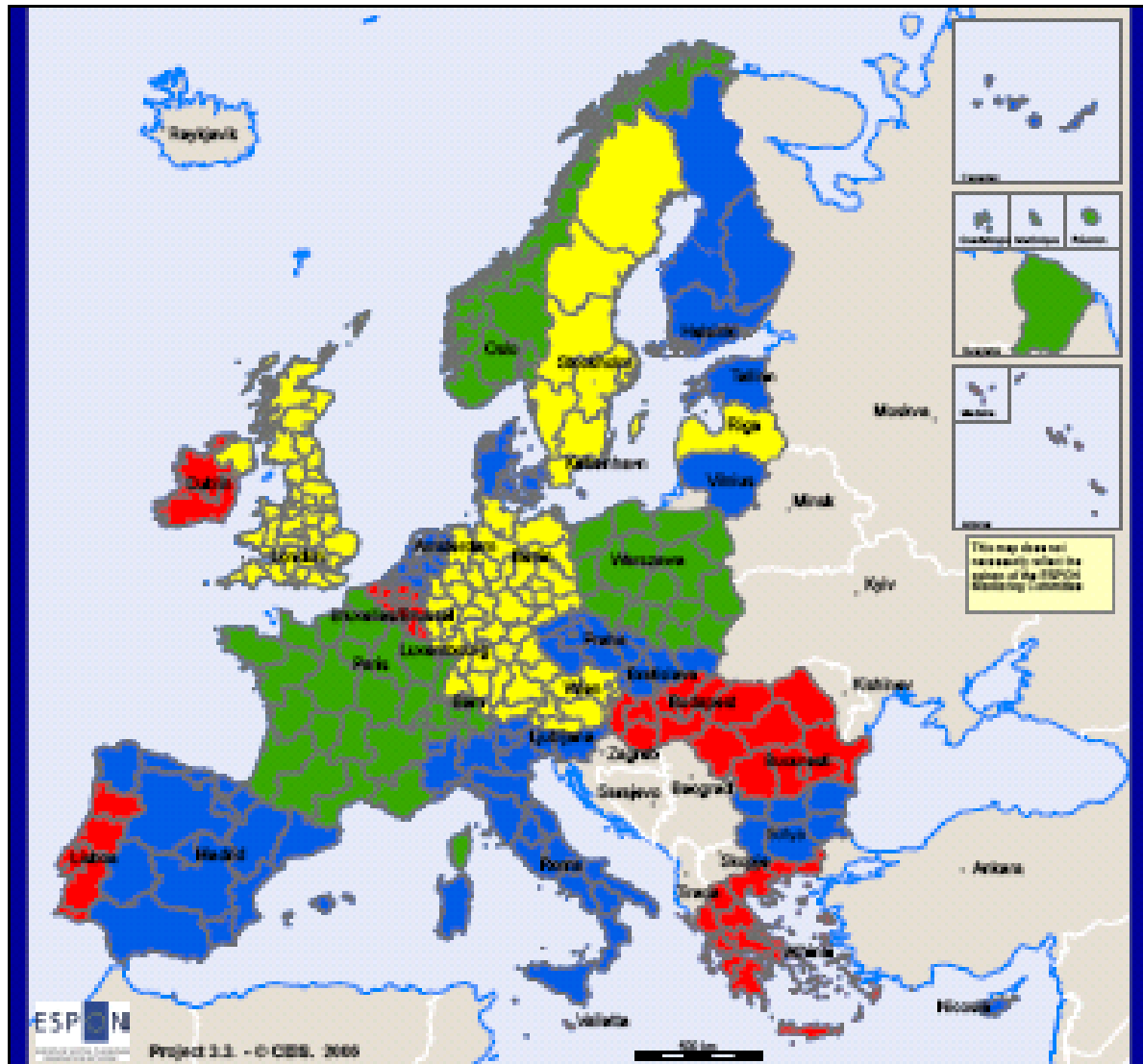


Figure 68: Level of citizen confidence (CEIS, 2005)



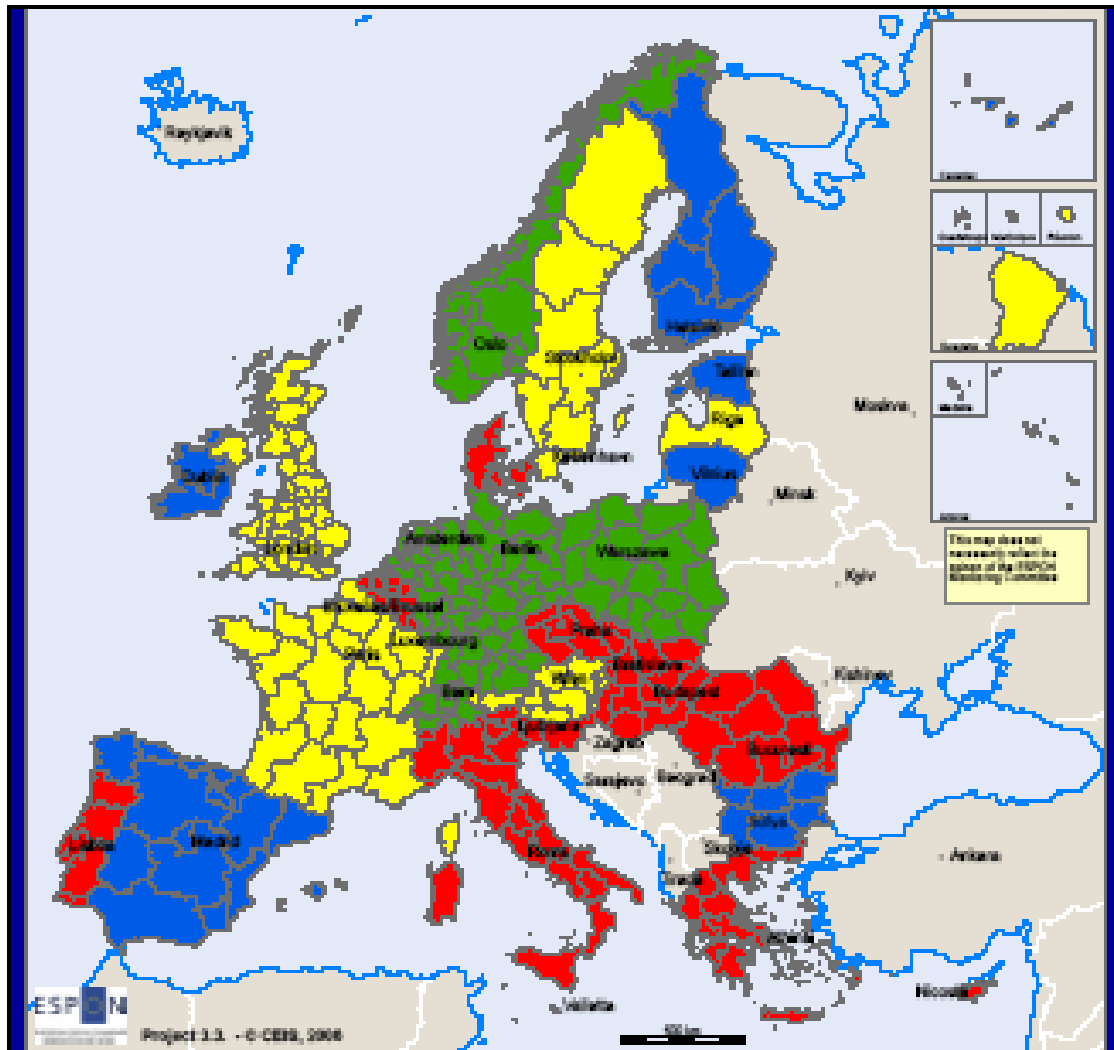
Values obtained combining citizen confidence in EU commission + confidence in european council of ministers and citizen confidence in european parliament

	High	>55,7
	Medium high	45,4 - 55,7
	Medium low	44,0 - 45,4
	Low	<44,0

All geographic coordinates for the geographic coordinates in regional reference: WGS 84, 2000  
Scale of map: 1:200,000

Figure 69: Confidence in European Council of Ministers (CEIS, 2005)

MAP Q 24 - Confidence in European Council of Ministers



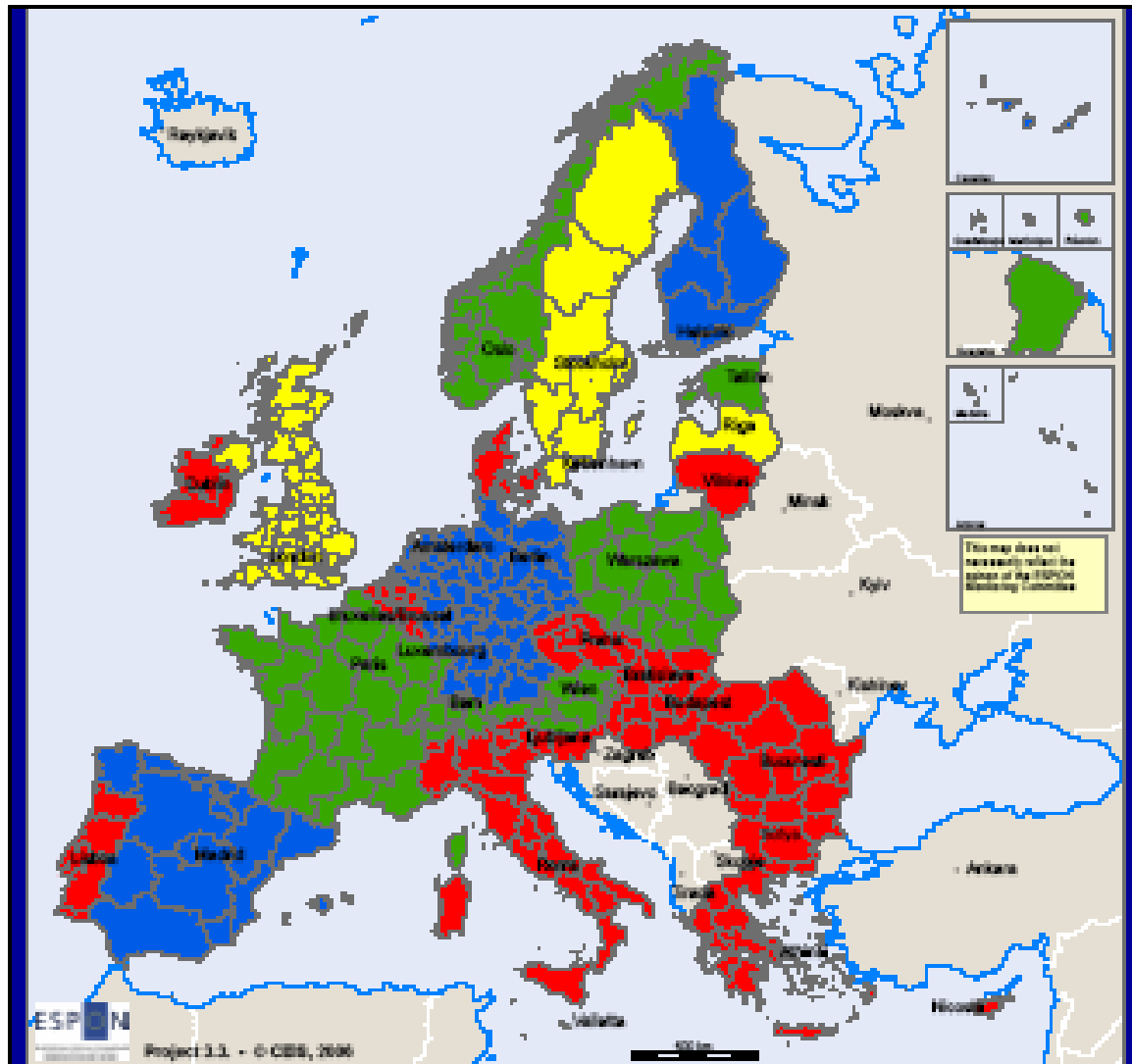
citizen confidence in European Council of Ministers calculated as share of positive opinions (people who declare that they "tend to trust" ) about this institution

Red	High	>50
Blue	Medium high	40 - 50
Green	Medium low	39 - 40
Yellow	Low	<39

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© Geographisches Anstalt des Österreichischen Regionalrätes (GIS 3.3-2005)

Figure 70: Confidence in European Parliament (CEIS, 2005)

MAP Q 25 - Citizen confidence in European Parliament

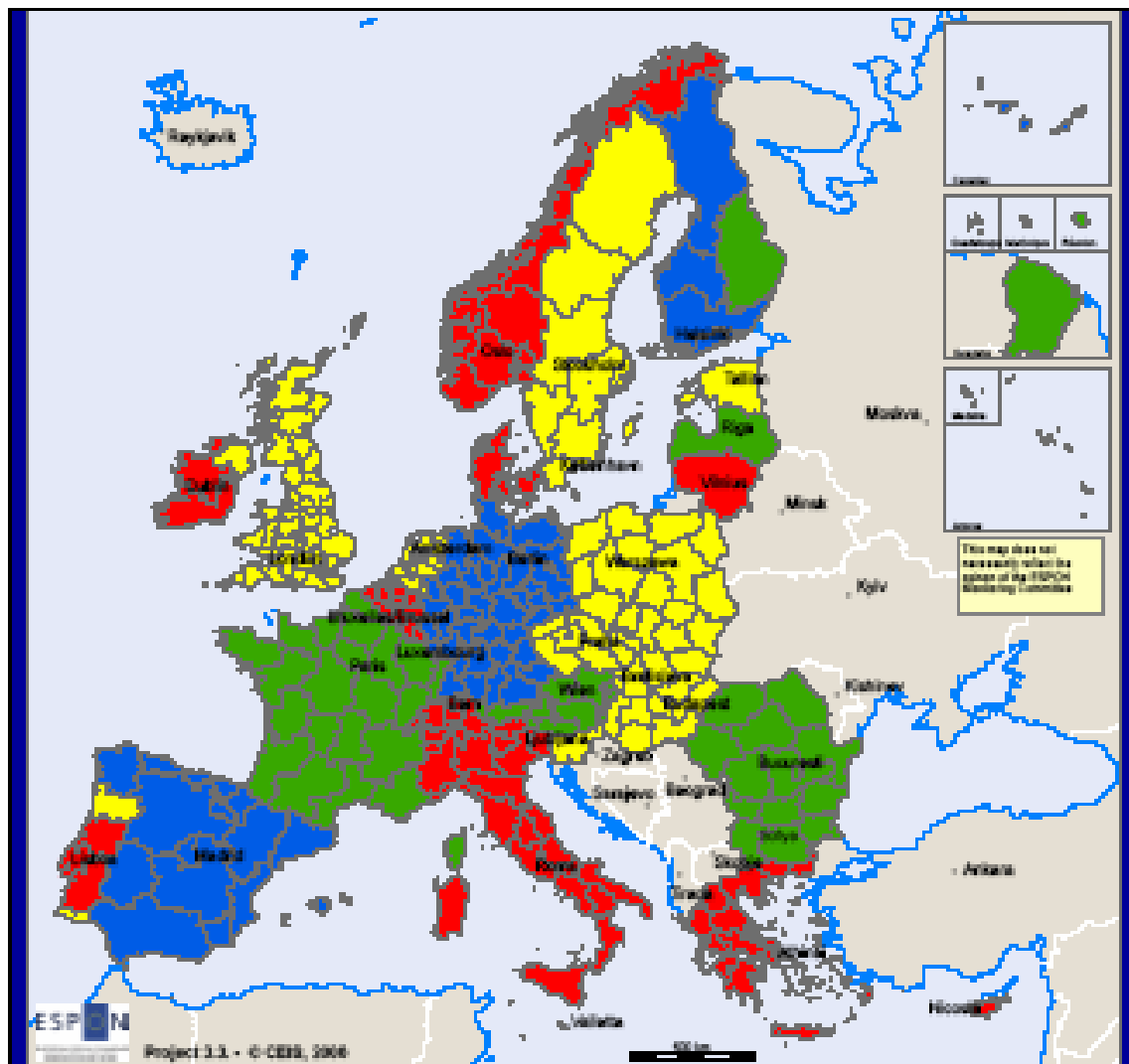


citizen confidence in European Parliament calculated as share of positive opinions (people who declare that they "tend to trust" ) about this institution

<span style="color: red;">■</span>	High	>54
<span style="color: blue;">■</span>	Medium high	51 - 54
<span style="color: green;">■</span>	Medium low	48 - 51
<span style="color: yellow;">■</span>	Low	<48

Figure 71: National public participation (CEIS, 2005)

MAP Q 27 - National public participation



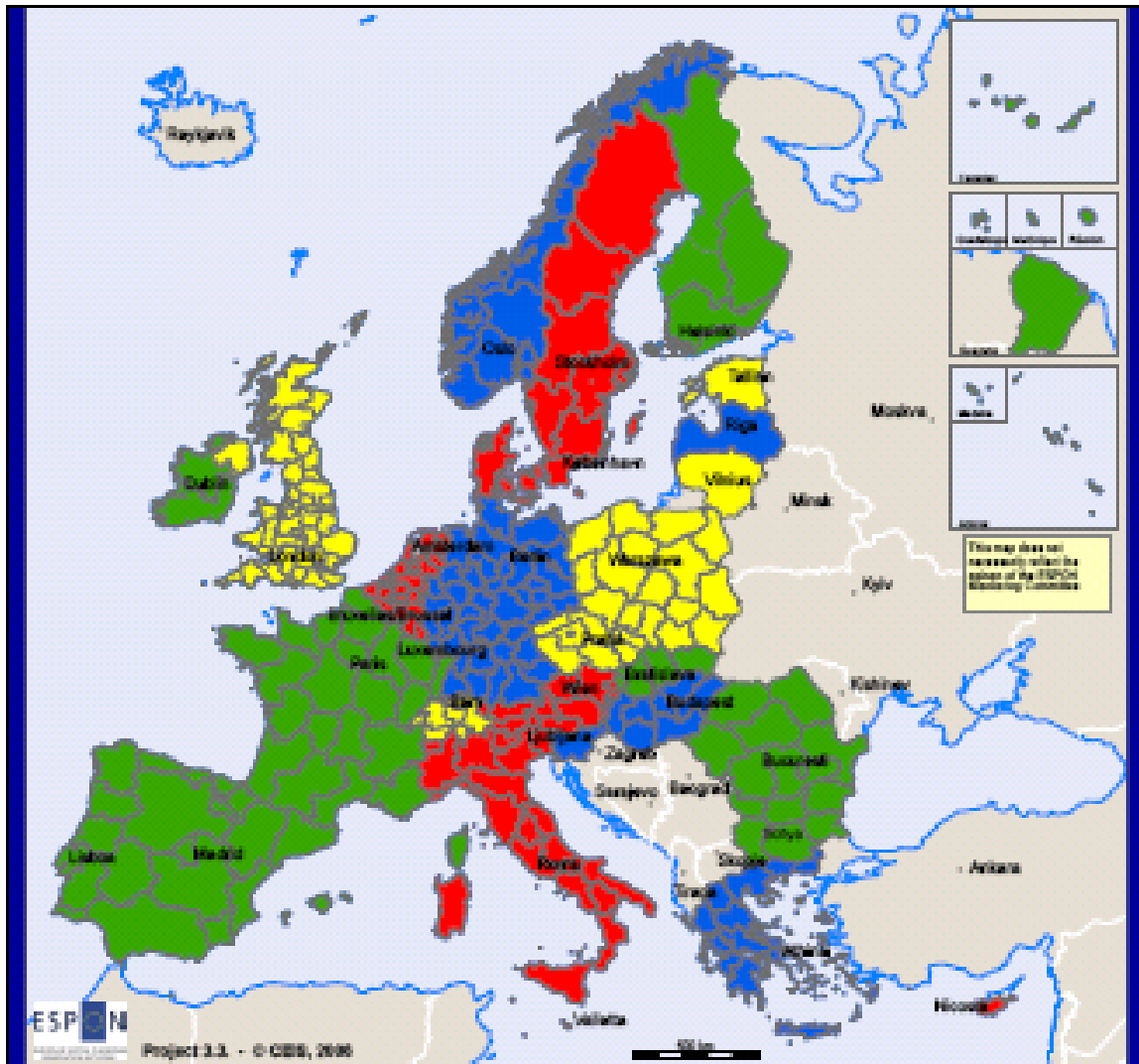
national public participation in the political elections calculated as voter turnout in national parliamentary elections:

High	>45,10
Medium high	43,00 - 45,10
Medium low	39,30 - 43,00
Low	<39,30

© The geographic coordinates for the geographic locations displayed reference to ETRS 2000.  
 Origin of map: Eurostat/Geographical Institute for Democracy and Political Institutions, 2001 - 2006

Figure 72 : European public participation (CEIS, 2005)

MAP Q 28 - European public participation



European public participation in the European elections calculated as voter turnout in European parliamentary elections; geographical detail is limited to the national level

High	>79,10
Medium high	70,10 - 79,10
Medium low	60,30 - 70,10
Low	<60,30

ESPON geographic data is derived from the geographic coordinates (longitude and latitude) of each ESPON monitoring location for the monitoring establishment (see Annex 2004)

Figure 73: Public participation (CEIS, 2005)

MAP Q 29 - Public participation



Values obtained combining national public participation and european public participation

High	>62,05
Medium high	54,55 - 62,05
Medium low	49,35 - 54,55
Low	<49,35

© The geographic Association for the geographic Institute  
Regional information (RGI) 2004  
Origin of data: CEIS, 2005



### *Quality and social cohesion*

Since the 1990's, most of the European governments began a reformation process that, inside a general revision of the social protection system, involved the sector of welfare expense. In consideration of the new challenges posed by the slowing economies, the sharpening of unemployment and 'in-occupation' phenomena, the mutations in the family structure and the growing ageing of the population, the traditional welfare structures appear unsuitable to confront the new conditions of need.

In this context, the policies opposing poverty and social exclusion, in pursuing the goal of social cohesion, must find immediate implementation (2010), according to the criteria in the *Social Policy Agenda*<sup>23</sup>, an instrument addressed to the achievement of a model of European social state to which the member states have to focus their expenses on. In particular, it is recommended to support the policies actively contrasting the ageing population effects, which include measures towards the reduction of risks of exclusion for the older sections of the population due to technological progress and the barriers set by the knowledge society, thus including in this sector two other foundations of the Lisbon strategy: education and the reduction of sexual disparity in labour conditions.

All the indicators involved (such as social exclusion and poverty risk) are combined in a synthetic index that shows the level of Quality of Social Cohesion (Map Q 42). This map shows a medium-low level in the area, shaped like an "upturned U", that goes from Italy to Greece, passing through Germany and part of the new countries; a good performance is present only in part of France and in the Scandinavian Countries.

The observation of the data shows that the level of the *Early school leavers* (Map Q 31) is high in the Mediterranean areas (Spain, Italy, the seaside France regions, Greece), in Portugal and in the south-east of Europe (Bulgaria and Romania). The values recorded in the north-east of France, Latvia and Lithuania are also alarming. A similar dynamic is noticed for the "Inequity of regional income distribution" (Map Q 32), so that the level of Economic Elements for Social Cohesion (Map Q 33) shows how a structural action should be performed in the Mediterranean areas (Spain, Italy, the seaside France regions, Greece) in Portugal and in the all new countries (except for Poland, Slovakia and Czech Republic).

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<sup>23</sup> *Social Policy Agenda 2000-2005*, Commission of the European Communities, Brussels, 28.6.2000, COM(2000) 379 final; *Intermediate Revision of the agenda for the social policy*, Bruxelles, 2.6.2003, COM(2003) 312 definitive; *Social Policy Agenda 2006-2010*, Brussels, 9.2.2005, COM(2005) 33 final).

Figure 74: Early school leavers (IGS, 2004)

MAP Q 31 - Early school leavers



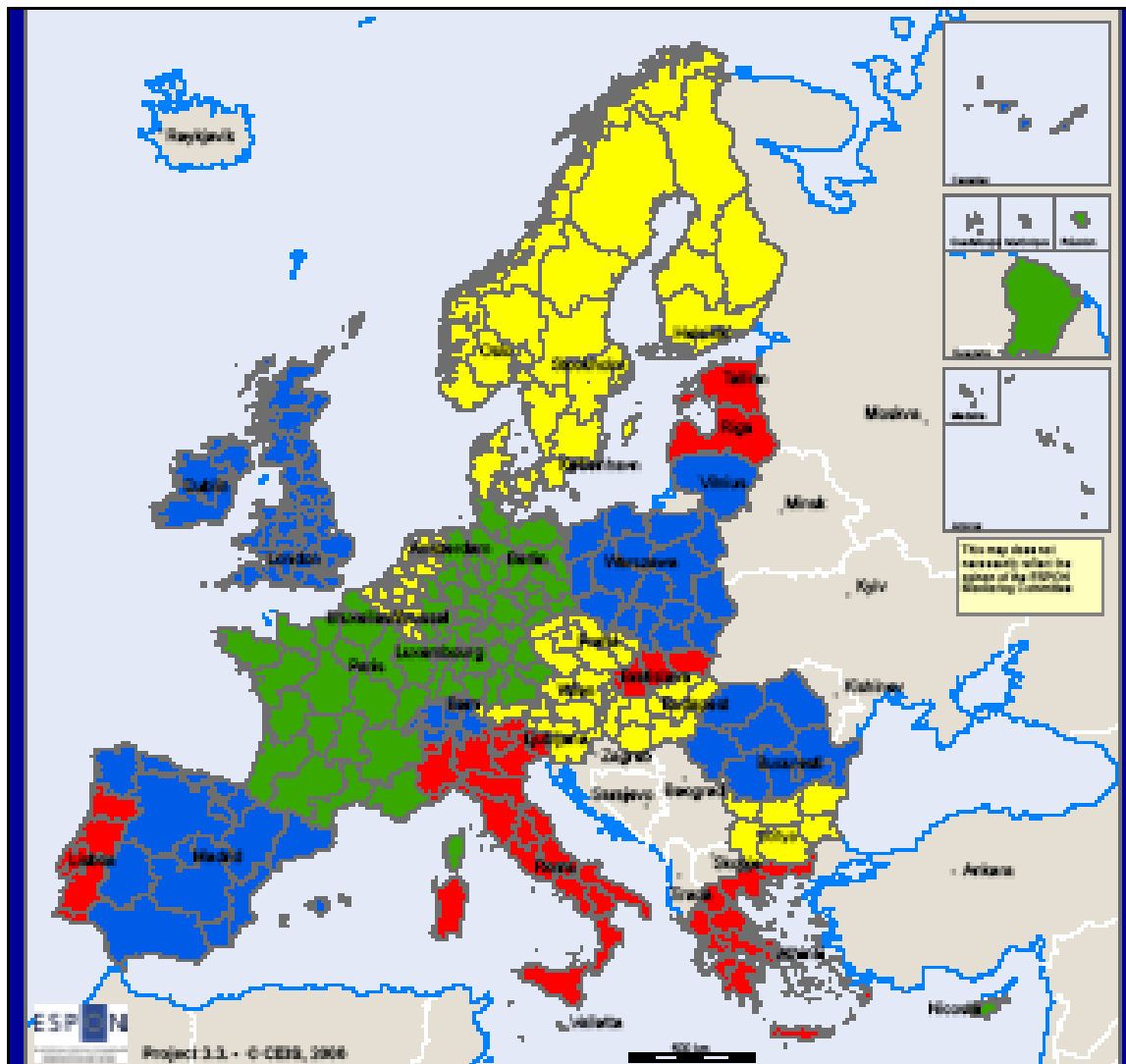
Level of base education calculated as percentage of population aged 18 - 24 with at most lower secondary education and not in further education or training

- High
- Medium high
- Medium low
- Low

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Original data: World Education Report, 2001

**Figure 75:** Inequity of regional income distribution (CEIS, 2006)

**MAP Q 32 - Inequity of regional income distribution**



economic elements for the social cohesion calculated as ratio of total income received by the 20% of the population with the highest income (top quantile) to that received by the 20% of the population with the lowest income (lowest quantile)

<span style="color: red;">■</span> High	≥5,30
<span style="color: blue;">■</span> Medium high	4,50 - 5,30
<span style="color: green;">■</span> Medium low	4,10 - 4,50
<span style="color: yellow;">■</span> Low	<4,10

© European Commission for the geographic coordinates  
Regional outline by ESPON, 2006  
Outline of other countries, 2006

**Figure 76:** Person aged 0-17 who living in households where no-one works (CEIS, 2006)

MAP Q 34 - Person aged 0-17 who living in households where no - one works



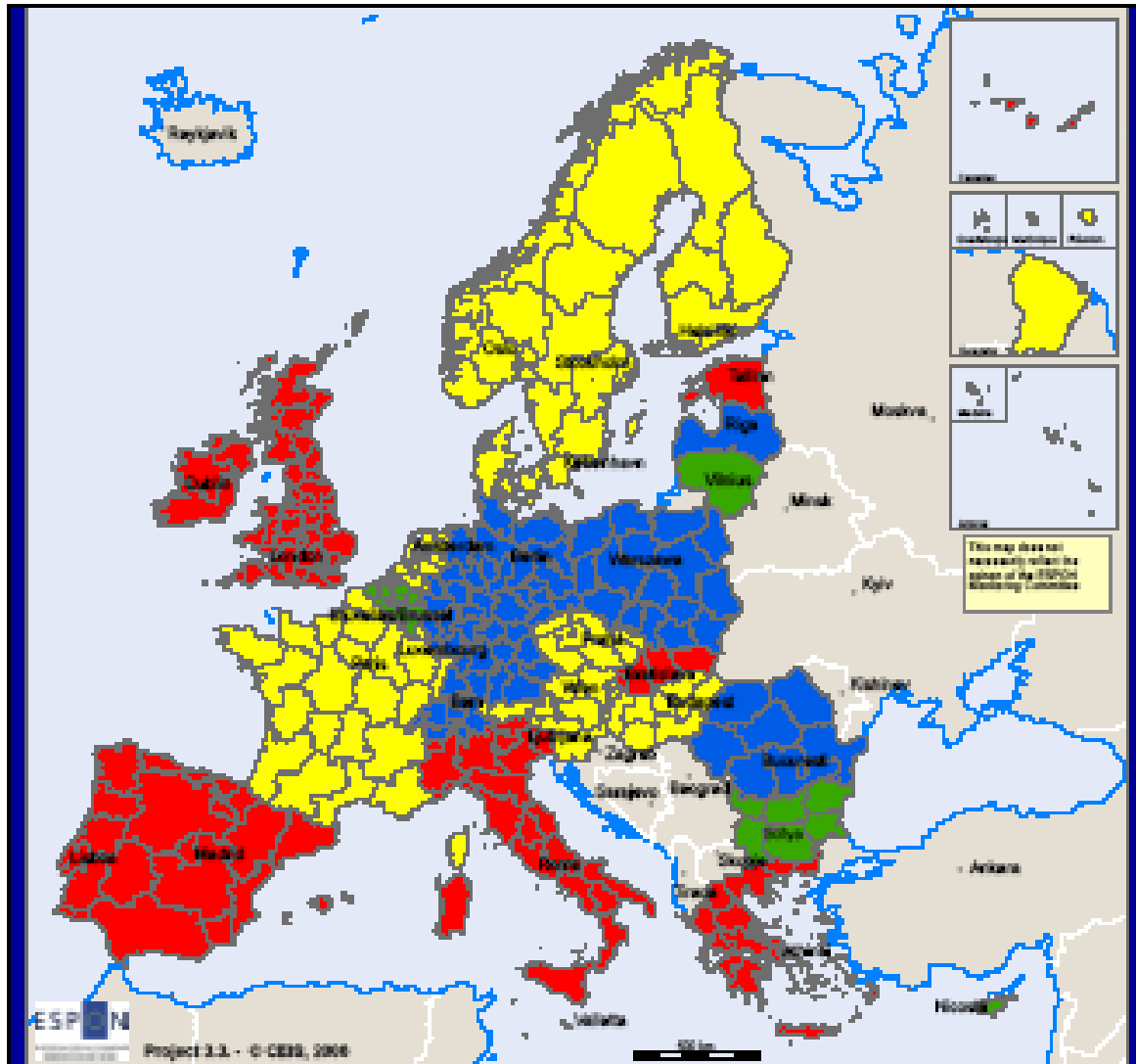
risk of children exclusion calculated as geographical detail is limited to the national level

<span style="color: red;">■</span>	High	>11,00
<span style="color: blue;">■</span>	Medium high	9,60 - 11,00
<span style="color: green;">■</span>	Medium low	6,20 - 9,60
<span style="color: yellow;">■</span>	Low	<6,20

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Map of data (2006), 2006

**Figure 77:** At risk of poverty rate before social transfers (CEIS, 2006)

**MAP Q 35 - At risk of poverty rate before social transfers**



At risk of poverty calculated as the share of persons with an equivalised disposable income, before social transfers, below the risk-of-poverty threshold, which is set at 60% of national median equivalised disposable income (after social transfers)

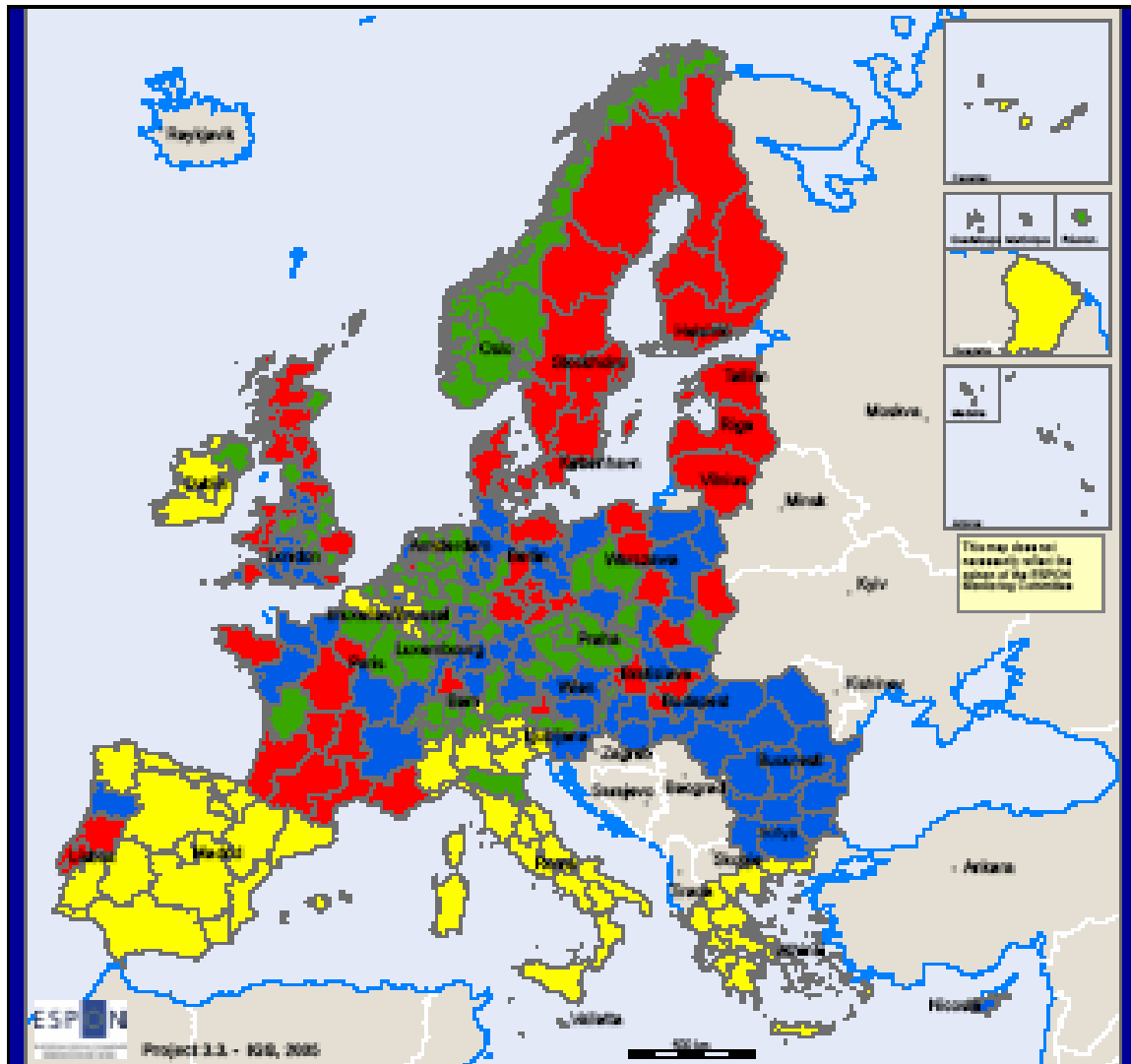
High	>18
Medium high	16 - 18
Medium low	15 - 16
Low	≤15

ESON geographic description for the geographic location in Regional observatory ESPON 3.3  
Original data: Eurostat, 2006

From the analysis on the *Risk of Social Exclusion* (Map Q 36) it is clear that the EU countries have to act against poverty and social exclusion, aiming to reduce disparities in income distribution and the percentage of population at risk of poverty and of premature withdrawal from the studies (clear indicators of social exclusion).

Figure 78: Female employment (IGS, 2005)

MAP Q 37 - Female employment



Female employment calculated as share of employment/total employment

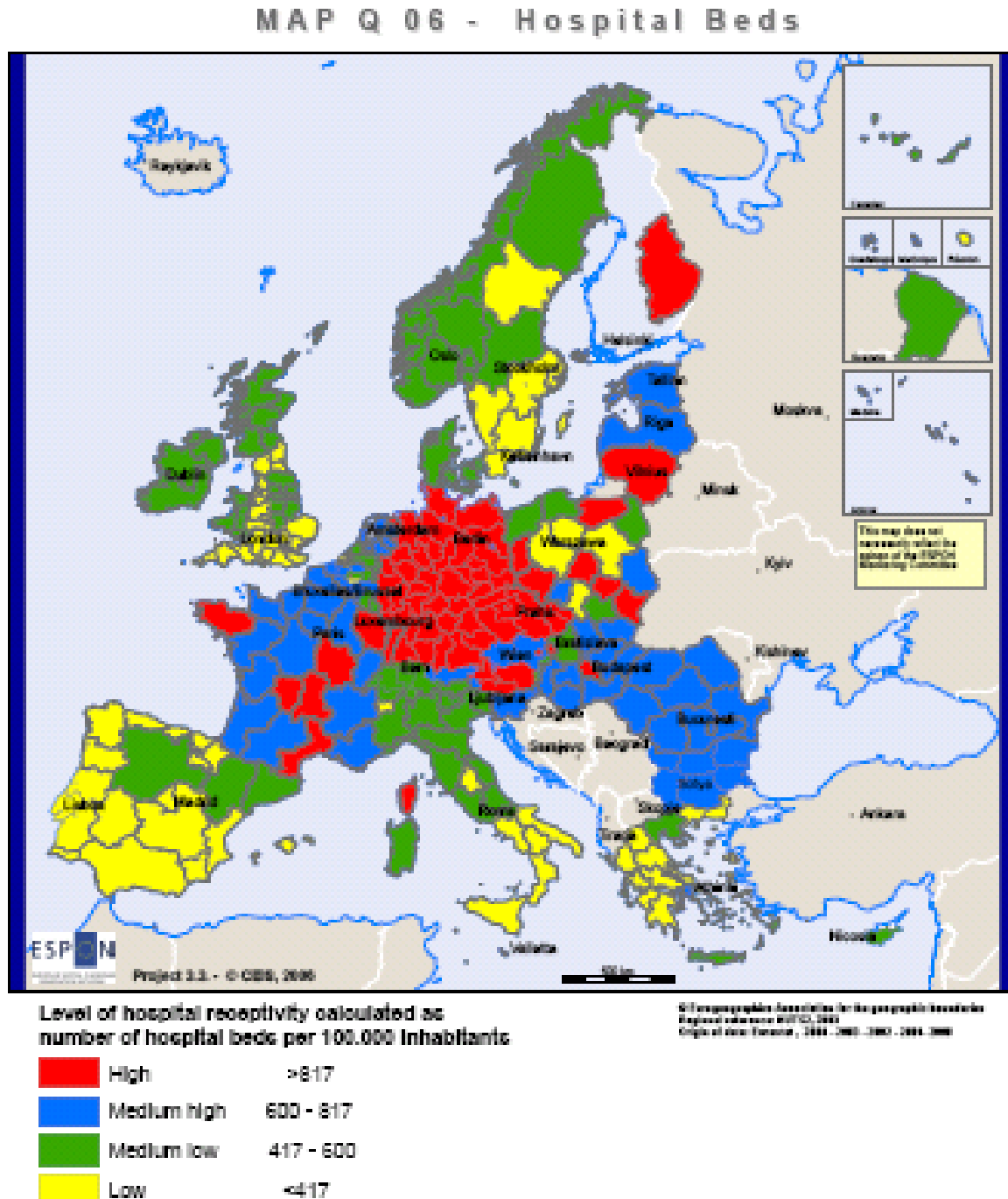
High	>45,49
Medium high	44,33 - 45,49
Medium low	42,77 - 44,33
Low	<42,77

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Regionalreferenzen (2012), 2005  
Copie of data Eurostat, 2005

Looking at the aspects linked to equal opportunities and wellness, that are an indicator of *Social Wellness attitude* (Map Q 41), they reveal a sort of uniform medium-low attitude with little exceptions (medium-high levels are present in Germany, Austria, Switzerland and Poland). In to the analysis of the single indicators it is possible to observe that the level of *Female Employment* (Map Q 37) is high, or basically high, in all the European countries (both old and new), except for Spain, Italy, Greece and Ireland. It is interesting to note that the *fertility rate* (Map Q 38) is high in the Scandinavian countries, France, Great Britain and Ireland, whereas the *life expectancy* (Map Q 39) is high in the Mediterranean countries.

The observation of the data shows imbalances between old and new regions, for instance, in the evaluation of medical care through the number of hospital beds per inhabitant (quite low in Portugal, Spain, Italy, Greece, Great Britain, Ireland and the Scandinavian Peninsula) (Fig. 79).

**Figure 79:** Hospital beds (CEIS, 2006)



On the contrary, looking at the aspects linked to playing-recreational wellness (Fig. 80), the receptive capability of these same regions (number of hotel beds) (Fig. 80) is very high, revealing a sort of inverse correlation between investments and expense for life quality services and for cultural and recreational services, the latter being considered more productive for the growth of human capital and of the regional formative level. Some regions, well known for their tourist-recreational appeal, keep their attractive local capabilities<sup>24</sup>.

A reverse of the trend would have a positive influence on social cohesion, so that we suggest an evaluation of dependency from several indicators: from an imbalanced income distribution, from a “spot” distribution of the resources for social integration, from a high risk of juvenile exclusion (especially high in Great Britain, Belgium, Slovak Republic, Bulgaria and Romania) and from the high and rising poverty risk (particularly in Ireland, Great Britain, Portugal, Spain, Italy, Greece, Slovak Republic and Estonia).

---

<sup>24</sup> South-West, Derbyshire, Shropshire, Berkshire and Essex in Great Britain; Nord Pas de Calais, Lorraine and Picardie in France; Hainaut in Belgium; Friesland, Overijssel and North Holland in Netherlands.



Figure 80: Cultural opportunities (CEIS, 2006)

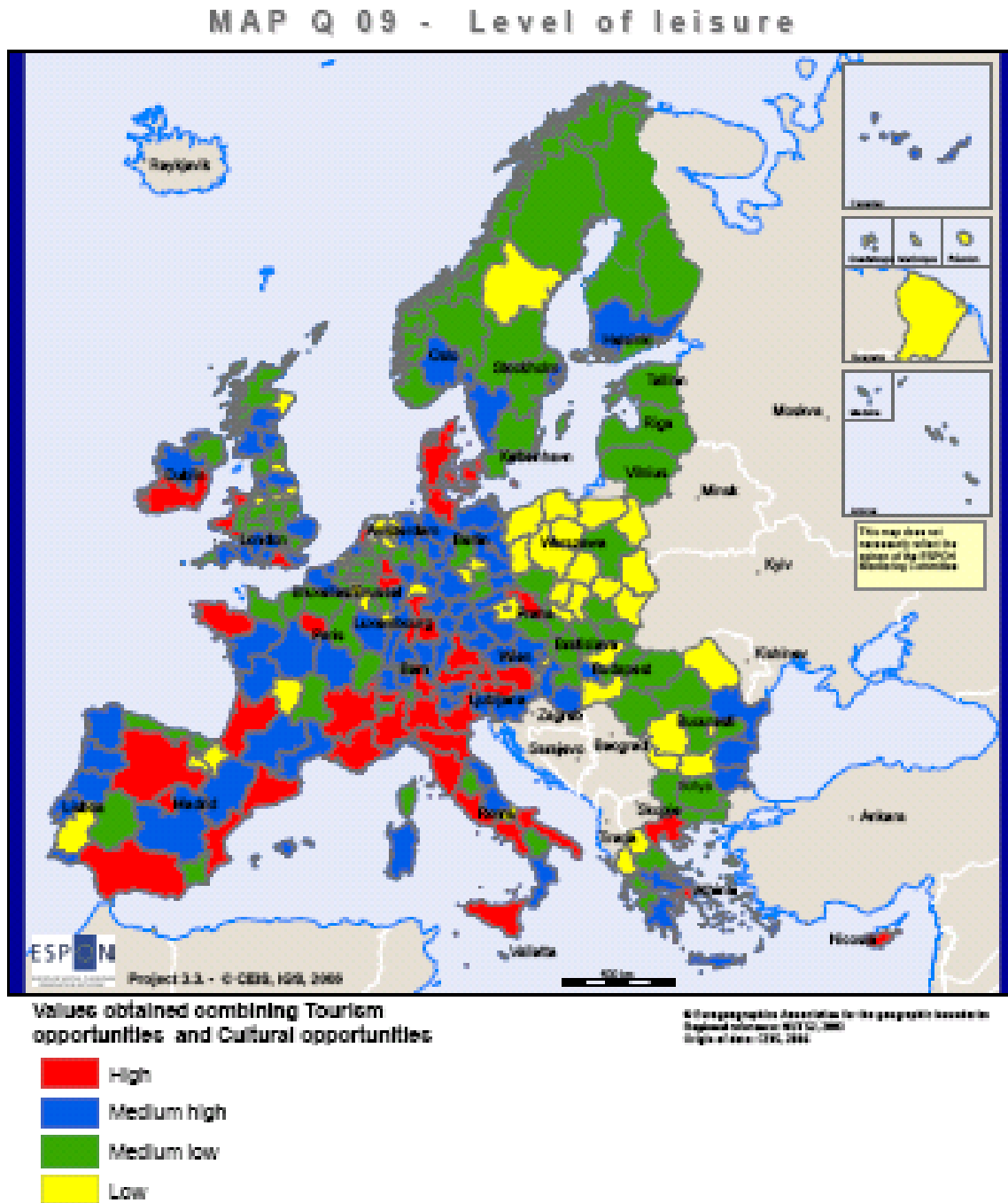
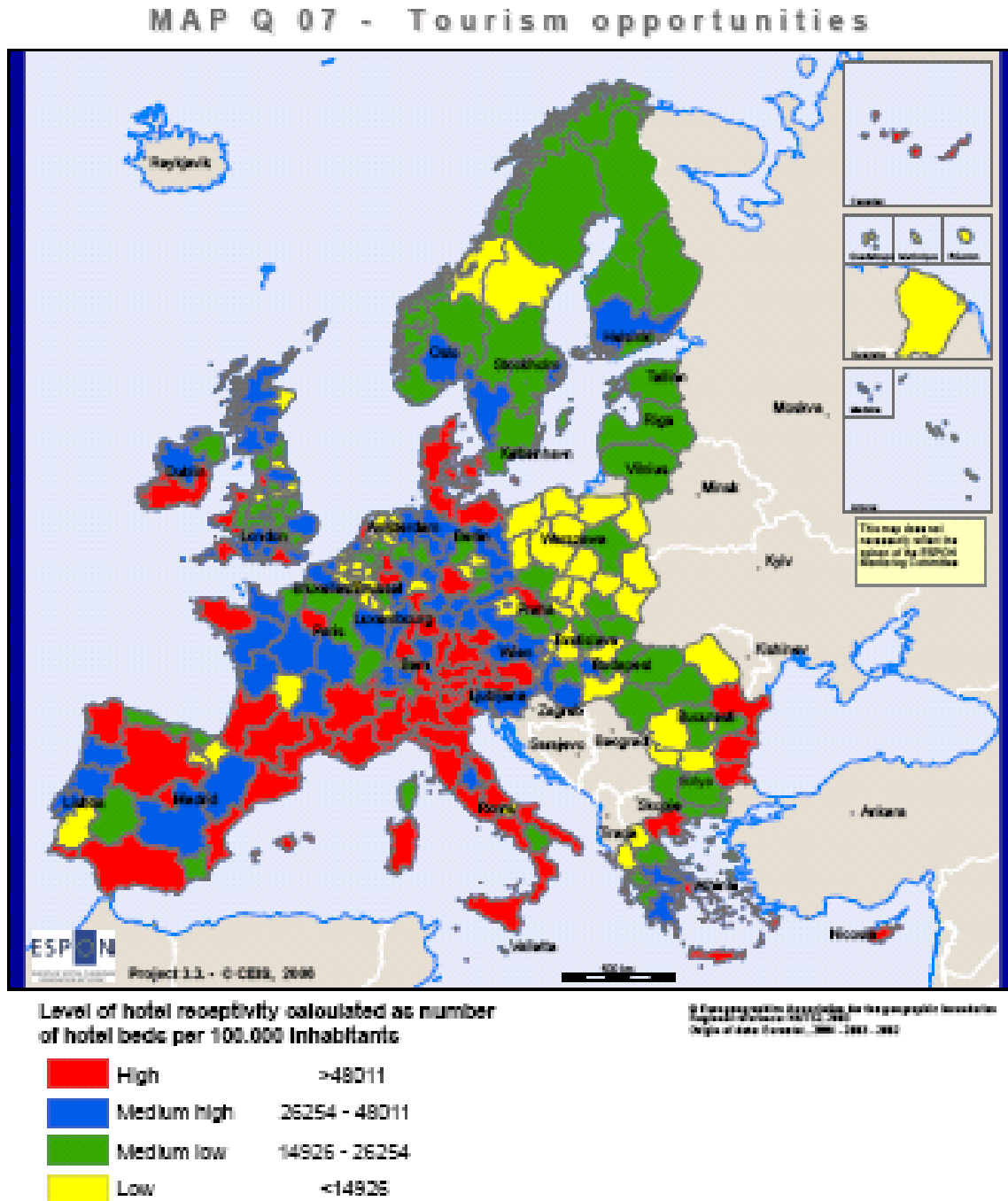


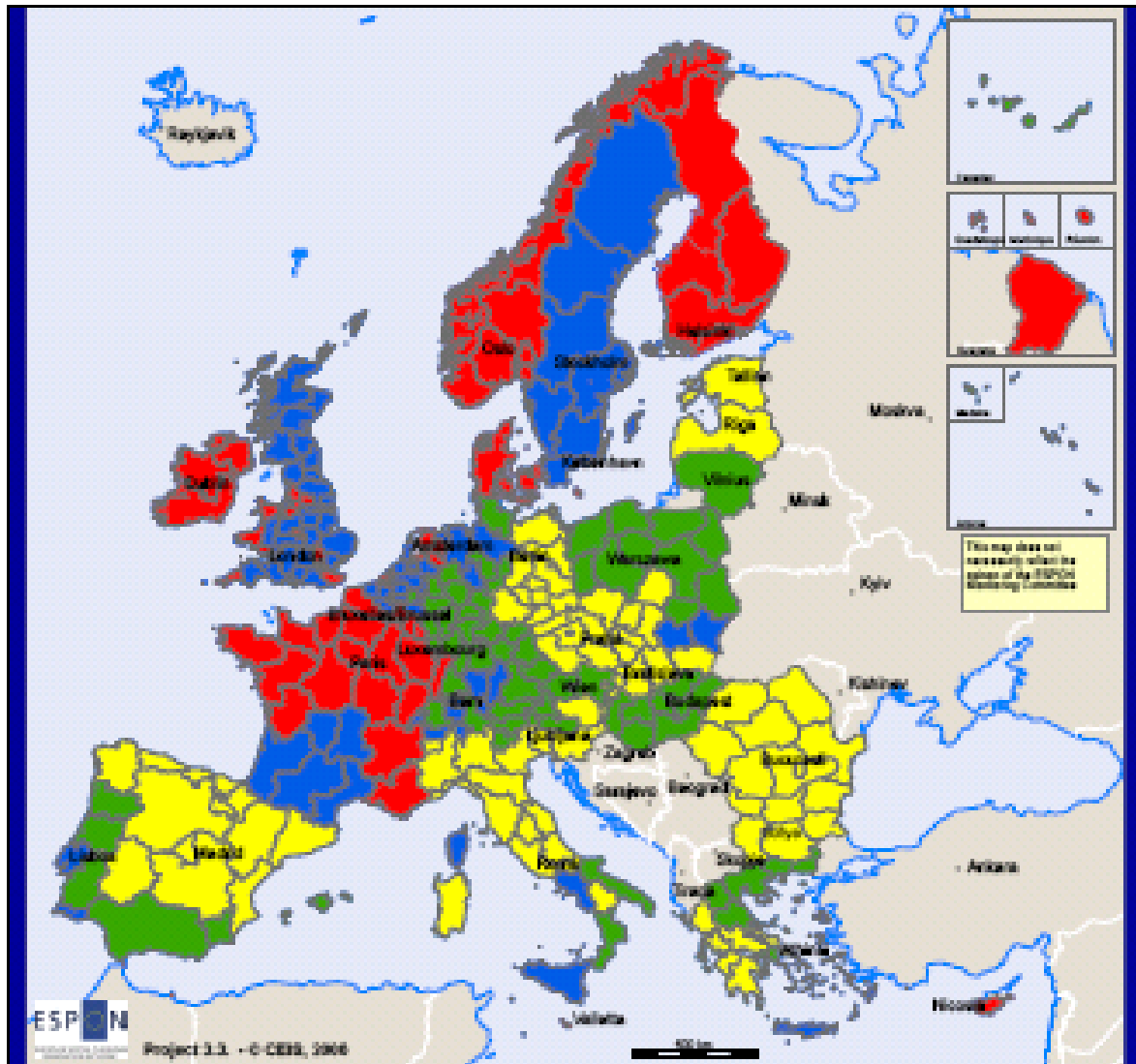
Figure 81: Hotel beds (CEIS, 2006)



In some countries, including Ireland, Italy and Greece, we advise the lowering of the limit for the female population in accessing the labour market (missed implementation of the policies for gender equality), involving as well, with common rules, regions in Belgium, France, the Netherlands and Switzerland, where the project also measured a low fertility rate (Fig. 82) similar to the Eastern countries, and a similarly low general level of social welfare. The general trend of social quality and cohesion can exclude during this consolidation stage Sweden, Finland, Slovenia and the regions in the Norway-Hungary axis, but not those on the Mediterranean.

Figure 82: Fertility rate (CEIS, 2006)

MAP Q 38 - Fertility rate



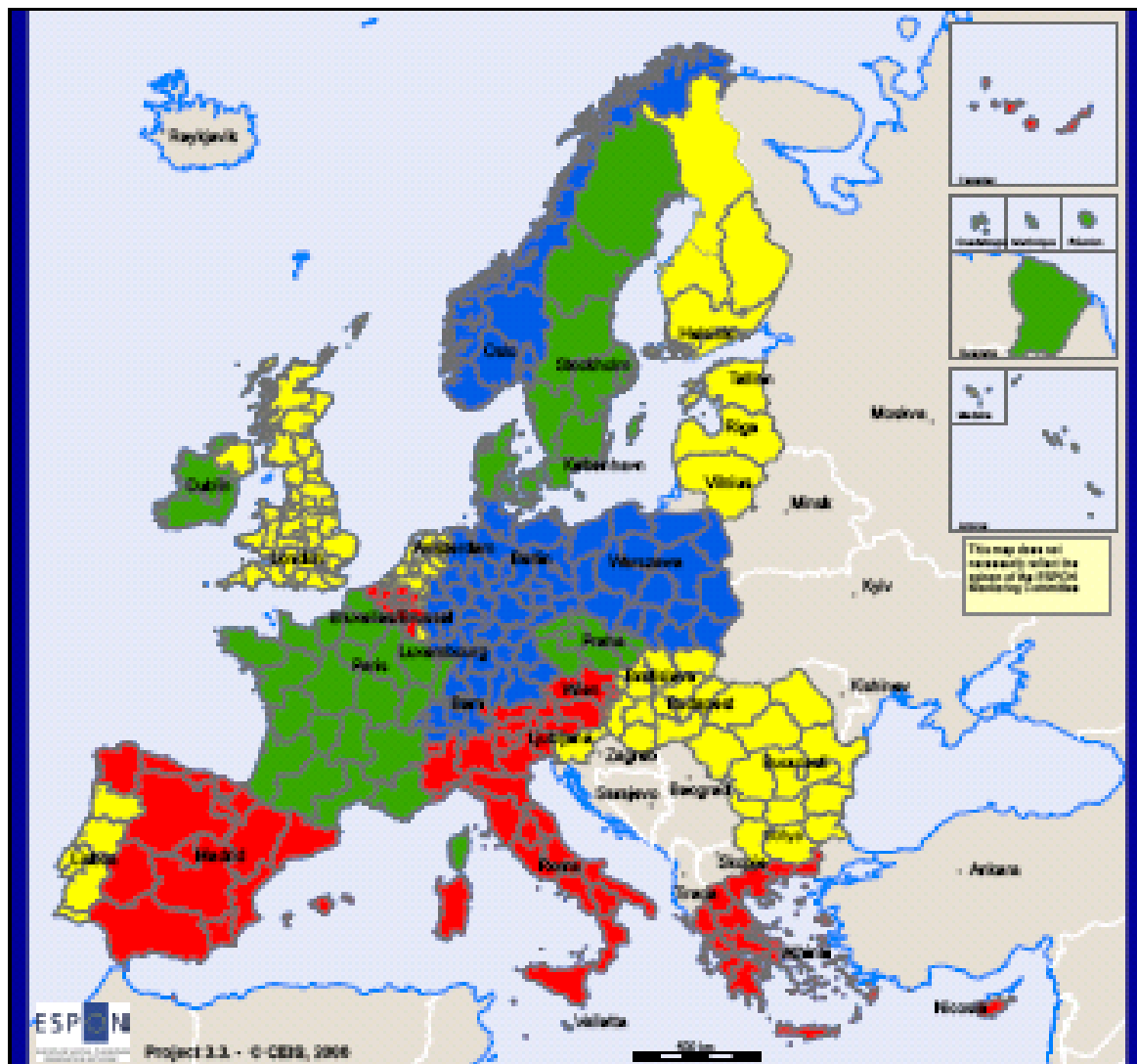
number of children born alive to a woman calculated as the mean number children that would be born alive to alive woman during her lifetime if she were to pass through her childbearing years conforming to the fertility rates by age of a given year

<span style="color: red;">■</span>	High	>1,70
<span style="color: blue;">■</span>	Medium high	1,46 - 1,70
<span style="color: green;">■</span>	Medium low	1,27 - 1,46
<span style="color: yellow;">■</span>	Low	<1,27

© Demographic Statistics for the geographic Institute  
English reference: HIES, 2001  
Copia of data: Eurostat, 2006

Figure 83: Healthy life years (IGS, 2005)

MAP Q 39 - HealthyLife years



life expected calculator ascNumber of year that a person at birth is still expected to live in a healthy condition

High	>65,70
Medium high	64,40 - 65,70
Medium low	61,20 - 64,40
Low	<61,20

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Regional indicator ESPON 3.3  
Map of Europe, 2005 - 2006

In general the search for a better *quality* has to be considered a priority in the trans-national co-operation projects for Switzerland and Great Britain, as for Poland and Czech and Slovak Republics; whereas Italy, Ireland and Greece should commit on the themes of life quality (Fig. 83) and the environment. All the countries, anyway, should employ part of their own resources on the composite theme of quality to accomplish the Gothenburg strategy, starting from the regions of central-southern Italy and France.

For the attainment of a good level of Quality into the integrated objectives of Lisbon and Gothenburg, a greater and general attention to a wider vision is recommended in support of the thematic aims, represented by the categories characterized in this determinant. Therefore an implementation of these themes would generate positive effects in terms of:

- Productivity level increases
- Demand of goods increases
- Employment level increases
- Pricing control
- Public Health improvement
- Leisure opportunities improvement
- Physical Relationships increases
- Virtual Relationships increases
- Waste Reduction
- Cleaner production
- Recycling Waste increases
- Natural hazard prevention
- Pollution reduction
- Efficient water use
- CO<sub>2</sub> level decreases
- Better level of transparency and efficiency of bureaucracy
- Bottom-up approach implementation
- Education level improvement
- Improvement of the equipotential level
- Weak social classes protection
- Poverty level decreases
- Female employment increases
- Wellness improvement

### 3.5 Resources and funds

What has been suggested before is the starting point in linking the Lisbon/Gothenburg strategy to the financial availability scheduled for the 2007-2013 Structural Funds. This requires a more focused attention to the models of economic and financial resources management, which are considered, sometimes wrongly, among the causes of hindrance for the social and economic development of the European regions, especially for those historically underdeveloped (as Italy's Mezzogiorno). The evaluation of economic resources scarcity is nevertheless the subject that also catalysed attention from realities considered historically strong (as the Pentagon), attracting the policy makers attention towards an optimal and effective allocation of resources.

For instance the III Report on social and economic cohesion linked the issue of the post-enlargement Union's population growth to a considerable increase in goods and services consumption, to GDP decrease, to a strict connection between resources consumption and pollution, detecting in the lack of adequate funding (at the time it has to be excluded an adequate participation from the enlargement countries) an impediment to maintaining the current level of not-renewable resources and to develop technologies available for exploitation, on a large scale and cost effective, of clean and renewable sources.

Notwithstanding the many calls to think about the possibility of a change in the politico-economic European paradigm – from growth to sustainable development – most of the Union countries faced the issue of resources and funds in a traditional way, writing their balance sheets just in light of an efficient and effective use of those. That is why in the last year the Union has been pushing towards a greater control (evaluation processes) on the use of financial and economic means.

However, the search for a territorial competitiveness based on the Lisbon/Gothenburg parameters and on their strict connection with *Structural Funds programming* highlights how, as in the past, concentrating resources on the underdeveloped countries doesn't mean they will achieve a reduction of their performance gap.

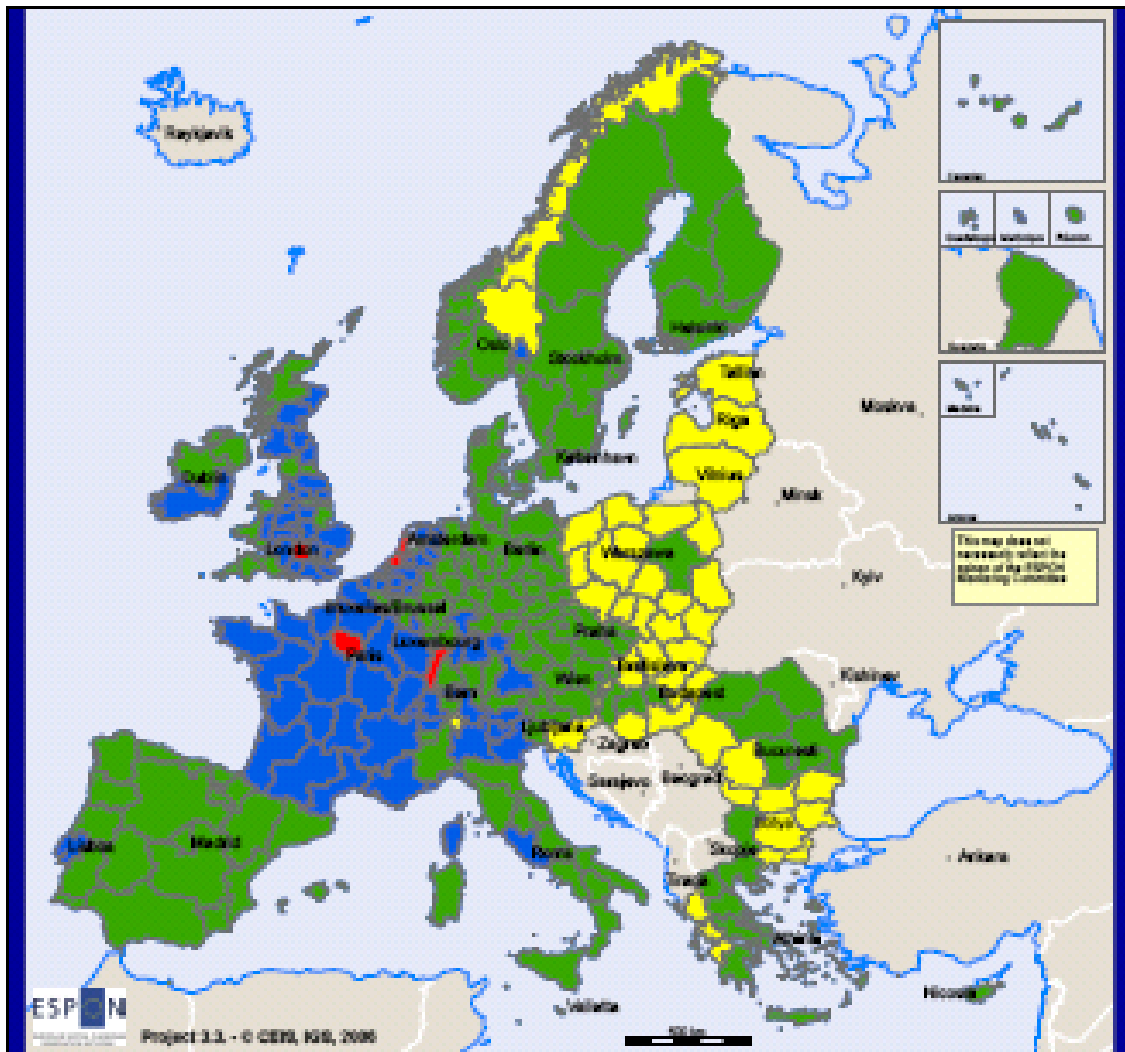
It is possible to present some synthetic notes. The distribution of resources and funds is currently generally uniform (Map RF 18, Fig. 84), at high levels all across Europe with a peak in the economic core (the Pentagon) and an appendix stretching towards the Mediterranean and Italy; very high values are achieved by regions of south-eastern France and of the Tyrrhenian coast of Italy (highlighting a trans-border transversal axis), and of southern Ireland; high measures are collected also in the trans-border zone between the regions of south-west France and north-east Spain. The determinant shows a medium-low trending value in the regions of central Spain (except for the Madrid region), of Greece, and of the remote areas of the Scandinavian countries. It must be noted as, moving from a spatial dimension of the phenomenon to a territorial dimension<sup>25</sup> (Maps RF 19 and 20, Figs 85 and 86), the parallel stripes division on the north-south axis of the European regions is lost, showing a more heterogeneous dynamics, with less noticeable and more irregular differences after the territorialisation of the final values.

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<sup>25</sup> Changing from the spatial dimension to the territorial one in the STeMA methodology is performed through relating the spatial data with the real territorial structure (spatial typologies) of the European regions.

**Figure 84:** Resources and Funds: composite index final values (CEIS, 2006)

**MAP RF 18 - Resources and Funds: Synthetic Spatial Composit Index**

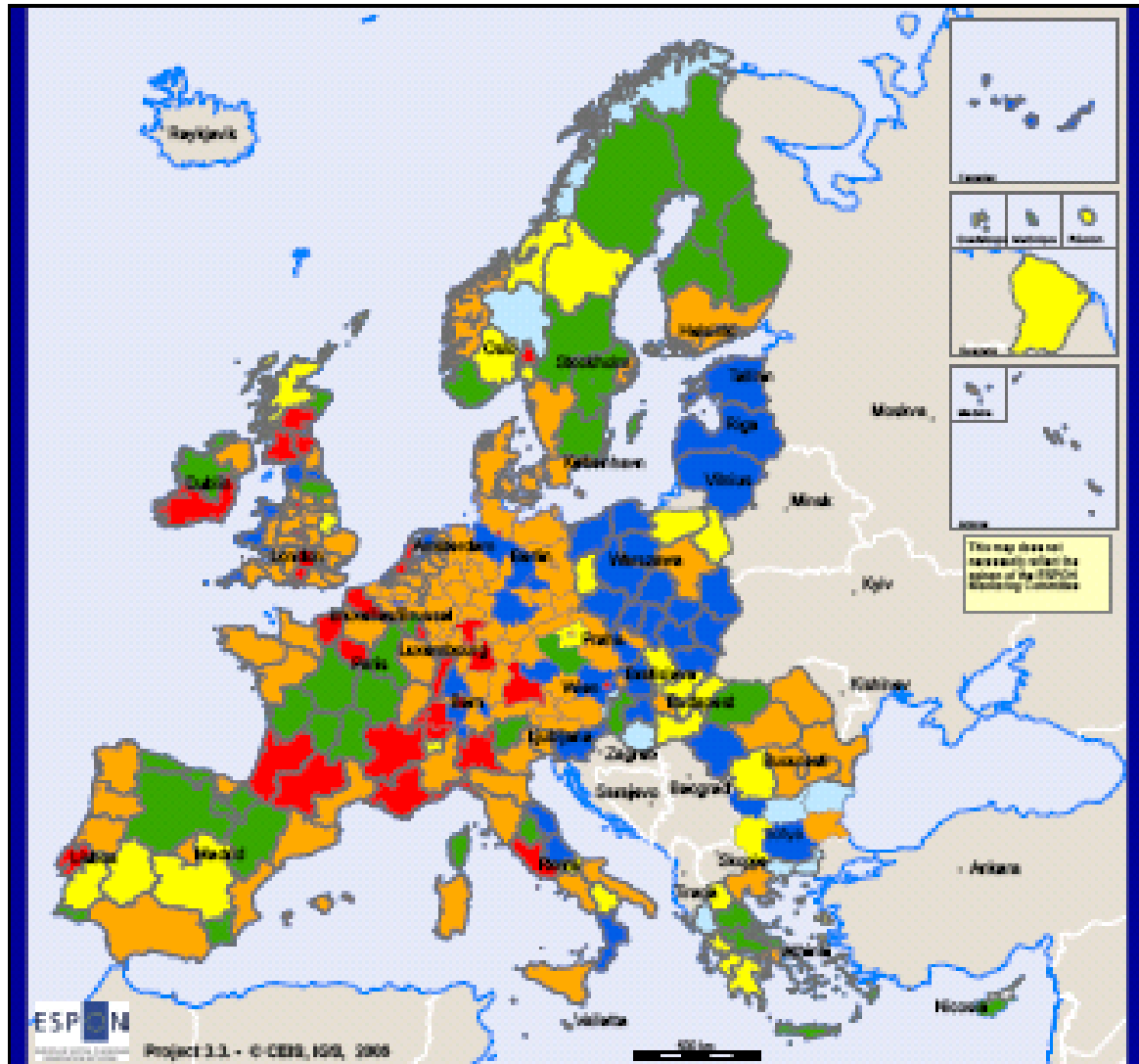


Values obtained combining Use of Funds and Lisbon/Gothenburg Interventions

- High
- Medium high
- Medium low
- Low

**Figure 85:** Territorial R & F: final values at NUTS2 (CEIS, 2006)

**MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2**



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

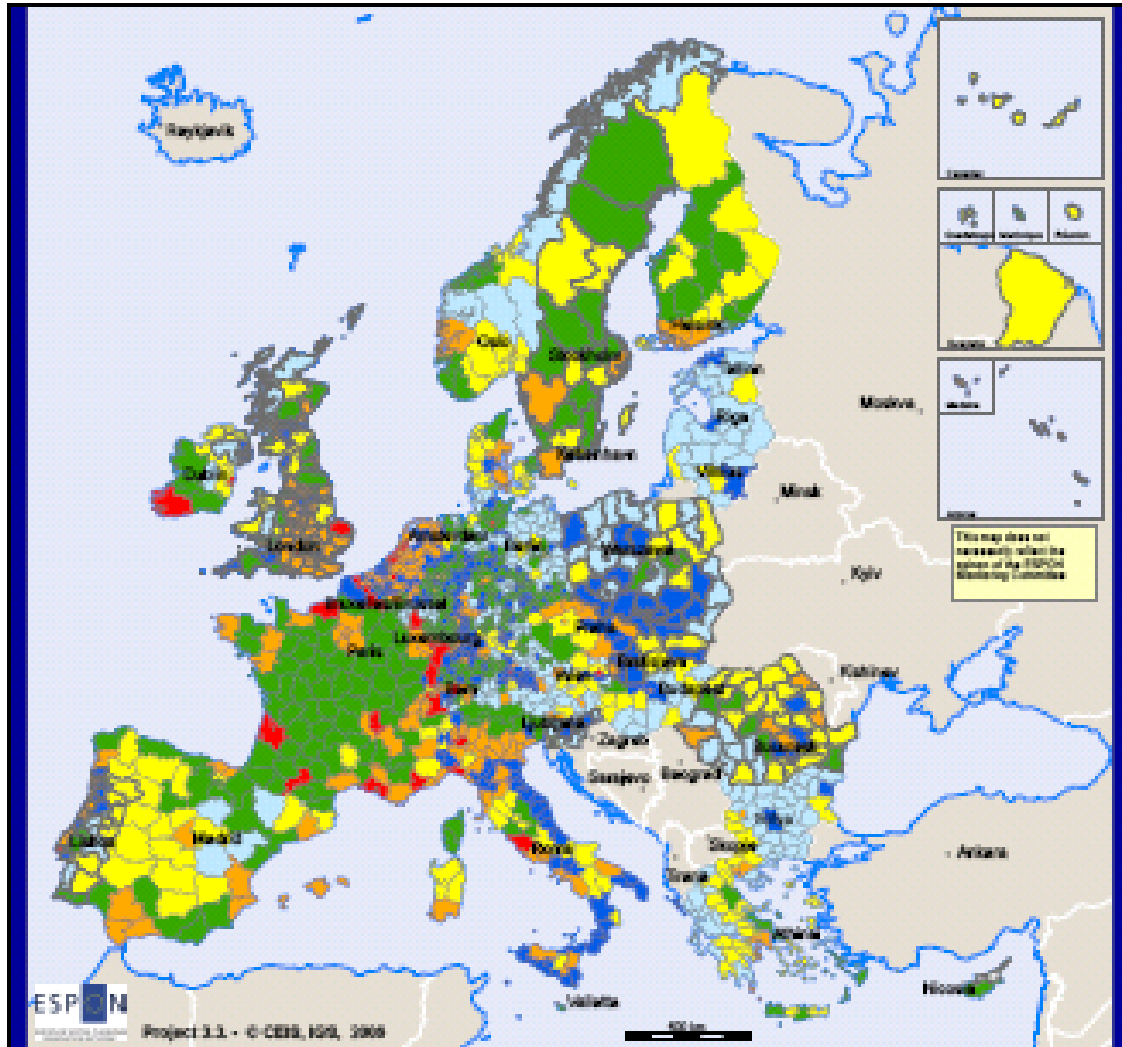
- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

© European Commission, Directorate for the Geographic Knowledge  
System & Information (DGK), 2006  
Origin of data: CEIS, CEIS, 2006



**Figure 86:** Territorial R & F: final values at NUTS3 (CEIS, 2006)

**MAP RF 20 - Resources and Funds Interaction  
Territorial Dimension at NUTS 3**



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT3 - Territorial  
typologies at NUTS3

- ABSOLUTE
- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

All geographical localities for the geographic localities  
Regional reference: NUTS3, 2004  
Scale of map: 1:50,000,000

*The capability of being competitive in sustainability* of a given territory is then proposed by the project as a substitutive measure of the traditional model of the growth towards development.

This capacity is always increasingly based on endogenous factors, where aspects such as connection infrastructures, network services, reception structures, social organization and labour qualification, provide contexts favourable to the satisfaction of citizens' demands and constitute elements which are at the base of the

competitive benefits of a territorial system. The analyses performed in the research show how the local systems, both the weakest and the strongest, are in need of appropriate support policies.

Thus we suggest that the previously listed necessary actions won't be funded on one instrument only, but will be coordinated and integrated into combinations of different incentives (support to enterprises, to human capital education, to occupancy, etc.), in strict relation with the regional policies dealing with interventions of an infrastructural form.

The European Union, aware of how important it is to measure the effective use of resources, will have to evaluate territorial competitiveness also in terms of effectiveness, promoting the consumption of resources within the bounds of renewable-ness and long-term availability, especially in terms of energy.

Since the goal of the ESPON project 3.3 in underlining the dynamics which, in the global competition, bring to the definition of territorial systems "competitive in sustainability", the determinant Resources & Funds performed the task of determining those regions which, earlier than others, are today or could really soon be on the sustainable development path.

The study of the determinant allows a measure of the efficiency level of funds in employment in pursuing the integral objectives of the Lisbon and Gothenburg strategies, keeping in mind the main resources currently available for development:

- An economy based on knowledge and innovation;
- Investments in human capital;
- Social models opposing social exclusion, poverty and ageing;
- Territorial governance models focused on environment preservation and public health as opportunities of sustainable development;
- An economic policy focused on trans-frontier co-operation

Since the economic and financial resources pursuing the integral objectives of Lisbon and Gothenburg can be included in synergic actions (unspecific but integrated interventions), the measurement anyway has been made of the efficiency rate of economic and financial resources utilisation, with such indicators as public deficit, the debt/GDP report, inflation, usually considered as measures of the "good governance" of a country.

These quantities (generally measures of economic/financial stability) disclose an only partial view of the phenomenon. Aiming to achieve a measure of the "good use" of the economic and financial resources devoted to the Lisbon/Gothenburg objectives, the discussion in Europe will have to be directed towards a qualitative/quantitative evaluation of the phenomenon. In this direction we preferred, as it happens at EU level for many years, an examination of the statistics on the use of structural monetary funds in terms of efficiency, developing a study/analysis path for achieving a measuring of the contribution of resources to territorial development.

Here the logical path and the obtained results are outlined:

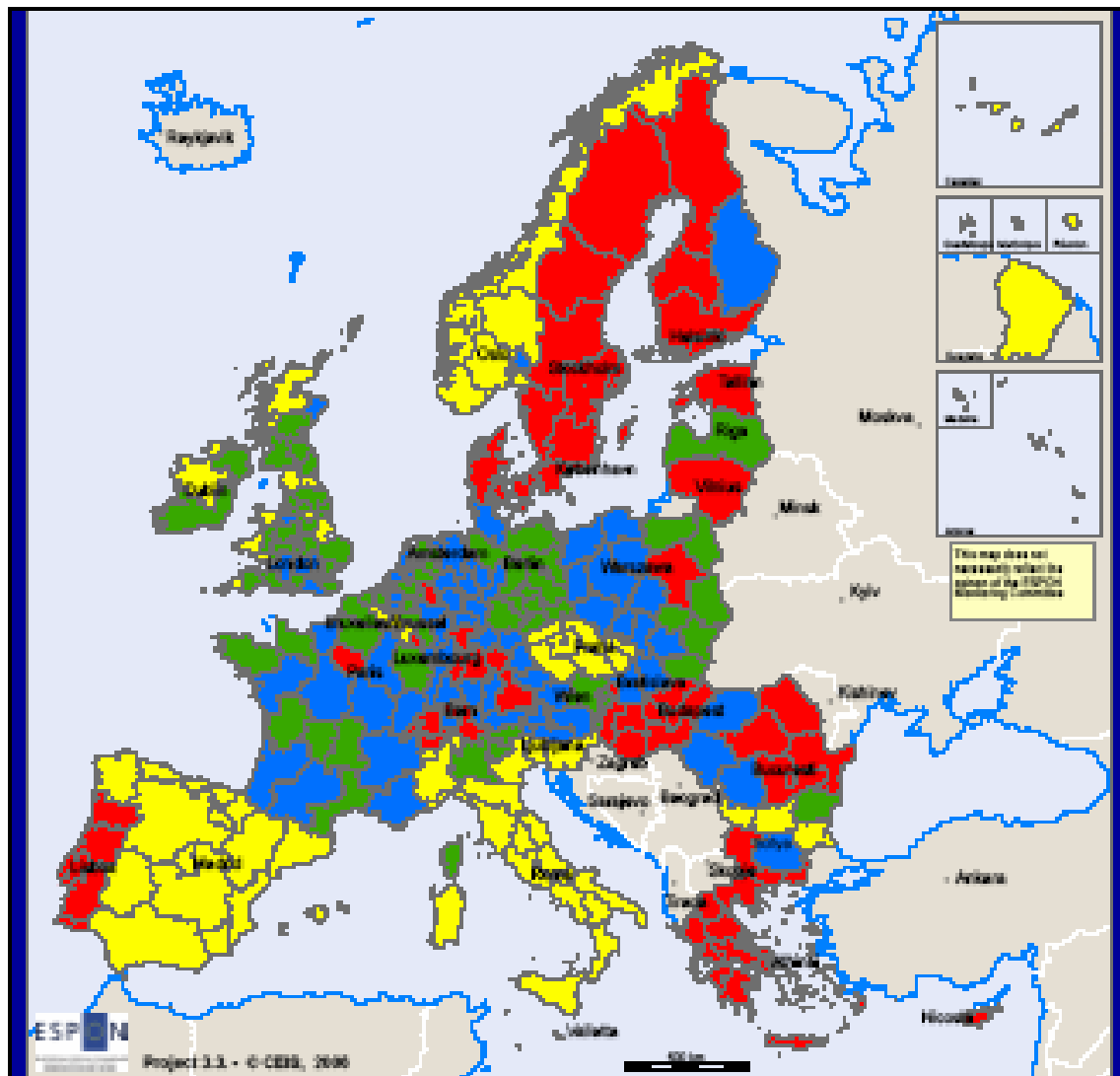
### *Research and Development*

The definition of a composite strategy in terms of research, innovation and development is a priority for the Union to affirm a “culture of science and knowledge” comparable with the global evolution of the American model. The main beneficiaries for the achievement of this objective are the school system, the business system, the central and local institutions called to orchestrate the actions of all the subjects, in order to perform economic development. The chosen indicator is the COFOG of the international statistic system, which counts the R&D expenses of all the mentioned strategic sectors.

The analysis shows how most of the resources aimed at the implementation of the Lisbon strategy are concentrated in the Pentagon (not in England) and in Corridor 5 (Map. RF 01).

Figure 87: R&D expenditure (CEIS, 2006)

MAP RF 01 - R&D expenditure



R&D expenditure in order to apply structural policies for the Lisbon Strategy calculated as (national R&D expenditure/national GDPppp) \* regional GDP (in M€)

High	>622.40
Medium high	455.25 - 622.40
Medium low	340.26 - 455.25
Low	<340.26

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Regional Statistics ESPON 2006, 2007  
Origin of data: Eurostat, ESPON 2006, 2007, 2008

Figure 88: national aids (CEIS, 2006)

MAP RF 02 - National aids



National aids in order to sustain the entrepreneurial policies for Lisbon Strategy calculated as (national aids/national GDPppp)<sup>1</sup> Regional GDP (in M€)

High	> 173,33
Medium high	117,32 - 173,33
Medium low	71,11 - 117,32
Low	< 71,11

<sup>1</sup> For comparison, see article for the geographic localization Regional aid level (2002-2006, 2007-2013)

Origin of data: Eurostat, ESPON 06, 2006 - 2009 - 2009

This dynamics is explained by the high R&D expense level in the great majority of Central Europe; medium-high expense values are measured in the North of Spain, in France (except the area at East of Paris), in most part of the Netherlands, and on the North-South axis from Germany to the Adriatic coast of Slovenia (passing through Czech Republic and Austria). High R&D expense values are present in Finland, against the trend of other Scandinavian countries. Low expense values are registered in England, Romania (except the Bucharest area), Bulgaria and some

central Greek regions. Concerning the new entry countries, it has to be noted the good performance of the Balkans area.

From the analysis of the measures it results that, in respect of the Lisbon objectives, the development of ICT infrastructures should concentrate in some areas of potential co-operation, employing investments in new technologies, such as in Portugal and Principato, Cantabria, some parts of Netherlands and Belgium; or Campania, Puglia, Basilicata, Sicilia and the Greek regions. A second typology of co-operation could involve North Italy-Switzerland-Austria or Italy-Spain, while a priority seems to be South Germany and Czech Republic, or Finland (where for instance TLC values are much higher in the Ita-Suomi region) with Lithuania, Latvia, Estonia, perhaps involving as well the German regions of Mecklenburg and Berlin.

### *Occupancy and Education*

The persistence at the European level of weak points in the labour and education system calls for special attention to the investments in education (primary, secondary and continuing). This is an overriding need since the effects of investments and reforms on a country's economic and social systems generate practical effects in the mid/long term only, whereas the 2010 deadline is close. Therefore, the European Commission's directives ought to act simultaneously on 4 priorities:

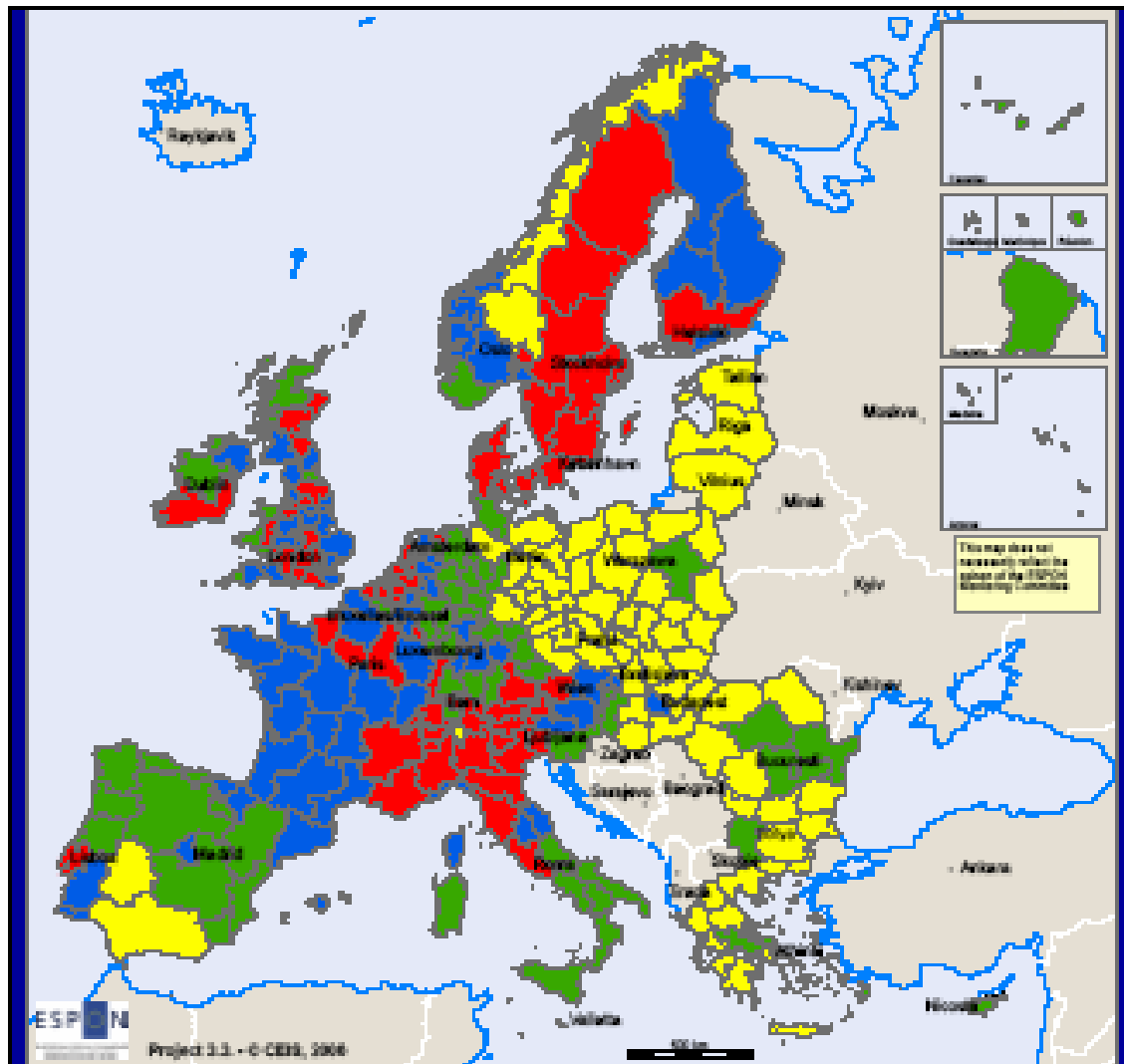
- Concentrating reforms and investments on the key points of each country;
- Turning lifelong continuing education into a reality;
- Building a Europe of education and formation;
- Fairly appreciating education and formation.

These can be considered as a starting point for the allocation of funds to distribute in almost every European region (the public expense devoted to human capital is highly concentrated only in North of Italy, France, Great Britain and Scandinavian countries).

This would allow the re-equalization of human capital public expense (Map. RF 03), currently concentrated on the "diagonal" from the centre-north of Spain (including Madrid) to the Scandinavian countries, involving central Italy as well. For the low values registered in Great Britain, southern Spain (areas of Sevilla and Malaga), Greece and the new eastern countries, it will be necessary to instigate a strong action of policies pursuing the Lisbon objectives in terms of human capital.

Figure 89: Human capital expenditure (CEIS, 2006)

MAP RF 03 - Human Capital expenditure



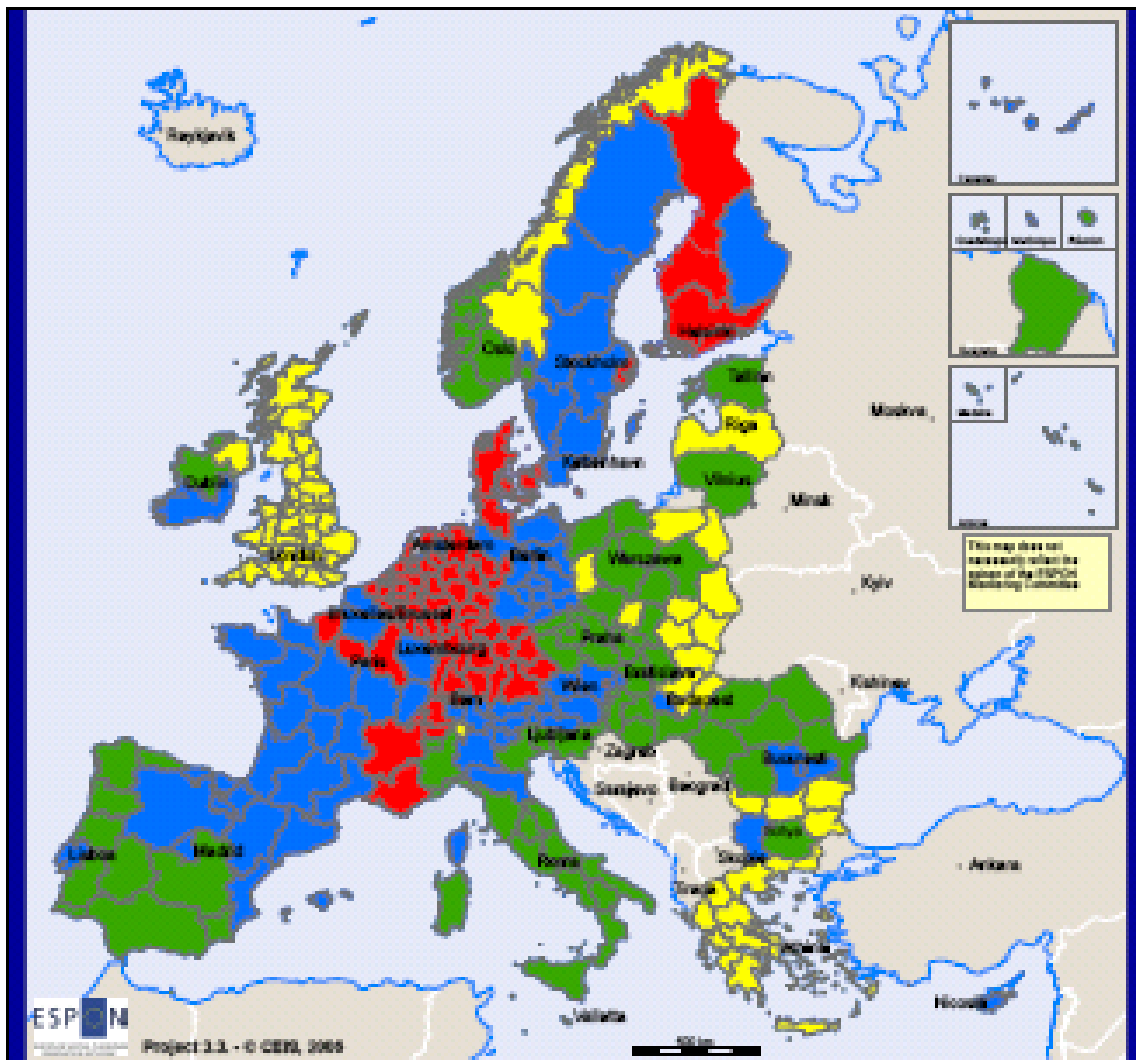
National Funds utilized for Human capital calculated as (national funds utilized for the human capital (GDF03 GF08)/GDPpps)\* Regional GDP (In M€). Original data are at NUT30 level

© European Commission for the progress territories  
Regional observatory ESPON, 2010, 2011  
Origin of data: Eurostat, ESPON 3.3, 2006 - 2007 - 2007 - 2008

<span style="color: red;">■</span>	High	> 1311.60
<span style="color: blue;">■</span>	Medium high	1030.80 - 1311.60
<span style="color: green;">■</span>	Medium low	693.60 - 1030.80
<span style="color: yellow;">■</span>	Low	< 693.60

Figure 90: Employment expenditure (CEIS, 2006)

MAP RF 04 - Employment expenditure



National expenditure in order to sustain the employment policies for Lisbon Strategy calculated as: (national employment expenditure / COFOG 1009 / national GDPppp) \* Regional GDP (in M€)

<span style="color: red;">■</span>	High	> 558.40
<span style="color: blue;">■</span>	Medium high	363.60 - 558.40
<span style="color: green;">■</span>	Medium low	183.20 - 363.60
<span style="color: yellow;">■</span>	Low	< 183.20

EU employment expenditure (COFOG 1009) by region (in M€) 2006  
 (Data source: ESPON 3.3, 2006)



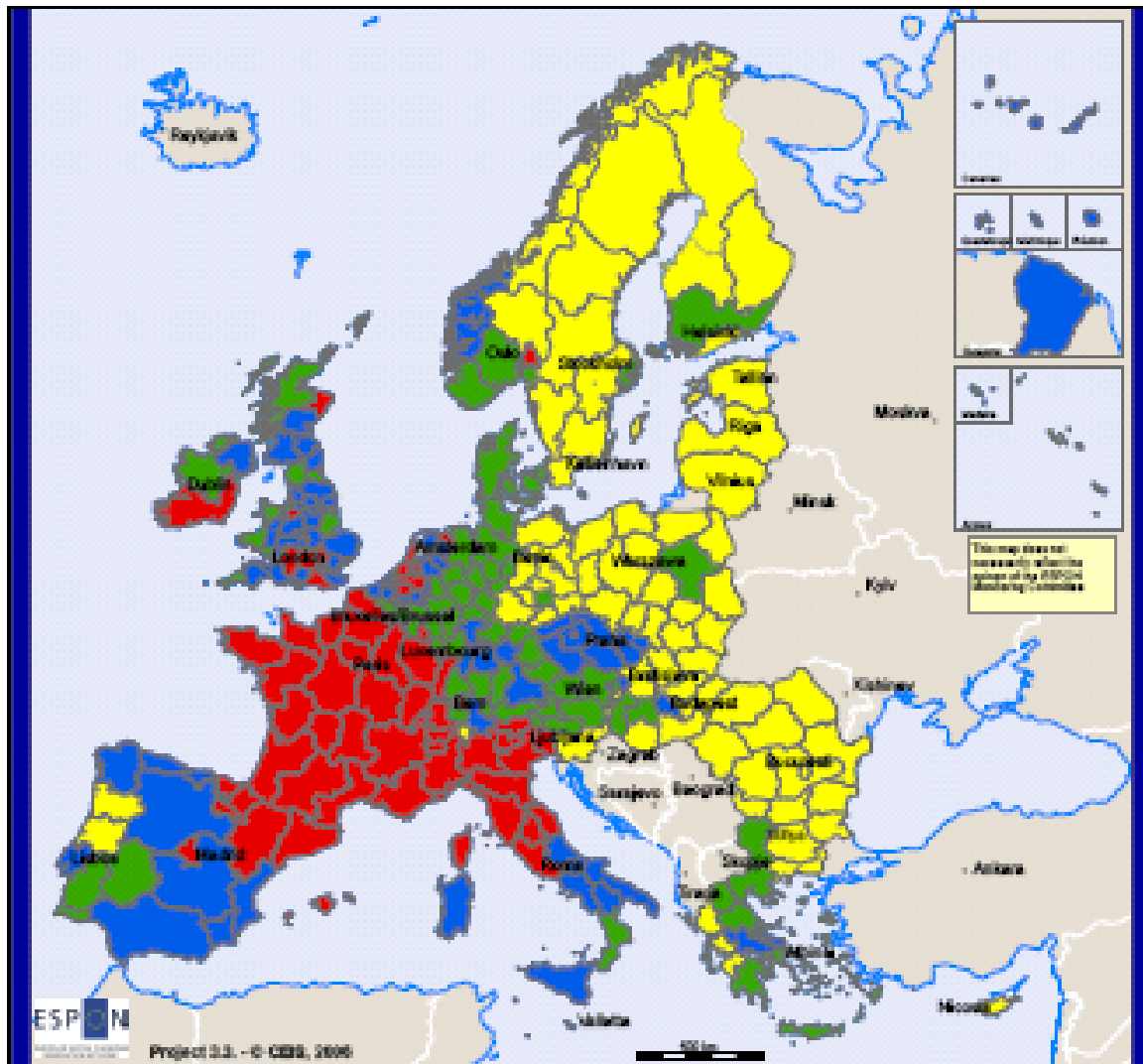
Referring to occupancy expense, the European position appears more uniform in values (Map. RF 04, Fig. 90), with a European core (covering central Spain, France, Northern Italy, Netherlands, Belgium, Germany, Austria and Scandinavian countries) on a quite high level of interventions towards occupancy; and medium-low levels in the European border belt, from Portugal to the Mediterranean (south of Spain, central-southern Italy and Greece) up to the new eastern countries, drawing a broad “U”.

#### *Climate and natural resources*

The significant increase in the number and gravity of natural disasters (tripled from the 1960’s) and their correspondent economic damage (10 times more) are due to the increasing concentration of population in risk-exposed areas, to greater vulnerability of structures and goods, to insufficient protection and prevention means and to climate change. The expense towards opposing climate change and protecting natural resources has to be concentrated in those eastern regions (except the Czech Republic) where it is currently very low (Map. RF 07, Fig. 91), but also in the south of Portugal, in Corse, in Greece and in some regions of Belgium and Italy, where there still has not been any investment in preventative activities, new technologies or sustainable development. A particular attention to climate change and natural resources has to be registered in France, central-northern Italy and continental Spain.

**Figure 91:** Climate and natural resources expenditure (CEIS, 2006)

**MAP RF 07 - Climate and Natural Resources expenditure**



Expenditure in order to sustain the Climate and Natural resource protection calculated as national climate and Natural resource expenditure (COFOG GF06)/national GDPppc)\* Regional GDP (In M€)

<span style="color: red;">■</span> High	>190,60
<span style="color: blue;">■</span> Medium high	129,70 - 190,60
<span style="color: green;">■</span> Medium low	80,20 - 129,70
<span style="color: yellow;">■</span> Low	<80,20

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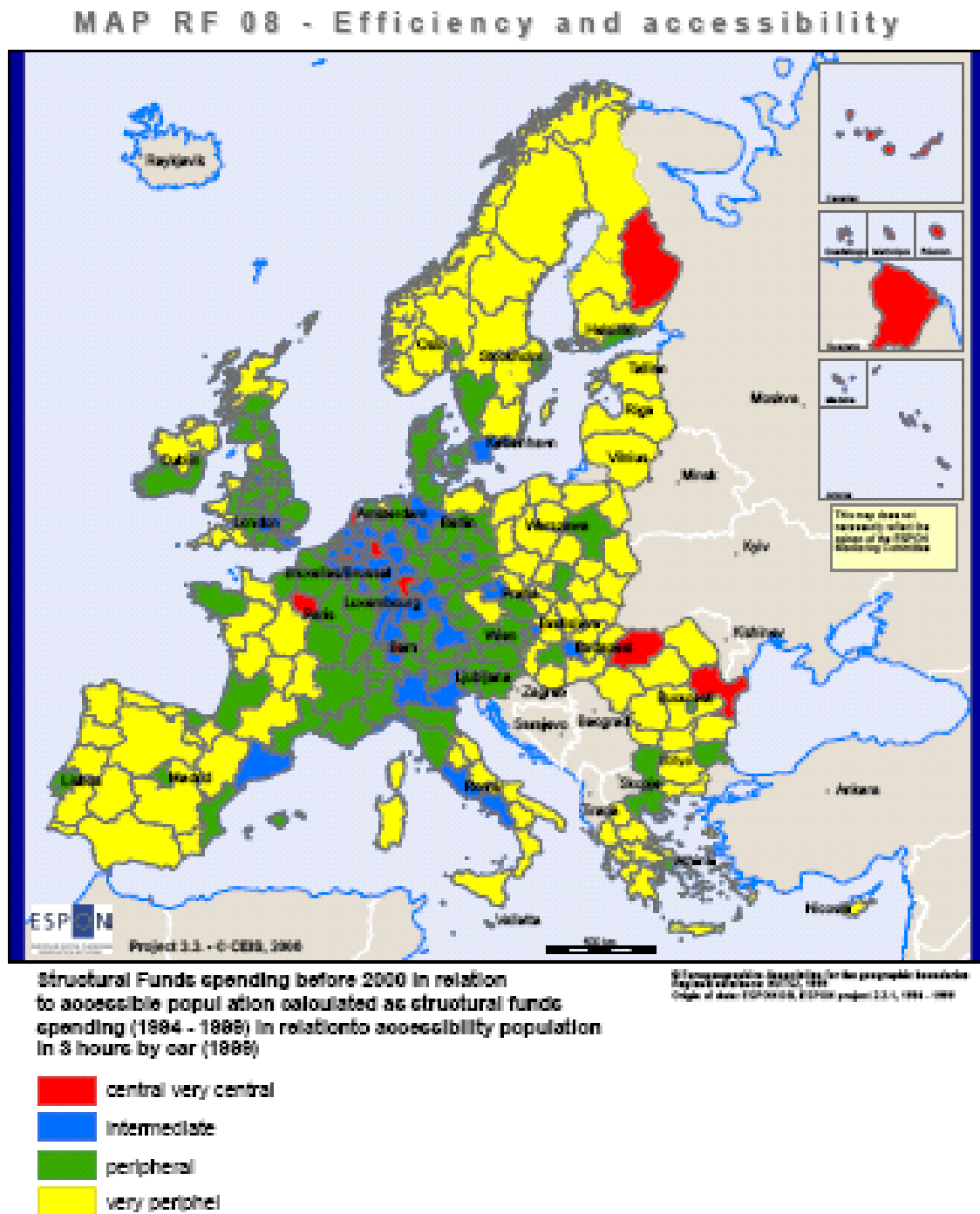
### *Connection infrastructure (real and virtual)*

The new European strategic guidelines, adopted by the European Commission on July the 5<sup>th</sup> 2005, define the priorities for the new Cohesion and Structural Funds Programme, starting from 2007. In particular the Commission, also in consideration of the enlargement countries, pinpointed the necessity of implementing the cohesion policy, emphasizing priority sectorial policies as:

- The development of trans-European transportation networks and an optimal use of the infrastructure;
- An increase of the institutional and administrative capabilities, for a generally more efficient European Union.

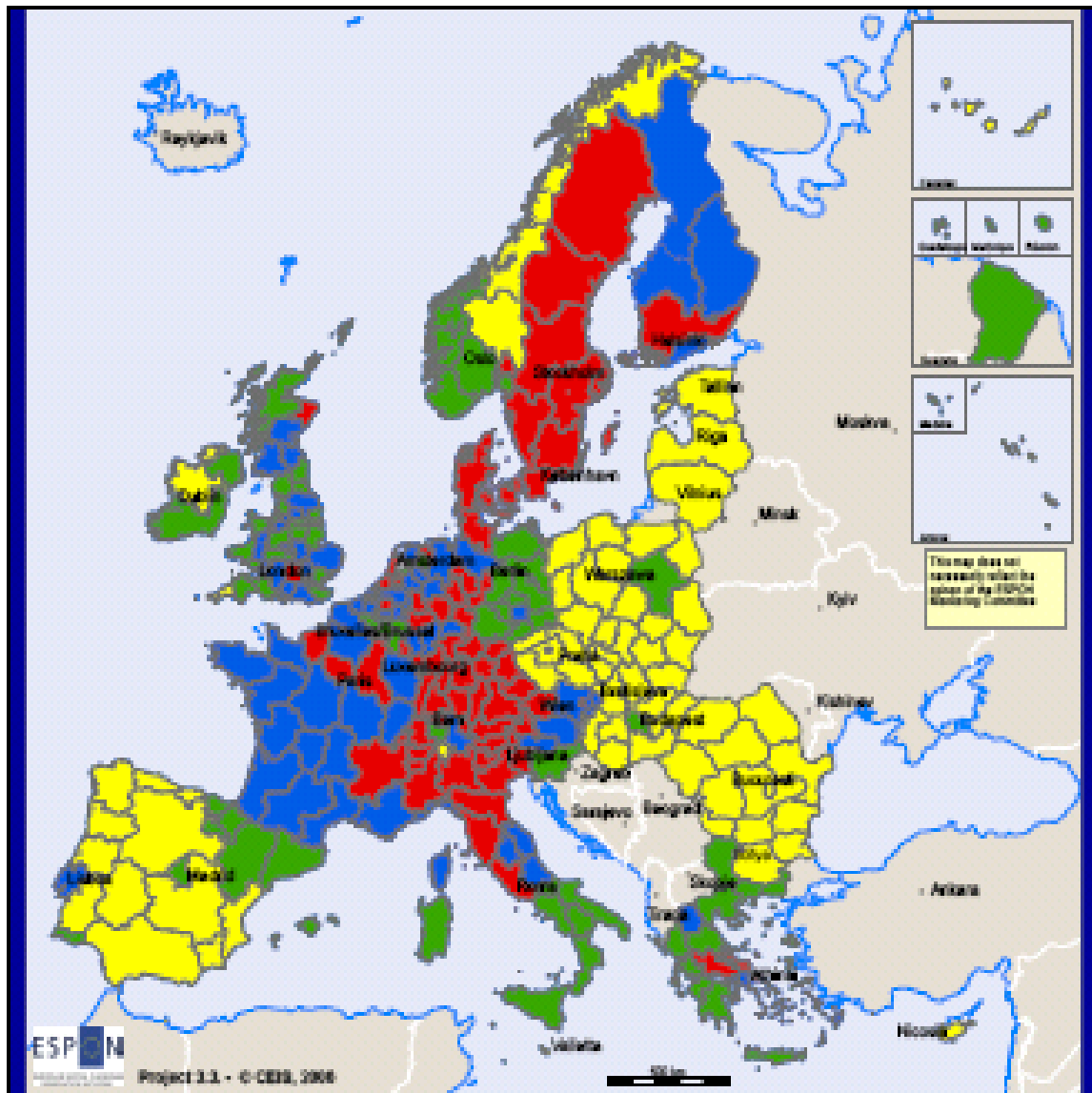
Regarding physical accessibility, we observe how this should be increased in the coastal regions of the Mediterranean in Italy (Liguria, Lazio and Campania), Spain (Catalunya); on the Alpine Range, on the borders between Italy and Switzerland, Austria and Slovenia; in the area embracing the Netherlands, Belgium and Germany up to the German-Austrian borders. Comparing the expense cost of the Structural Funds and the accessibility level (Map RF 08, Fig. 92) it is evident how the whole of Europe achieves medium-low levels of efficiency in the use of resources addressed to the improvement of physical connections; anyway if we consider that in the last and present programming period the quantity of funding for the eastern countries has been considerably lower than for the EU15 states, then the new countries appear more effective than the old ones. Opposing this trend and showing a better efficiency are the regions of the former East Germany, of the Appennini Ridge in Italy and of the Lisbon-Madrid axis.

**Figure 92:** Structural Funds and accessibility by population (CEIS, 2006)



**Figure 93:** Public expenditure for poverty and ageing (CEIS, 2006)

**MAP RF 11 - Poverty and Age expenditure**



Expenditure in order to contact the social exclusion, poverty and age calculated as: (regional expenditure in pps per capita - COFOG GF10/national GDPppc) + Regional GDP (in M€)

<span style="color: red;">■</span> High	> 4626.50
<span style="color: blue;">■</span> Medium high	3518.50 - 4626.50
<span style="color: green;">■</span> Medium low	2530 - 3518.50
<span style="color: yellow;">■</span> Low	< 2530

All geographical localities for the geographic localities Regional reference: EUROSTAT, EUROSTAT, 2006  
Origin of data: COFOG GF10, 2006 - 2006 - 2006

Accessibility through TLC development is generally higher, especially in the Eastern countries and in the regions of Portugal, Spain and France.

### *Public Health and Ageing*

At the communitarian level the sector of Public Health is protected by Article 152 of the EC Treaty: "A high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities"<sup>26</sup>. In light of this objective the European Commission President Barroso (in the preliminary proceedings to the Green Book of 2005) noted how Europe is the first area in the world where three simultaneous changes are happening: low birth rate, life expectancy increase and ageing of the baby-boomers, nowadays ageing workers<sup>26</sup>.

The outcome of this demographic change weighs on GDP and affects the economic models of consumption, labour, familiar life and therefore of a whole state.

To achieve the Lisbon objectives of more numerous and more qualified jobs amid social cohesion, it is necessary to reinforce the European social model according to the modified population composition, and according to the knowledge and competency needs of a society more and more open to new technologies.

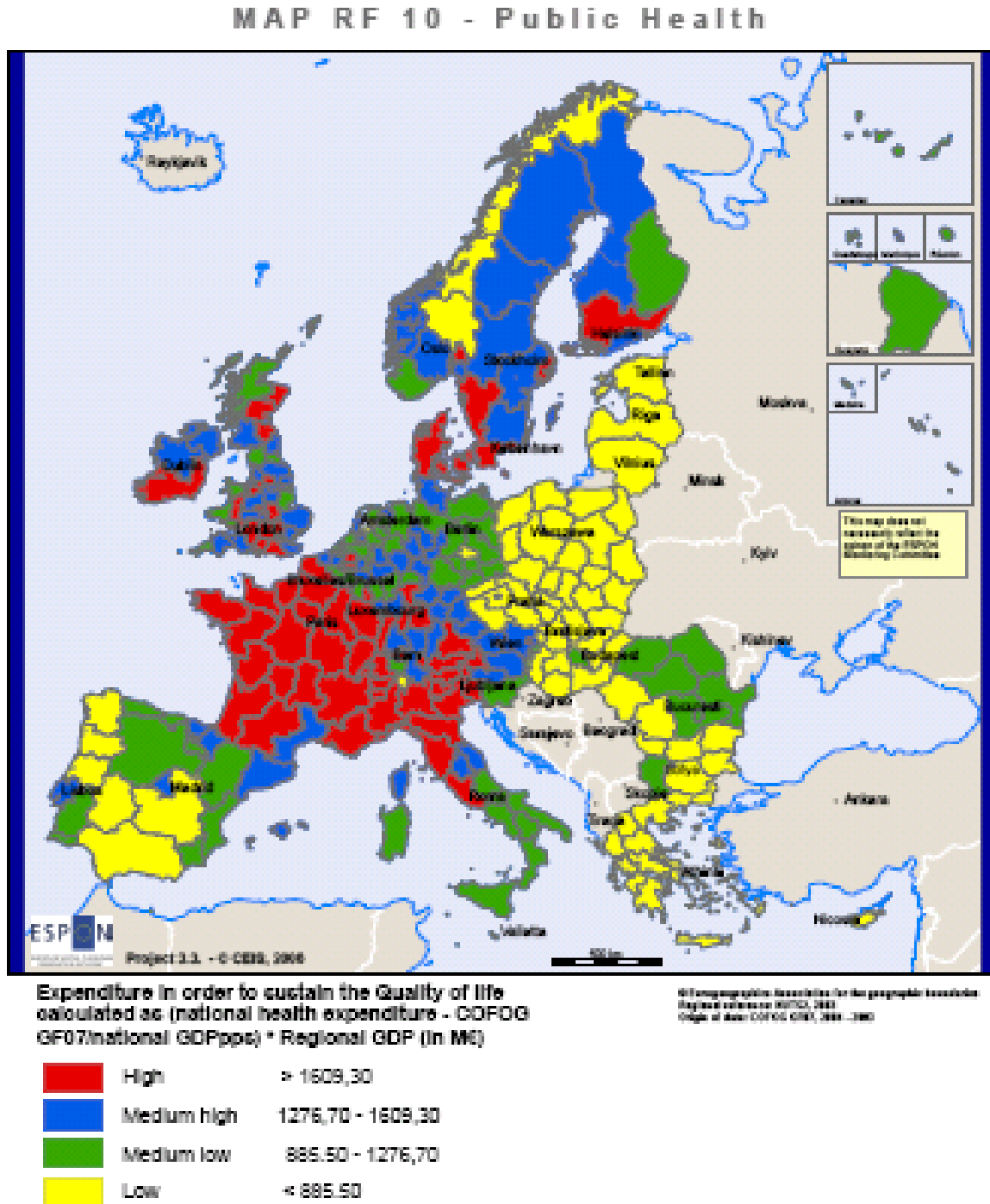
As reasserted in the "Green Book" (European Commission 2005), the physical and mental health of the European population is a resource to achieve some strategic EU objectives, such as the "coming back of Europe on the road to prosperity" in the long term, a greater commitment of Europe in solidarity and social justice and a tangible improvement in the quality of life for European citizens.

The Lisbon/Gothenburg strategies with reference to the preservation of public health have been applied more consistently and carefully in Central Europe (except in East Germany, Netherlands and part of Belgium) (Map RF 10).

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<sup>26</sup> President Barroso underlined how the unoccupied population will raise from 24% to 50%, and added that in 2050 Italian population will be 43 million, compared with the 75 million of the French one. This will heavily affect the labour market.

Figure 94: Public health (CEIS, 2006)



Actions in opposition to ageing effects (Map RF 11, Fig. 93) present a dynamic related to healthcare policies, with a similar parallel striped division, i.e. with a European core more attentive than the East regions and the Iberian peninsula. It has to be underlined how the line of demarcation in the policies opposing the effects of ageing lies in the regions along the Stockholm-Rome axis (Sweden, Denmark, Germany and Italy).

The synthetic indicator (policies for Gothenburg strategy – performance) shows a division in parallel stripes along the north-south axis of the European regions, with the “suburbs” areas at the east and west of Europe giving poor attention to the

healthcare policies. It is therefore necessary to support the Tallinn-Athens east axis and the Spain-Portugal west axis (Map RF 12).

### *Structural Funds and trans-border Co-operation*

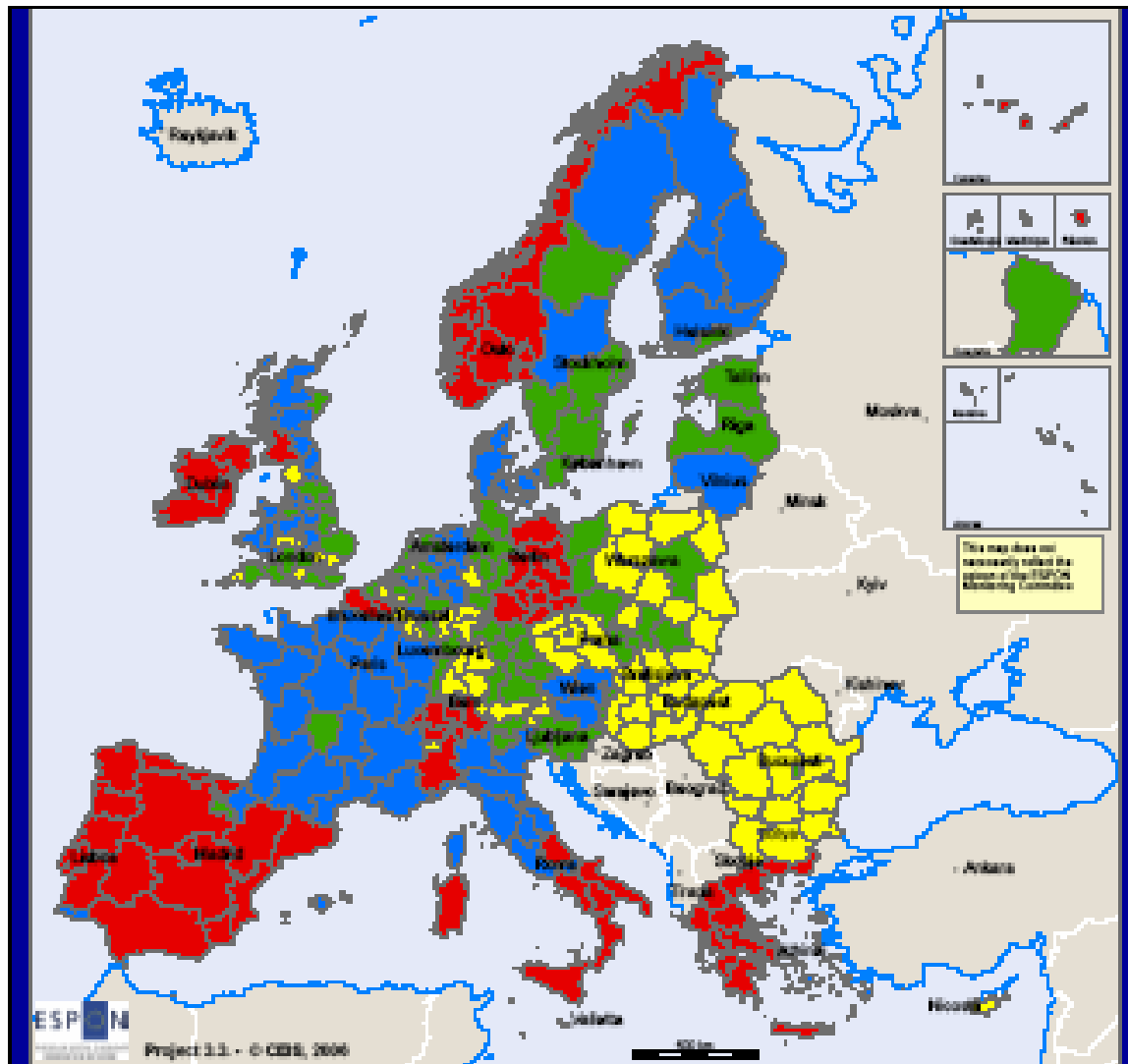
Solidarity, social and economic progress, and “reinforced” cohesion are part of the general objectives of the Union, which aims at “reducing the differences among the various regions development levels and the gap of the less favoured regions”, in compliance with the Treaty which founds the European Community. The solidarity instruments, the Structural Funds and the Cohesion Fund represent around one third of the European Union budget. These funds increase the regions’ competitiveness and improve the population’s life quality. The main part of the funding is spent through long term programs, jointly managed by the Commission services, the member states and the regional authorities. For the 2007-2013 programming period the Commission proposed “a policy of reinforced cohesion” provided by 336,1 billion euro (at 2004 prices) and focused on convergence, competitiveness and co-operation.

From the analysis of the indicators it emerges that the use of Structural Funds brought competitive advantages in all the areas in the Objective 1 and Objective 2 of the EU 15, whereas the enlargements countries suffer from the small dimension of the resources devoted to the pre-accession (Map RF 15).



Figure 95: Funds spending (CEIS, 2006)

MAP RF 15 - Funds spending



EU Use of structural funds into pre access phase  
calculated as Amount of all structural and cohesion  
funds expenditure

<span style="color: red;">■</span>	High	> 476.50
<span style="color: blue;">■</span>	Medium high	156.50 - 476.50
<span style="color: green;">■</span>	Medium low	55.50 - 156.50
<span style="color: yellow;">■</span>	Low	< 55.50

© I Geographische Gesellschaft für die geographische Kenntnisse  
Regionalentwicklung (GEGK), 1999 - 2001  
Origin of data: ESPON/CEIS, 2006 - 2009 - 2009

Figure 96: Economic resources (CEIS, 2006)

MAP RF 16 - Economic resources



Availability of Economic resources with regards to co-operation and cohesion calculated as share of INTERREG III funds in MC

Red	High	> 8
Blue	Medium high	6.70 - 8
Green	Medium low	1.50 - 6.70
Yellow	Low	< 1.5

© Transregional Association for the geographic knowledge Regional Institute (TRIGI, 2006)  
Origin of data: European Union (data set) - INTERREG III, 2000

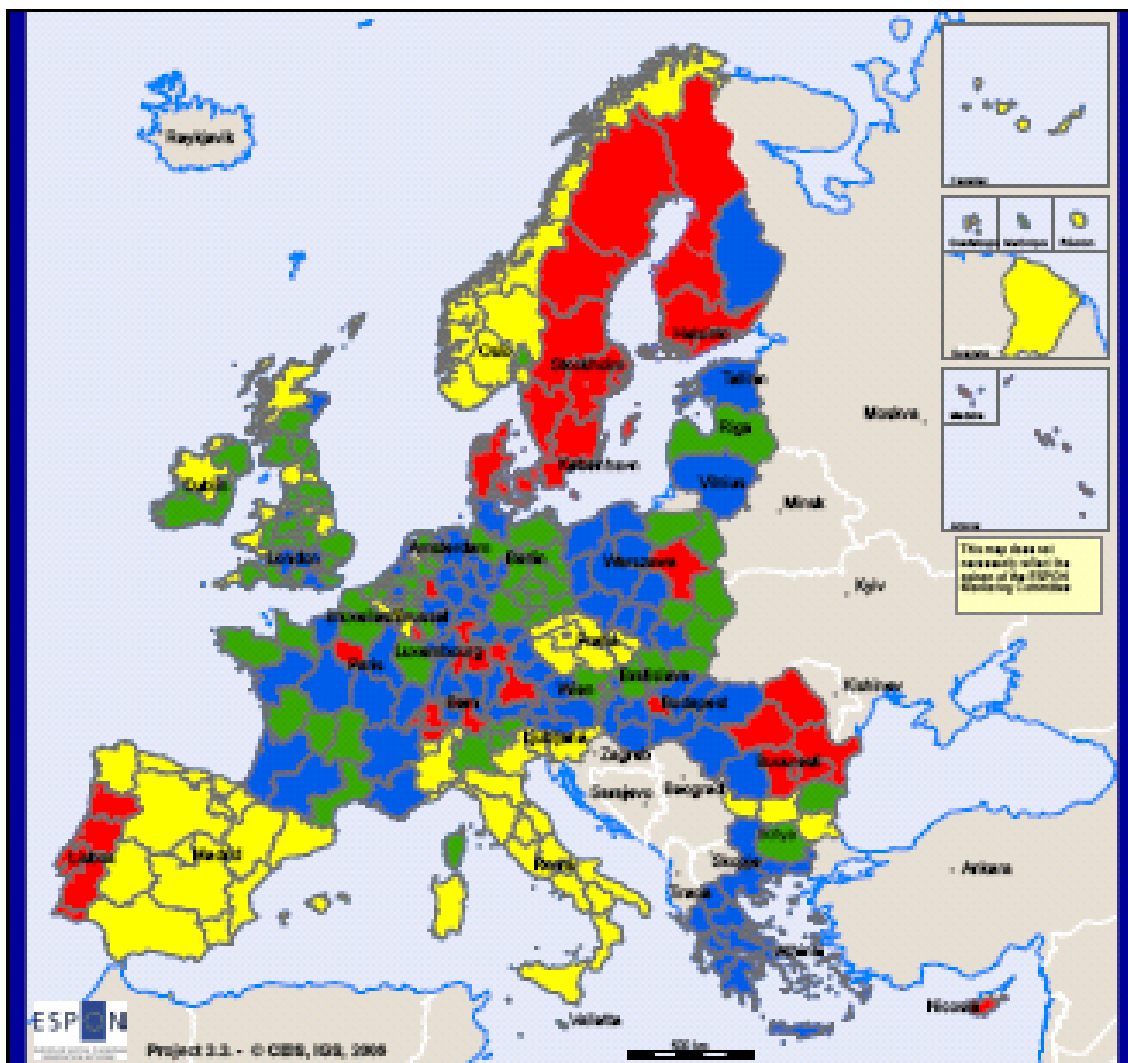
Concerning the level of the resources allocated for the trans-frontier co-operation (Map RF 16) we can say that, consistent with what has been said about the Structural Funds, these resources are mostly concentrated and managed in the countries of the EU15; important interventions have been realized particularly from Spain, Germany and Luxembourg.

*Interventions level for the Lisbon Strategy*

The interventions level of policies for the implementation of the Lisbon strategy (Map. RF 06, Fig. 97) shows how the actions aiming at this objective present a centre-periphery structure; resource employment is very high in the core of Europe (Germany, Austria, Paris region, Denmark and the North-west of Italy), while it decreases more and more moving towards the “periphery” regions, describing a behaviour of concentric circles (apart from Finland, which has a high level of interventions).

**Figure 97:** Level of interventions towards the Lisbon Strategy (CEIS, 2006)

**MAP RF 06 - Level of interventions towards the Lisbon Strategy**



Values obtained combining R&D expenditure and Policies for the Lisbon Strategy (performance)

- High
- Medium High
- Medium low
- Low

© European Spatial Planning Observation Network for the geographic coordinate system and the map projection. Original of data CEIS, 2006

### *Policies for the Gothenburg Strategy*

The interventions for the implementation of the Gothenburg strategy present a “parallel stripes” distribution (along the east-west axis): starting from the low level of action in the Eastern countries (except Czech Republic) and in the Scandinavian countries, passing through a mid/low level of intervention in the countries of central-eastern Europe (Germany, Denmark, part of Netherlands, Austria, Greece), up to a mid/high level in central/western Europe (England, Belgium, France, Italy and Spain). For the good level of policies undertaken in pursuing the Gothenburg objectives, examples are given by regions as Piemonte, Toscana, Emilia Romagna and Marche in Italy, the London hinterland in England, Paris area, Haute-Normandie and Midi-Pyrénées in France.

*In conclusion*, to achieve a use of resources and funds in an effective and functional way to the integral objectives of Lisbon and Gothenburg, it is recommended that a greater and general attention is devoted to policies in support of the great themes represented by the categories identified in the determinant. An implementation of these themes would produce positive effects on the competitive dynamics of single European regions, namely:

1. Innovative capability improvement
2. Local enterprises support
3. Education level improvement
4. Employment level increases
5. Pollution level decreases
6. Physical Relationships increases
7. Public Health improvement
8. Weak social classes support
9. Structural lags filling
10. Trans-national co-operation improvement

## 4. Policy recommendations

The aim of this chapter is to review the work of the European Spatial Planning Observation Network (ESPON) programme, with a view to assessing its relevance and application to the territorial application of the Lisbon and Gothenburg strategies. In addition, the application of the specific work pioneered by the ESPON 3.3 project to the goal of effectively redistributing Structural Fund monies to particular regional needs will be presented. These are explored in greater detail in other parts of this Report. In order to assess the appropriate allocation of resources towards the ambitious goals of fulfilling the aims of the Lisbon and Gothenburg Agendas and balancing regional differences, it is necessary to distinguish between regional disparities, which need to be redressed, and regional diversities, which are considered as a key characteristic of Europe. Identifying these specificities has been at the core of the ESPON work programme and has resulted in a considerable range of region specific research with a focus on future policy direction. Thus to do justice to this work we are not seeking to distil it down to a simple, singular formula, but instead present a survey of its main implications, illustrated by key recommendations that are most relevant to 'territorial competitiveness in sustainability'.

In the following review, a range of issues relevant to the Lisbon and Gothenburg are first extrapolated from the findings of a targeted selection of ESPON projects. These have been selected on the basis of their relevance to the decisions currently being faced in the light of the Lisbon and Gothenburg agendas and in the context of an expanding European Union in which internal borders are being relaxed. For those projects where these considerations are critical, recommendations and scenarios – where made – and their implications for competitiveness and sustainability are considered. The objectives of Lisbon and Gothenburg are then outlined in relation to the specific indicators developed within the ESPON 3.3 project. The approach adopted, with its concentration on the regional level, is intended to offset the predominantly national orientation of much work in this area, characterised by the current preoccupation with the National Action Plans.

### 4.1 *The ESPON programme*

The broad aims of ESPON have been to provide:

- a diagnosis of main territorial trends at different scales;
- cartographic images of the major territorial disparities and of their respective intensity;
- integrated concepts, tools and instruments (indicators, databases, methodologies for territorial impact analysis and systematic spatial analyses) through a new 'trans-national' scientific community to enable a greater spatial co-ordination of sectorial policies;
- identification of the spatial impact of policies and an analysis of potential scenarios arising from various revisions of Structural Fund instruments.

Underlying these objectives has been an implicit acceptance of the European Spatial Development Perspective (ESDP), as developed in 1999, with its guiding principles

of: social cohesion, economic competitiveness and environmental sustainability. Clearly the latter two principles fit neatly with those expressed the Lisbon and Gothenburg agendas. However, the principles are easier to express in theory than in practice, and this is especially the case where inconsistencies emerge in an attempt to prioritise different goals which may essentially conflict. The challenge is thus two-fold: bridging the gap between existing territorial disparities and bridging the gap between end goals, which in this study is 'economic efficiency and environmental sustainability'.

There are two main types of ESPON projects, those that focus on specific sectors, the 'thematic' projects and those investigating their effects, 'policy impact studies'. The ESPON project 3.3 from which this paper is drawn, falls into a smaller group of projects; 'horizontal and coordinating cross-theme studies', one of the prime intentions of which is to evaluate the results of the other studies in order to provide integrated results such as 'indicator systems and data, typologies of territories, spatial development scenarios and conclusions for the territorial development'. To this end our paper will give most attention to the thematic projects which have provided data invaluable to the achievement of the Lisbon goals by analysing the comparative advantages of European regions, for instance in locating 'hotspots' and 'cold spots'. These projects have also focused on the economic performance of regions and their levels of employment, as well as where important development factors such as R&D, accessibility, ICT, nature and cultural assets are located. Region specific information important to the fulfilment of the Gothenburg targets is also to be found throughout these projects, a selection of which are discussed below (see references for a full list of ESPON projects which have been reviewed for this paper).

#### 4.1.1 Thematic projects and their policy recommendations

The first, (and one of the most controversial), of the ESPON projects was Project 1.1.1 which investigated the potential in the European territory of polycentric development. Polycentrism is presented by this project as a bridging concept between economic growth, traditionally associated with efficiency and concentration and balanced development, associated with de-concentration. It is proposed as a means of achieving both economic competitiveness and environmental sustainability. Where GDP per capita is an indicator of competitiveness, polycentric regions are shown to be more competitive, though the strength of the relationship is disputed. Two relevant future scenarios were projected; the first was a continuation of current trends, resulting in a persistence of a single global economic zone, with peripheral areas unable to compete on the international stage. The second, the 'ideal situation scenario' showed increased polycentricity at the intra-urban (micro) level, making city regions stronger and therefore producing a more polycentric national or trans-national urban system at the 'meso' level. In the next step, stronger functional areas at the meso level could work together to produce strongholds for a more balanced Europe, heralding the eventual emergence of several Global Integration Zones in addition to Pentagon at the 'macro' level. The conclusions of this project demand a change in thinking about competitiveness. Rather than associating it with the economic attractiveness of large, particularly capital cities, attention is to be given to making available higher order services and developing functional specialisations to second and lower tier cities. This contributes to sustainable development, reducing the urban sprawl of mono-centric capital

cities, as well as broadening of the economic base of areas such that they are capable of competing internationally.

The second project commissioned under the ESPON programme involved an exploration of the relationships between urban and rural areas (Project 1.1.2). At a superficial level the implications of Lisbon and Gothenburg may be expected to target urban and rural areas respectively, and separately, in the sense that competitiveness being associated with urban metropolises and sustainability being a concern related to rural areas. In fact the implications drawn for the agendas by this project were both less explicit and less obvious than this. An exploration of current trends, in particular the enlargement of functional urban areas, were shown to have contributed to an increasing flexibility of employment opportunities which, though positive for competitiveness, has been negative for sustainability due primarily to its association with an increase in work-related travel and the use of private cars. More predictably, the protection of rural assets was proposed as a recommendation for sustainable development and more tenuously to be promoted as a contribution to territorial competitiveness in terms of 'added value'. More specific policy recommendations based on area types can be found in the projects' final report, but it is worth mentioning one 'warning' that interdependence between urban and rural areas 'should not be promoted for its own sake' as the implications for increased interaction may not be environmentally sustainable.

Central to the re-allocation of the Structural Funds, and an issue key to the successful achievement of both the Lisbon and Gothenburg agendas, has been the expansion of the European Union. This was explored in the project on 'enlargement and polycentrism' (Project 1.1.3). The context in which this study was conducted was, in short, one in which concerns were being expressed by many policy makers in the EU-15, that the 2004 enlargement may act as a brake on the potential of achieving the Lisbon objectives. The perspective of the ESPON 1.1.3 team was to assess the process from the positive perspective of offering an economic opportunity, perceived in spatial terms through the development of a new Central Eastern zone of global competitiveness, with scope for 'catch up'. As environmental objectives have been a priority in much pre-accession aid, sustainability goals were also identified as having been respected in the convergence process.

Project conclusions suggested that enlargement represents one of the most important opportunities for the EU to increase international competitiveness, and is precisely in line with the Lisbon/Gothenburg strategy. The reality was admittedly shown to be less promising though, with economic restructuring occurring in the enlargement area from primary sectors to the service sectors, but falling employment levels. The project thus considered the particular effects of enlargement, by focusing attention on the discontinuities and barriers implicit in successful economic integration, recommending a concentration on the identification of these. In addition their study included an analysis of the Trans-national Regions and Trans-national Urban Networks (TUN) which showed parts of the enlargement area with the potential to compete with the Pentagon. The risks and opportunities of enlargement were identified by measuring the regional specialisation and geographic concentration of sector employment in the EU-12, and drafting typologies for particularly vulnerable regions. The special needs of border regions were highlighted with typologies based on the particular barriers to flows of people, goods, services and knowledge. As well as particular 'remedial actions', the primary recommendation was that improving transport links within accession countries would not be sufficient, and that transport links between old and new member states also need to be prioritised.

The effects of selected EU policies on the enlargement area were also assessed in the form of 'policy combinations' (multi-level and inter-sectorial). 'Capacity-based' policy combinations are 'governance orientated' and 'bottom-up', while 'principle-based' policy combinations are more 'top-down' in perspective, geared at what interventions the EU might make to enhance the long term competitive potential of the accession states. The latter include groups of policies targeted at co-operation, transport and cultural interventions. In addition to the focus on transport infrastructure investments in the new member states (and more particularly between new and old member states), suggest a new emphasis on the functional growth of second tier cities. The project suggests that, (a) the EU funding should be provided to partnerships formed at the regional level - both to draft the plan and to secure its implementation; (b) small member states should profit from drafting plans in co-operation with neighbouring states; and, (c) such plans should include policies aimed directly at generating employment in second and lower order cities to increase competitiveness and cohesion in the EU as a whole.

Region specific advice is also presented, most notably for the development of an additional zone of global importance, the promotion of the network of major cities in the "Triangle of Central Europe", with its potentially high level of integration and encompassing the area from Warsaw in the east, Poznan in the west and Budapest in the south. This Trans-national Region has to strengthen its relationships with the Pentagon, the wider Baltic area, Poland and the Balkan region. Thus the projects' implications for the delivery of the Lisbon Agenda are more or less in line with those of the Polycentric project (Project 1.1.1).

A project addressing the issues of demography and migration (Project 1.1.4) was of direct relevance to both Lisbon and Gothenburg, specifically the ageing and what has been portrayed as the general stagnation of the EU population. This is of clear concern to the future sustainability and competitiveness of the Continent. One indicator of sustainability is the proportion of the population under 15, while indicators relating to competitiveness concern the vibrancy of the labour market. The projected acceleration of the ageing process and regional population losses are a particular challenge for the realisation of the Lisbon agenda. This is not only an issue in relation to the relative size and strength of the labour force, but also in the light of the associated fall in consumer demand, through the propensity of older people to save rather than spend.

Despite these pan-European concerns policy recommendations at the EU level are necessarily limited, as demographic and migration policies are still the preserve of national governments in spite of some efforts to co-ordinate them. However the projects' conclusions stress that different levels of income and education are key push and pull factors in all migratory movements. Therefore, the broad proposition to EU development is to seek to reduce such regional and national differences and increase the symmetrical economic development of the whole EU27/29 area, and particularly to stem the flow of young persons from East to West and from the periphery to the core (which serves only to reinforce the existence of a single economic zone of global significance).

A project whose subject is inevitably a contested one, vis-à-vis the objectives of competitiveness and sustainability, is Project 1.2.1 'Transport services and networks'. The quality of transport infrastructures, in terms of capacity, connectivity, and travel speeds are shown to determine the competitive advantage of locations - this is often measured as potential accessibility. Such studies have indicated that here are two overlaying core-periphery patterns - a national and a



European one. The national pattern reflects the fact that spatial interactions are more intense within than between countries. Thus, regions in the periphery of their respective national market centres suffer from increasing transport costs, as their interaction with markets is more dependent on transport than more central regions. If transport policies reinforce polycentricity at the European level, by connecting large urban centres, they may reinforce the dominance of capital cities. The implications of existing patterns and proposals for using new transportation options to strengthen polycentricity at different levels are ambiguous. The association between transport options and sustainability is more straightforward. Nonetheless, transport connectivity is essential for the movement of goods and cannot be substituted by the electronic exchange of information. Recommendations from this project focus on a modification of existing transport forms and their use to reduce fuel consumption, and moves to multi-modal forms of transport, such as the development of rail for dedicated freight passage.

Developments in the field of telecommunications (Project 1.2.2) are quite different from that of transport in the sense that networks have the potential to develop within areas that are not benefiting from physical connectivity to the European core. Hence, they are identified as key to the means by which the Lisbon and Gothenburg strategies are to be realised. However, despite the potential for development across the EU, current strengths in telecommunication are found to reflect an existing urban bias and territorial divisions. The projects' findings indicate that leaving further developments to the market will exacerbate existing divisions. Thus intervention is necessary to increase territorial competitiveness by producing a broader polycentric base. As such, standardisation and subsidisation are required and the EU should participate in establishing better symmetry between public authorities and telecommunication providers. A note of caution is added though, for despite the vital role that ICT plays in the creation of GDP, scenario studies undertaken by the Project 1.2.2 team predict that there are clusters of areas that presently are not responding dynamically to ICT policies. A more positive trend though was identified around the idea of a polycentric form of territorial development of telecommunications where fibre optic operators are investing in cities outside the traditional European core.

Two final thematic projects whose conclusions are fundamental to Lisbon and Gothenburg are those focusing on 'natural and technological hazards' (Project 1.3.1) and natural heritage (Project 1.3.2). The former, which relates mainly to risk management, shows that potential and real hazards (such as floods or forest fires) can affect both competitiveness and sustainability. Indeed recent disasters have entailed heavier environmental costs than any EU compensatory action could deal with. Here policy recommendations emphasise that prevention should be the primary objective. Secondly, containment or reduction of the impact where the first is not possible should be sought, and that such measures should be incorporated into Structural Fund assistance (as they already are for many Objective 1 assessments). In this policy area the goals of sustainability and competitiveness are compatible - the problem is getting member states to apply recommended guidelines.

The ESPON project on natural heritage has obvious significance for the sustainability agenda of the Gothenburg agreements, and in terms of 'added value' (geographical diversity, high levels of ecological protection) to Lisbon. In addition, it is highlighted that where natural resources are over-exploited, ultimately money has to be spent to rehabilitate those areas. The project considers the potential for the Natura 2000 proposed network of high quality semi-natural environments to

support sustainability and add to the attractiveness for locating activities outside the Core, thus the scheme may indirectly support 'balanced development' away from the Pentagon. It recommends that Natura 2000 sites should be enhanced and other Europe-wide networks identified.

#### 4.1.2 Territorial impact projects and their policy recommendations

The results<sup>27</sup> from this second phase of the ESPON programme provide considerable detail for policy analysis and review, but in so doing find several obstacles in seeking to accommodate the principles embodied in the Lisbon and Gothenburg agreements. This is particularly the case in the Project 2.1.1 which deals with 'TENS and transportation policy'. The project reaches the 'unavoidable conclusion' that '(you) can't expect a single design of transportation policy to be optimised to the pursuit of economic competitiveness, efficiency and the growth of the entire EU area (and simultaneously) provide environmental sustainability and a balanced spatial development'. The conclusion from 2.1.1 suggests that in view of current thinking in transport policy, the goals of the Lisbon and Gothenburg agendas are going to be hard, in practice, to unite. Their assessment though (in the short, medium and long-term) favours the modal rebalancing and a reduction in fuel consumption.

A little more optimism about uniting these goals is implicit, surprisingly perhaps, in the findings of Project 2.1.4 which deals with the crucial and currently demanding issue of energy, though the conclusions and recommendations are by no means straightforward or easy in their application. As energy consumption is an indicator for sustainability, the relevance to sustainable development is obvious. While there have been improvements in diversification and moves from use of fossil fuel across the EU, alternatives have not been primarily renewable, and dependency on external imports and consumption remain high. The implications of this project suggest that if current levels of competitiveness are maintained in this way a major change is required. With regard to sustainable development the projects findings suggest that a much more significant commitment to renewable energy supplies and local energy sources is required than the limited move that has been initiated in this direction.

Another persistently problematic policy area; the Common Agricultural Policy was assessed together with Rural Development Policy in project 2.1.3. As the world's largest food trader, the EU has a strong interest in global competitiveness in the production of agricultural produce. At the same time agricultural methods, which maximise production can negatively impact on landscapes and habitats. The agri-environmental schemes proposed in Agenda 2000 and the establishment of the RDR (Rural Development Regulation) show a move to a focus on sustainability goals from the previous bias of the CAP35. The project team ran a series of policy scenarios assessing the likely outcome in competitiveness, cohesion and natural heritage of different options relating to the reform of the CAP. The radical liberalisation of agricultural policy (elimination of price support, quotas etc.) was predicted to support competitiveness, by leading to more territorial specialisation,

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<sup>27</sup> Projects 2.2.1, 'Territorial effects of Structural Funds (2002-05); 2.2.2, 'Territorial effects of the "acquis communautaire", pre-accession aid and PHARE/TACIS/MEDA programmes'; 2.2.3, 'Territorial effects of Structural Funds in urban areas (2002-04), 2.3.1, 'Application and effects of the ESDP in member states (2004-06) and 'Territorial trends in environment and impacts of EU Environment Policy (2005-06) though very relevant to this paper are only to be completed this year and are not dealt with here.

some intensive, commercial agri-businesses, and other areas turning to leisure and rural residential land use. However, this scenario is likely to undermine the objectives of sustainability, resulting in the loss of much natural heritage. The team recommend rather that the EU retain global competitiveness through a combination of quality and distinctiveness through maintaining its unique and varied pattern of rural resources.

Lastly, and most promisingly in terms of marrying Lisbon and Gothenburg, are the conclusions of the ESPON Project 2.1.2, examining the EU's Research and Development Policy and Innovation which, consistent with those of project 1.2.2 mentioned above, emphasise that R&D and associated innovations are unique in the sense that they may be seen as the answer to the desire for economic expansion without environment cost. They also do not depend on geographical connectivity or demographic concentration may be developed as a powerful tool for achieving a greater level of territorial equity. For this reason the identification of RDT in Lisbon-Gothenburg strategies as central to the success of the strategy is spot on for addressing the regional problems while enhancing regional characteristics of the European territory. However, precisely how to direct innovation policies and to address current territorial imbalances and improve the overall competitiveness of the EU needs further investigation, and worryingly the potential of the sector is, as the Project 1.2.2 team point out, limited to the partners involved in its implementation.

With regard to the fulfilment of the Lisbon objectives, the territorial perspective elaborated by this project, and reflected in other ESPON research, indicates that not all regions are potential 'Lisbon areas'. In other words, they cannot all rely on a knowledge based economy, given their diverse structural and historical paths. Consequently, some regions need to develop their economic base around other assets. Innovation capacity is shown to be variable across the EU. For example, it is greater in the North than in the South of the EU, and more prevalent in larger cities. Improvements in R&D performance will need targeted measures, for example building human capital and institutional learning through education. The 'territorial roll-out' of the information society is not unproblematic and will depend on the establishment and acceptance of ICT infrastructure. Indeed, there are specific issues relating to the practicality of this in remote areas with low population density. Overall, the successful development of regions requires integrated packages of initiatives, and co-operation and coordination between sectors, policy areas at national and regional levels. In general though, enhancing European attractiveness would be supported if the European regions better exploited their diverse potentials.

With respect to the fulfilment of Gothenburg Objectives, there is similar degree of regional diversity, but here this appears to be more a reflection of variable levels of commitment to environmental sustainability. This fact, together with the perceptibly more minor attention paid to its goals, leads to the tentative conclusion that in the case of Gothenburg, as opposed to Lisbon, a more regulatory top down approach may be an appropriate prerequisite to any comprehensive progress.

The review reflects the fact that previous ESPON projects have not considered sustainability and competitiveness concurrently, or their implications for each other. Indeed some project conclusions infer that they are incompatible. However, work in the ESPON 3.3 project is in the process of attempting to unite the concepts through the development of the notion of 'competitiveness in sustainability' and the re-evaluation of policy sectors accordingly. The outcomes to date are presented in

other papers in this Issue. In the remaining part of this paper, we outline briefly the application of the policy objectives to work developed by the 3.3 project team.

## 4.2 *The application of policy objectives to Project 3.3*

*Determinant work developed by 3.3* – A key and innovative aspect of the 3.3 project has been the modification and adaptation of the work of Michael Porter in order to determine measures for assessing the performance of European regions or territorial systems. This produced four main determinants, further characterised by several sub-components denoted as typologies. Policy recommendations derived from Lisbon, but applied to each determinant and sub-category, have been developed according to both regional level (macro, meso or micro) and type of region<sup>28</sup>. Here a summary of the recommendations for the primary categories – the determinants – of *innovation and research, global/local interaction, quality, and resources and funds* are charted for the Lisbon and Gothenburg Agendas.

### 4.2.1. Lisbon

- (a) *Innovation and Research*: The application of the Lisbon plans to this determinant at the EU level suggests that the European Investment Bank should take a leading role in promoting the networks required for innovation and research across the European Union. The issue of up-take is a priority which needs to be co-ordinated from that level, but devolved to agencies below in terms of its micro management. The proposed European innovation scoreboard would be introduced to most effect at the national/trans-national level, while it is at a regional level that 'innovation poles' should be established. In terms of support, a 'European Institute of Technology' could be set up at the EU level, but this and other European Technology Initiatives may be promoted by, and partnered with, industry and possibly higher education establishments.
- (b) *Global/Local Interaction*: With respect to this determinant, the co-ordination of the EU is required to ensure labour market requirements are met, with agreement on increasing the mobility of the workforce and migration. This would be assisted by the establishment of a European Higher Education Area. The much contested reform of the European social model promoted by the Lisbon Agenda, basing support on work and alleviating tax pressures on labour, would be difficult to enforce at the EU level given past failed efforts to develop a genuine European social policy. Consequently the national scoreboard approach to improving labour participation rates and maximising productivity are probably the most attainable means of challenging perceived inefficiencies in the model. Meanwhile regional variations in work, tax and income maintenance configurations may offer alternative solutions to mitigating market inequities whilst retaining economic efficiency.
- (c) *Quality*: Addressing the issue of life chances is a key part of this determinant. However, here Lisbon objectives are less specific, allowing future innovation in

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<sup>28</sup> In the published work of project 3.3 detailed recommendations for each determinant and typology are developed for each level of governance. The work is also presented in matrix summarised form for ease of access and includes reference to measures such as: 'education delocalisation', measures for population mobility in borderline regions and homogenisation of regional fiscal pressures' for Global local interaction at the regional level.

policy development at all levels. Suggestions include innovation in eco-technologies harnessed to enhancing quality of life and renewing neighbourhoods and introducing labour policies which address the conflicts arising from maintaining a healthy work/home life balance.

(d) *Resources and Funds*: In this determinant there is again an emphasis on labour market and income maintenance policies. Given the nation state command of these areas the Commissions' targets for the increasing work force participation rates – by at least 9% - with particular emphasis on women and older workers are appropriately devolved to the scoreboard approach as embodied in the National Plans recently submitted. More flexibility in labour market conditions with the extensions of freedom of movement may however help create the conditions for this. Measures may be enacted at both the national and the EU level to foster an encouraging environment for private research investment, R&D partnerships and high technology start-ups. These could be made more attractive by adjusting tax policies and providing the appropriate support in the form of venture capital with EIB backing. Finally at the macro level too, a reform of Structural Funds to focus on local employment delivery and economic growth, have been a controversial, but fundamental pillar of the Lisbon Agenda.

#### 4.2.2 Gothenburg

The policy recommendations derived from Gothenburg and applied to the determinants of project 3.3 fall even less easily into appropriate levels of governance. As typical with issues of sustainability there are a lot more 'oughts' and 'shoulds' than specific recommendations and agreed responsibilities. Nonetheless the determinant *Innovation & Research* must by its very nature offer the most potential and the consensus here is that 'a substantial investment is required in order to fulfil the Sustainable Development Strategy', though who should undertake the investment is unclear.

More concrete proposals are found in the area of *Global/Local Interaction* where it is advocated that EU co-ordination in four key policy areas must be worked towards; climate change, natural resources, transport and public health. To complement this pre-existent policy agreement on climate change must be implemented and the contribution of renewable energy sources must be increased proportionately. Prices, it is suggested, should be linked to their environmental impact, especially in the field of transport. While these propositions would require interventions at the market and national level, EU action is essential to reform the Common Agriculture Policy which should demand more environmentally sustainable forms of production.

For the determinant *Quality*, specific EU wide measures are suggested; on public health (including a European surveillance and early warning system on health issues) and the initiation of action on the problems relating to rising levels of traffic should take the form of EU policy on a sustainable transport system which includes greater investment in public transport and other actions to encourage a major modal shift.

Perhaps most pertinent to the Gothenburg goals, is the *Resources and Funds* determinant. However, in relation to this determinant, Gothenburg only specifically suggests EU level action in the sector of fishing where it is proposed that the Common Fisheries Policy must address the issue of over-fishing more pro-actively.

The implementation of the EU Integrated Product Policy is urged though, in co-operation with business. Other than that, recommendations that new measures are implemented to maintain bio-diversity and preserve eco-systems and reduce the levels of waste produced in the EU are articulated.

Whatever the shortcomings of its application, the Gothenburg commitment constitutes a vital and symbolically significant step in leading the way in developing and promoting the environment agenda. It is for research, such as that conducted by this ESPON project, to develop regionally specific recommendations for action<sup>29</sup> and, as stressed in the Gothenburg strategy, the ultimate way of reconciling environmental sustainability and global competitiveness is to develop some way of separating economic growth from resource use.

### 4.3 Concluding Remarks

Overall, the above review of ESPON Projects' policy recommendations suggests a need to move away from conventional trajectories for competitiveness if a concurrent goal of achieving sustainable development is to be met. The most notable required change with regard to policy options is a spatial repositioning away from an association of competitiveness with the capabilities of capital cities towards a broadening of the economic base and an explicit promotion of polycentricity. This is considered as not only providing economic benefits, but also promoting sustainability. If polycentricity is acceptable as an objective in the fulfilment of the Lisbon and Gothenburg agendas, then research and development technologies (RDT) seem to be the most appropriate tool because innovations in this sphere do not depend on geographical connectivity. As such, with targeted intervention and investment, future RDT growth could positively affect the spatial structure of the EU territory by stimulating competition away from the Core.

In practice, achieving this 're-growth' in an effective way may mean moving away from a 'remedial' approach to structural problems, towards concentrating on future 'hubs with potential'. Other policy aspects covered by the ESPON work prove more problematic for working simultaneously towards the goals of competitiveness and sustainability. Transportation is particularly challenging, the focus of conflict being related to fuel consumption. Here, compromises were found primarily in the desirability of modal shifts. Similarly with energy policy, diversification was promoted as the way forward. The issue of the changing demographic composition of the EU proved especially resistant to practical recommendations, particularly in terms of the realisation of the Lisbon agenda. This is an area that needs more exploration as regards the implications of current population projections on economic competitiveness, environmental sustainability and future spatial development. Implications which arise more broadly from all projects relate to the identification of regional variation, denoted by area type and geographical area, which affects the capacity to develop competitive potential. This aspect of work can feed most directly into future regional level policy recommendations.

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<sup>29</sup> Please, refer to the Final Interim Report of ESPON project 3.3 for an elaboration of these.

## 5. Some first co-operative scenarios to be proposed

Scenario describes a situation where the EU pursues a strong two-pronged strategy of economic competitiveness and territorial cohesion. This is currently articulated in the Lisbon/Gothenburg strategy that aims at competitiveness, cohesion and sustainable development and thus echoes the principles stated in the ESDP. The concept of polycentricity is used as a vehicle to achieve implementation.

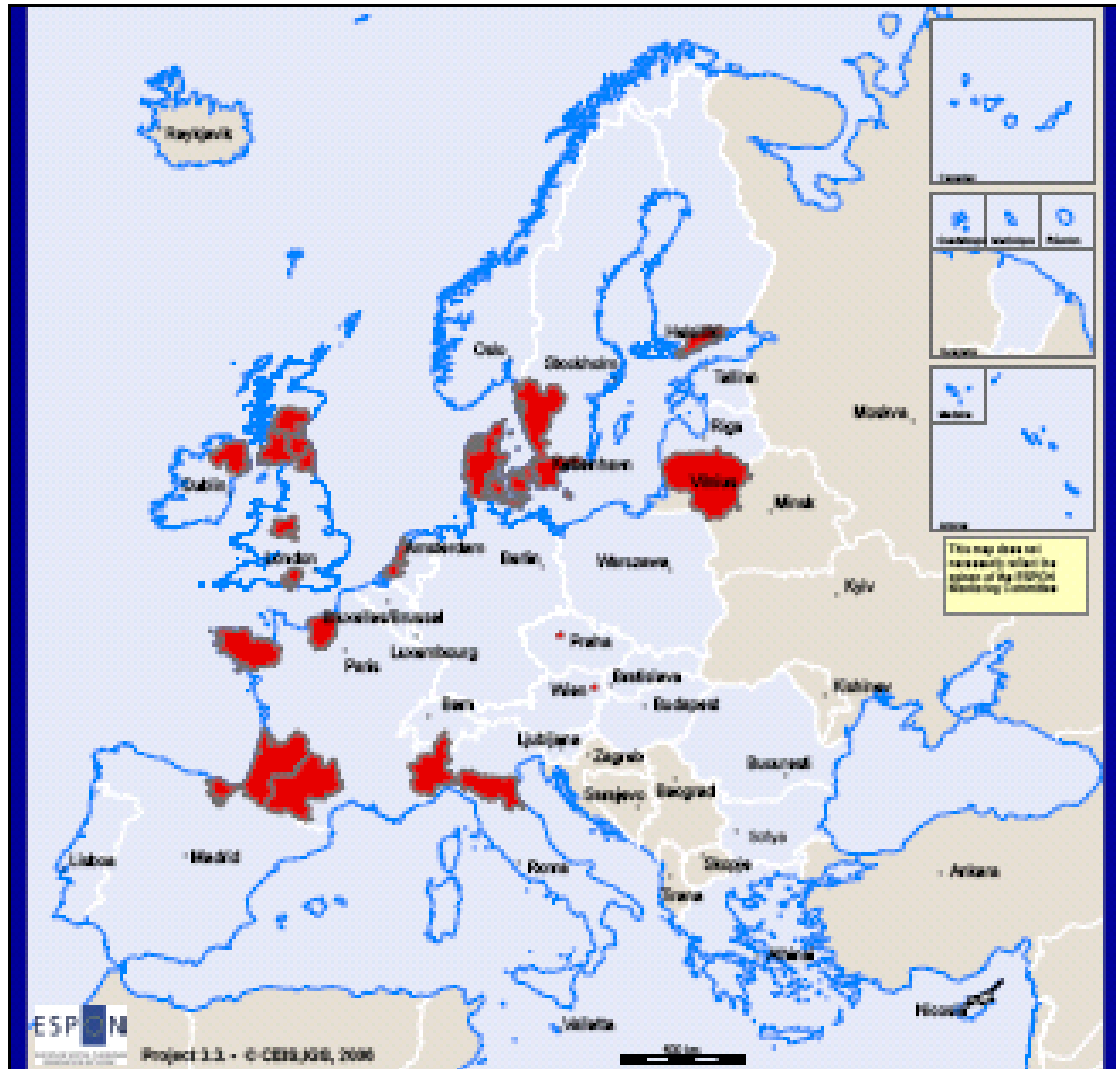
Some results of the projects have been considered essential by the TPG for establishing a new perspective to be adopted towards the achievement of a full accomplished Lisbon/Gothenburg strategy. Here are the most significant results:

- The initial regional resources play an important role; nevertheless seemingly disadvantaged countries don't have to be excluded from the beginning of the development process scheduled by the Lisbon/Gothenburg strategy;
- The concept of "capability" can be linked to that of "use function" and then contribute to evaluating the most appropriated actions to undertake through the Structural Funds, monitoring over time the relative employment performance;
- The potentially useful territorial aspects emerge as much as the economic ones, explaining how to activate the expectations of Lisbon/Gothenburg for each type of region;
- The potentials for development and territorial imbalances are a clear indication to start common trans-national projects of co-operation, for typology or sector of development, according to the Lisbon/Gothenburg objectives;
- The differences in development potentials reflect the diversity in European territories, thus requiring a differentiation in the interventions, especially in the use of Structural Funds;
- Diversity can be explained only through a complex analysis of the indicators that reveal its territorial dimension. Measuring the Lisbon/Gothenburg strategy means measuring diversity in its territorial implementation

In the following pages the thematic priority co-operation areas are shown, and where to apply the graded policies scheduled in the attached correlation matrix.

**Figure 98:** Potential regional leads in co-operative trans-national I&R projects

**MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2**



Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

■ ABSOLUTE

© European Commission, for the geographic knowledge  
Map of Europe 2007, 2008  
Origin of data: CIA, CIA, 2006



### MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2



Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

VERY HIGH

EU Commission Directorate-General for Regional Development  
Geoprocessing Unit (GEOG) (2006)

## MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2



Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

HIGH

If you are using this map, please refer to the geographic coordinates (degree of latitude and longitude) of each NUTS 2 region.

**Figure 99:** Potential regional leads in co-operative trans-national Global/Local projects

**MAP GL 43 - TERRITORIAL Global Local Interaction**



Values obtained combining Global Local:  
 Synthetic Spatial Composite Index and TT2 -  
 Territorial typologies at NUTS2

 ABSOLUTE

© European Spatial Observation Network for the geographic coordinate  
 Regional information: NUTS, 2001  
 Data of year 2000, 2001, 2006

## MAP GL 43 - TERRITORIAL Global Local Interaction



Values obtained combining Global Local:  
Symplectic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

VERY HIGH

© The geographic description for the geographic knowledge:  
Regional reference: NUTS, 2000  
Scale of base GIS, CHC, 2000

### MAP GL 43 - TERRITORIAL Global Local Interaction



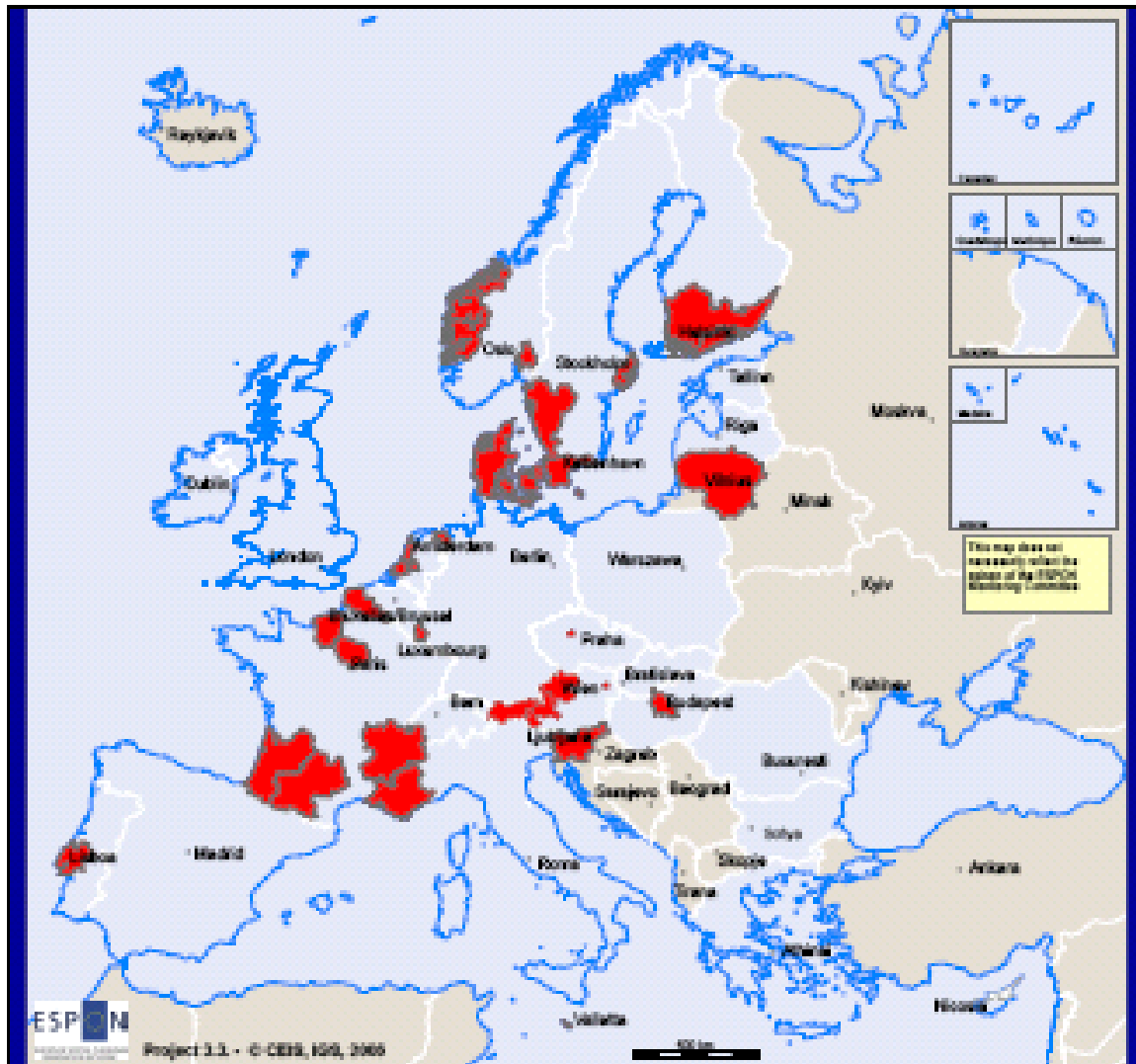
Values obtained combining Global Local: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

© The geographic description for the geographic boundaries (Spatial reference: WGS84, 2011) (Scale of map: 0:00, 0:00, 0:00)

HIGH

**Figure 100:** Potential regional leads in co-operative trans-national Quality projects

**MAP Qty 45 - Territorial QUALITY**



Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

ABSOLUTE

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Regional information: ESPON, 2001  
Maps of year: 2004, 2004, 2004

MAP Qty 45 - Territorial QUALITY



Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

VERY HIGH

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Regional observatory: 06/12/2008  
Map of year: 2004, 2004, 2004

MAP Qty 45 - Territorial QUALITY



Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

HIGH

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Regional Research (EAGIR), 2005  
Help of data: CEK, CIA, 2004



**Figure 101:** Potential regional leads in co-operative trans-national Resource and Funds projects

**MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2**



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

■ ABSOLUTE

© Geographisches Institut der Universität Wien  
© Institut National de la Statistique, 2003  
Copie of data: GIS, GIS, 2003

MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

VERY HIGH

© Geographische Anstalt der Universität Wien  
Regionaldatenbank NUTS2, 2000  
Origin of data: ISTAT, CIA, 2004

MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

  HIGH

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Regionalentwicklung GISIG, 2003  
Origin of data: GISIG, GISIG, 2003

In this scenario, the EU embarks on a mission to implement the Lisbon/Gothenburg strategy. While large enterprises and advanced regions will adapt to the new requirements based on (own and external) private resources, knowledge-based and innovative development of small and medium-sized firms and of more peripheral regions will need to be supported by EU and national policies. It assumes also that a more differentiated approach will need to be applied to countries and regions that are in quite different situations. According to the EuroTigers strategy, support is given to areas with the potential to become competitive on a global scale. Consequently, new competitive knowledge and innovation centres will emerge both inside and outside of the “Pentagon” and not within, but around large urban centres. The EU and cohesion policy will play a more active role in these developments than previously. The most lagging regions are largely “written off” as having little promise for improving EU competitiveness. Like other scenarios, it is assumed that current globalisation trends will continue as well as the rise of the knowledge economy. It furthermore assumes that external conditions will be favourable, or at least not unfavourable, and enabling to implement the reform of the EU.

## 5.1 *Driving forces*

The main driving forces of this scenario are the ambitions of the Lisbon/Gothenburg strategy and the midterm review, European enlargement, globalisation and increasing pressure from international competitors in the knowledge economy. These will be considered in turn.

- *Critical reports:* Lisbon/Gothenburg remain the best statement of European ambitions behind which most member states and citizens can rally. The midterm reviews only emphasise the fact that more efforts — not less — are needed at the European scale. This is consistent with the ESDP and many ESPON findings. In addition, insights into the knowledge economy show that ‘softer’ criteria are also vital in securing a region’s competitiveness, an argument for retaining the aspects of cohesion and sustainability in the Lisbon agenda.
- *Enlargement:* there is a formidable task of reforming sectorial policy in a fair way to accommodate the new member states and bring them up to speed with the rest of Europe. It is acknowledged that the low starting point in terms of GDP per capita can translate itself into high annual growth, thus interesting for investors.
- *Globalisation:* the mediocre economic performance of Europe in terms of annual growth could be improved with the incorporation of developing regions (Euro-Tigers) gained through the EU enlargement.
- *Governance:* economic organisations (enterprises) will apply business strategies suitable to enhance competitiveness and innovation. Governments and politicians of member states, inspired by their responsibility for the future of Europe, will implement those changes in the institutions, laws and regulations at national and supranational level, which are necessary to set the European economy on a new development path, without losing the specific European achievements and social traditions.

Of course, with the subsequent enlargements the European Union became more heterogeneous. Heterogeneity poses, without doubt, a threat to community governance, but simultaneously it is an opportunity as well. The European Union has to apply a more differentiated approach to countries and regions being in very different situations and at rather different development level. A differentiated approach is not necessarily contradictory to integration and can, in specific situations, even facilitate and promote integration. In addition, although the new member states are lagging economically, for precisely this reason they have great growth potential, which far exceeds that of the elite areas in Europe in proportional terms. This is the essence of the EuroTigers philosophy. The new member states of the Union offer a suitable ground for experiments with new policies and new methods of government. This has already been realised by the European Commission. For example, the European Union applied a 50:50 share between Guarantee and Guidance sections immediately after accession. This proportion will bring about a much more rapid structural change in rural areas than what we could observe in the old member states. There are many ways to restructure European Agricultural, Social, R&D, Cohesion and Structural Funds in order to promote stronger structural change and growth. These changes can be applied first in the new member states, and if they work well there, they can be extended to the whole territory of the EU.

The economies of the new member states — and those of the “old” cohesion countries as well — are now growing faster than the EU average. Obviously, their economic weight is not sufficient to give a momentum to the overall growth of the EU, nevertheless theirs can be a valuable contribution to the dynamics and to the more balanced spatial structure of the EU beyond their proper weight, if managed properly. That is one of the main elements of this scenario.

The midterm review of the Lisbon/Gothenburg strategy provides a new impetus for change within Europe. The sobering conclusions serve as a call for action to implement the strategy in its full form: competitiveness, cohesion and sustainability. This becomes a rallying call for all member states; rather than accept a Europe of ‘two speeds’, all member states must group together to ensure that Lisbon becomes a reality. In order to raise the political support necessary in an enlarged Europe, the strategy devised to unite old and new member states stresses the complementarity of competitiveness and cohesion. Ireland is held up as a ‘EuroTiger’, a shining example of successful use of Structural Funds, and a model for the N10. Its progressive stance on intra-EU migration is also praised.

The essence of the Tiger strategy is to identify specific areas and sectors that hold the most promise for rapid and sustainable economic development. But these are not necessarily the elite. Proponents of the EuroTiger strategy see devoting resources solely to the performing areas as flawed for three reasons. First, they already have such formidable resources that any extra support provided by the EU would be very small in proportional terms. Second, since these top-performers are already successful (by definition), they most likely have the resources to remain competitive without EU assistance. Third, since most of these institutions and regions are located in relatively wealthy member states anyway, if support were needed, this could be granted at the national level. The EuroTiger strategy, in contrast, seeks out instances where it can make a decisive contribution. The philosophy is similar to that of regional policy where funds are only given as a critical extra push for a project, rather than comprising a significant share of the total costs.

Like in spatial development, the motto is that polycentricity constitutes the golden mean between equity/welfare and efficiency/redistribution. This has the clear advantage of broadening the base of political support for the strategy, seen as a prerequisite for the implementation of the Lisbon strategy (COM(2005)24, p. 12). The experience of the last years seems to confirm the viability of this strategy. Not just the new member states, but practically all capital regions have increased their relative level of development (compared to EU average) in the Northern, Southern and Eastern periphery: Stockholm, Helsinki, Budapest, Bucharest and Warsaw with more than 10 percentage points. Beside capital regions, there are a few other regions outside the Pentagon which can fulfil the growth pole function. This means that without these regions the “catching-up” process in these countries could not take place; these regions and cities are actually the “carriers of growth” in the relevant areas. It is a fact that cannot be disregarded. It is assumed in this scenario that EU policy will build upon this process as a very important factor of European cohesion policy and, simultaneously, factor of European growth and competitiveness. Additionally, this development process will largely contribute to a more polycentric structure of European space and urban network.

## 5.2 Implementation of the strategy

From the beginning, Lisbon/Gothenburg Strategy have required various interventions into strategic decisions and sectorial policies to realise itself (i.e., *Agriculture, Enlargement, Environment and nature, Regional policy, Transport*) and a budgetary increase was already necessary to translate EU-scale priorities into concrete results.

By the new Structural Funds season 2007-2013, this could be possible, with reference to cohesion and sustainability into II ESDP.

The I ESDP policy on the territory was marked by a very careful approach to the problems resulting from any possible disparities between one issue and another, according to a global vision that considers the Community territory a one-off reality, despite the fundamental differences between one country and the other or one field and the other. Nevertheless, these very differences paint a comprehensive picture, however varied it can be, of any possible problems. They also set a series of questions that cannot be easily solved. The ESDP policy has resorted to the use of “suggestions”, in order to be deliberately prudent through recommendations that were not binding, that were not meant as impositions, but that played the role of *several possibilities* one could appeal to, thus choosing the ones that best suited the territorial reality taken into consideration.

They are matrices with multiple components, each of which is marked by its own interpretative story. This means that each component has been examined in an integrated way and then compared with the others so that it does not prove detrimental to or inconsistent with the general framework. Each component, however, is independent and, at the same time, possesses a more or less wide range of application possibilities. It is up to the policy-makers, academics and researchers to gradually find out the best solutions to the cases of real application on the territory. This kind of policy, although only partially deliberately expressed within the ESDP programme, is very reliable in terms of experiments and

applications and it also greatly reduces any possible risk of inconsistency, intolerance, inadequacy and disparities between one sector and the other.

Then much is justly delegated to the skills of the administrator and of his/her scientific aides, to their ability to assess and rightly pinpoint the indications for a real application.

On the other hand a different way of harmonising the suggestions could not be conceived, and this is even more true today with an enlarged Europe and with the membership of countries with remarkable differences, above all in their policies and institutions, besides geomorphologies, climates and organizational methods.

Nor does a similar approach cause a lack of organization: the utopia of an integrated Europe despite its own varied aspects will always be a utopia. And it should remain a utopia. Every territory should possess and maintain its own peculiarities, yet respectful of the other's differences. On the contrary, it is just these peculiarities that mark out and define Europe as a whole. The attempt to outline a single territorial policy is also utopian. Every experimentation in this respect would be destructive and dangerous. The awareness of the disparities is the key to a real and constructive policy.

This, obviously, does not mean not tending to a common management of the several aspects; but the limits that a hypothetical management may give rise to is to be carefully examined. Take a paradoxical example; what may the policy for the coastal areas, which is so well outlined within the ESDP programme, mean to those countries that do not have any? Take also a less paradoxical but more general example: which common policy may be applied to the field of transports among highly technologically developed countries and the still developing ones today, given the present disparities in the several territorial and administrative realities?

The current objective, as already mentioned, is to "lean towards a common policy", to "tend to a common policy", thus moving away from the presumption in wanting to "carry out" a common policy today.

For this reason, before examining any possible inconsistency, some basic elements and foundations that underpin the targeted analysis must be provided:

1. Respect for diversities: administrative/institutional, geomorphologic/environmental/climatic, social/religious and also those connected with the juridical and economic level of the several countries;
2. The awareness that these very diversities embody, at times, the basic elements for Europe as a whole: geographical, climatic, environmental, religious and even political diversities cannot but represent important values in the age of globalization. These differences must be preserved, still from the point of view of the development of the different parts and must adopt targeted sectional policies;
3. The awareness, on the other hand, of some worrying diversities that may constitute a hindrance: social, economic, infrastructural and, sometimes, institutional differences can undermine the Community growth. It is therefore necessary to aim at the equalization of the common territory over time.

The task is also hard in the field of non-effective diversities and of the resolution of such diversities; these disparities may not always be valid for every country.

The three great spheres of the "economic efficiency", "territorial equity" and "environmental sustainability" require a different specific approach to any relevant

issue (transport, urban management, rural areas, etc. ) according to each single country, each single reality and each more or less wide territorial field. Such disparities are often apparent also at lower levels, such as the regional and, at times, the local ones. And it is quite difficult to put forward considerations that can be useful to a national scale.

One cannot therefore but consider what is stated above. And, similarly, for honesty's sake, the utopia of an ideal common policy cannot be supported. Actually, two macro issues are clear and emerge and must always be taken into consideration: «diversity» and the «limited possibility of tending to a common territorial policy».

Each single action, on the long-term, must aim at bridging the gap that today exists among the European countries. And again, each action must aim at granting the maximum respect for the structural diversities that cannot be overcome.

This is the only way (and within this dimension) by which debates like «efficiency against equity» and «territorial equity against environmental sustainability» play a non-rhetorical but, on the contrary, a productive role. And, probably, following the change in the principle of equity itself, also the very terms of reference change.

Productivity should be searched in relationships such as «common efficiency within diversities» and «common environmental sustainability within the territorial diversities».

This is a scenario that transforms the terms of many analyses applied to the territorial realities: the analysis that compares the costs and the advantages, for instance, in the field of services for the urban transport or in the field of the administration of rural areas, or again in the wide and transversal field of the ICT, in the one of the natural risks and, even more so, in that of the cultural heritage.

The key to a successful ESPON programme lies in the assimilation of these components of diversities and in the humility of proposing hypothetical solutions, mainly in the long-term.

For this reason a further explanation for the stages of the ESPON actions – hereinafter referred to as “suggestions” – is necessary:

- **in the short-term:** such suggestions should include all those actions that, although aiming at a common Europe, are faced with the present great differences; these are the actions that only partially include (or do not include at all) the idea of common policy;
- **in the medium-term:** all those actions for which a possible reduction in time differences is foreseen. They include, for instance, structural diversities, for which a subjective policy, strictly connected with the territory it refers to and whose key is the very diversity, cannot be applied;
- **in the long-term:** all those actions for which a common policy is possible and for which univocal solutions may exist and Policy Recommendations summarise the present diversities in order to reach the only possible equity.

Concluding, some final recommendations can help in order to sustain the proposal of previous trans-border cooperative scenarios, both at the national and regional levels.

Regarding **I&R at national level**, it is proposed:



- to draw some common measures (as operative and infrastructural projects) directly aimed at countries with a very low I&R profile. These measures could be organised in sectorial interventions and be included as a priority of the new SF cooperative network. It is suggested to prefer and to involve in these projects as Leaders the Eastern countries, measuring their reliability with respect to their financial national plans. This could be a measure of their real intentions to invest in an appropriate technological base (indispensable to have I&R exchanges and a growth in ICS);
- the national policies must be addressed to support the population access into the Information Society ("surfing the web population") in most European countries, and the firms' access as well, especially in Eastern countries and the Mediterranean area, to start up more intensive internationalisation policies;
- the base of the ICS must be the education, which has to be organised in order to be closer to the EU goals and to offer a common platform for obtaining – in a medium-term perspective – a more efficient human capital structure. Scrupulous attention must be focused on ageing population and its possible re-involvement into the productive system with new responsibility positions. To achieve this, it is necessary to start from the tertiary education level with life-long learning projects;
- sectorial policies must innovate and restructure the knowledge innovative structures and R&D infrastructures with the help of new telecommunication systems (new dedicated technologies by European patents) in order to support a very intense exchange between research products and their applications and operative level.

Regarding **I&R regional level**, it is proposed:

- to link I&R at the local job market, opening the access to the new Structural Funds by a stronger union among SMEs - regional institutions - educational/research system;
- to have a greater local dissemination of SF projects in the local/regional system, to open the EU participation at the public-private co-operation, favouring more integration with the EU vision of the ICT society; and to dedicate more attention to involve into educational new SF access the Mediterranean and the North Sea regions, as well as the Baltic ones, including Estonia, Latvia, Lithuania and the Eastern European regions. This is useful to balance the EU educational offer and the mobility of Human Capital, which are more positive in the Eastern regions than in the old countries, where the population average age is higher;
- to actualise the education policies towards the international needs, particularly with respect to tertiary education level in the Mediterranean regions for contributing to reach a similar regional level as in the Pentagon, Sweden and Finland, in order to realise new knowledge innovative structures, both at EU/national and regional levels, and to obtain more telecommunication horizontal structural connection for granting a greater integration of the Europe system, overtaking the design of the positive 'Y', by using especially new technologies contributions.

Regarding **Global Local Interaction at national level**, it is proposed:

- to ask for a fast full reception of major European and international agreements and experimental use of the European strategic assessment processes, particularly of the Strategic Environmental Assessment (SEA) applied to policies, programs, plans at different subsidiary levels of constitutional country organisations;

- to create a common language in the global 'arena' of sustainability and sustainable development, to share some principles and the relative applying rules about G/L governance, and to stress the EU countries positive attitude (transforming it into virtuous behaviour) towards sustainable planning;
- to support some Specific Environmental Concerns, as the Kyoto Protocol, with an appropriate technical and technological support (e.g. IPPC, BAT, etc.) particularly into delocalised investments in the new Eastern countries;
- to guarantee an appropriate level of safety to people migrating into EU countries, re-writing the relative agreements. In this picture, the metropolitan capitals' role of the old European countries is fundamental, as well as of the peripheral regions. In this last case, it is necessary to discuss the role of boundary regions in the new ESDP and their planning choices;
- to exploit the benchmarking studies on tourism, stressing the local endogenous resources and their sustainable use, focusing attention on differentiating the single projects, in order to be cooperative at European scale and competitive at a global level. In this context, it is possible to enhance projects that link tourism with education mobility, or where this relationship appears linked to the global cultural system;
- to enhance the researchers exchange on the base of applied projects, which involve the use of new low impact technologies and their international patents;
- to start specific environmental projects that involve the unemployed active population. These projects aim to create new and different employment occasions linked to the local endogenous job market, particularly in the coastal or boundary regions, in order to achieve and maintain social interaction;
- to start specific manufacturing enterprise policies for restructuring this sector, e.g. fixing common new labour cost values and fiscal pressure to re-launch the internal product market in respect of the local productive identity. Some specific policies are needed on energy self sufficiency and the carbon re-launching, with a parallel attention to the experimental use of sustainable technologies in different sectors. For this aspect, it could be useful to look at the governments' position regarding the nuclear energy choice, and at the substantial absence of energy raw materials in some EU countries;
- to improve the general territorial appeal by territorial marketing studies in order to offer the international investors with some alternatives other than the capital regions and to activate structural interventions about multimodal accessibility involving them in the future ESDP and EU Infrastructural Plans. Therefore it could be necessary a revision of the actual state of the projects for the corridors and the network, connecting, for instance, the Adriatic and the Eastern regions, or the Portuguese-Spanish-French ones. In this review we need to put attention on the intra-regional organization too, particularly in the Northern countries;
- to contribute for reaching a common fiscal pressure (on the example of flat tax) offering an "homogenous blocs" picture to the global system of investment (DFI inbound and outbound);
- to perform a revision of the current economic variables, e.g. trending to obtain a common level of Labour Cost Index, Long term interest rate, etc., but also a real economy interaction;

- to implement R&D infrastructures for each countries, studying strategic localisation in different regions, involving credit institutions level and insurance companies in order to achieve common and dedicated policies, to balance their localization, and to sustain a better general management attitude;
- to fix clear and common procedures to evaluate the territorial sustainable limits about growth and investments.

Regarding **Global Local Interaction at regional level**, it is proposed:

- to stress the adoption and application of common general Environment Concerns at regional level, integrating them with more specific enterprise technical and technological measures. This is necessary to resume the environmental protection measures into a Unique Text or Handbook to sustain international and trans-national co-operative programs, plans and projects with regard to SEA, EIA, BAT, IPPC, TQ;
- to measure the sustainable level of population exchange into large areas and metropolitan regions to re-design the central places into the ESDP and the relative polycentric/polynuclear regions, guaranteeing qualitative choices about settlement capability and its good life quality. To achieve this goal, it is necessary to re-launch the role of rurban and peri-urban areas;
- to sustain specific co-operative projects between well known tourist sites and Eastern regions, favouring the peripheral or internal regions that show a low participation at this phenomenon but have a great cultural and historical tradition. For them the EU new projects can conceive, through the Structural Funds, new and innovative solutions linked at the local identities, probably less competitive in the short period but more sustainable and cohesive: it is possible to realise a better offer about the tourist marketing. It could contribute to link the tourist phenomena to the youth mobility within the exchanges of European students, which involve the same regions of the tourism outbound. Of course, this strong relation should be oriented to sustain the family income and also the European regional GDPpps per capita, in the respect of the different cultural positions, offering a new educational and knowledge system through globalization inputs and IC society;
- to confirm a more open and global position towards the students and researchers outbound regional mobility, thus supporting the regional systems to be strongly attractive for the researchers which work in high-tech fields and require a strong link with the enterprise system too, or sustaining the availability to networking in scientific/technical projects, favouring the cultural and operational exchanges;
- to stress the delocalization of these suggestions with regard to population mobility, particularly in borderline regions;
- to confirm and subscribe the regional stability pact on the active population, using the cohesion regional funds to reinforce the local social interaction, involving in this pact the manufacturing enterprises to sustain the bottom-up structural change in economic European activities, in the past years focused on manufacturing production and local trade activities;
- to maintain the productive system identity, changing the regional economic model by specific fiscal and financial instruments;
- to consolidate the internal goods and services trades in order to build a common economic base, using the same rules of the free EU market circuits, favouring the internationalisation position of regional systems and city-regions;

- to homogenize the regional fiscal pressures involving some public service offer and the labour cost, in order to re-organise the economic situation on the base of a project, aiming in the medium-term at interest rate, the banking status and attractive element for trans-national investments. This perspective could re-launch the I&R organizational rules and its infrastructural base, but also the regional *Economy capability to make Interaction* by a dedicate policy about credit institutions and insurance companies, to guarantee a positive performance and to offer a more strategic localization organised on endogenous models, thus reinforcing the existing external links;
- to re-organise a balanced distribution of management attitude with respect to the global financial interaction and the regional capability to have a real contact with the global vision, combating the highest regional concentration and favouring new externalities and economic territorial advantages. This position could contribute to revive the role of the peripheral areas, involving a greater number of regions, independently from the general economic or material resources, but on the base of social cohesive attitude and local population-enterprise-policy makers relationship.

Regarding **Quality at national level**, it is proposed:

- to use more than just one indicator (e.g. GDPpps per capita) to assess the country positions and to harmonise consumer prices index and the consumption aggregates (at current prices) towards a common medium level in all UE;
- to connect the level of employment (employment index), as well as its organisation in the traditional industrial regions, to the de-industrialisation process;
- to change the parameters to assess general economic performance (currently calculated by traditional economic variables) to mitigate some specific situations linked to the growth of consumptions and prices of goods and services, due to the enlargement;
- to change the parameters of calculus of buying power, focusing attention on EU basic commodities;
- to stress the *infrastructural variables of cohesion* as significant measure of welfare efficiency, and of the EU states' internal integration tendency, and to propose new welfare common policies about health, leisure services, education, etc. It is possible to search for a first possibility to organise some cooperative intra-regional trans-national areas, on the base of a similar infra-structural 'corema' (e.g., France, Italy, Austria, Switzerland, Germany; or Finland and the three Baltic republics);
- to complete the network of physical accessibility and multimodal organisation, and the horizontal TCL development through new and advanced technologies; and to consider the cohesion variables as significant base of starting up these development projects into peripheral areas, involving different people into cultural exchange contributions;
- to consider *life quality* as a complex synthetic index, representative of the regional identity in the EU context, using it for evaluations of the SF interventions' results;
- to ask for the full national and regional adoption of the "Governance White Book 2001" considering *government quality* a fundamental point of European integration and a measure of the common European political feeling. Therefore it is necessary to consider the government quality as a reference test of the trend and the attitude towards a common institutional and constitutional European goal;

- to use the subsidiarity principle and its rules to create a link between government and governance, looking at the territorial government as both a general political bottom-up vision (national policies in agreement with regional and local policies, programs and plans), favouring intra and inter-regional cohesive instrument, as well as a new intergenerational pact between state and citizen, and an opportunity to re-define some equal rules based on lay ethic basic principles (e.g. the sustainability) by a different choice of power exercise.
- to fix different governance rules with respect to the applied geographical/territorial scale (urban, metropolitan, regional) to clarify the different territorial and productive aims, choosing the strategies to catch them up, monitoring the performance and cohesion;
- to consider the SEA linked to the governance rules as a possible operational substitution for the EU open coordination method, and a support of the SF project choices, capable to accompany the European technical and political working method from the beginning to the end;
- to consider the national and local government levels as governance institutional promoters, suggesting practice, procedures, guide-lines to orient the investors, the enterprise systems, and the entrepreneurs' action towards "best practice";
- to use SEA and governance for measuring the efficiency of economic and territorial actors and introducing innovative methods into planning (i.e. to define new and appropriate economics and financial strategies), involving the administrative system (management), the political system (board), the legal system, the citizens, the productive system, etc., identifying and re-modelling both the technical-financial incentives to catch up common aims, and the procedural choices to obtain an efficient and sustainable development project;
- to ask for the adoption of the Total Quality norms and of Environmental Total Quality (e.g. EMAS) into the territorial/spatial plans, as well as for the enterprise and institutional action, as a management competitiveness model;
- to improve the citizenship confidence in some countries, by working on the participation to the institutional life by communication systems to explain the European choice, e.g. in matter of financial and monetary policies;
- to propose a common consideration about *Social Quality and Cohesion*, evaluating the quality of some indicators at the base of social and welfare system, as particularly the capability of supporting the balanced and satisfying relationships in the whole civil society (from stakeholders to shareholders, etc.). These indicators could be different among the EU countries, but their political organisation and national/regional cost must be the same with regard to the average income distribution;
- to consider the need of implementing Social Cohesion resources to contrast the risk of social exclusion, particularly of children aged 0-17 who are living in households where no-one works, and the general level (index) of poverty in the Mediterranean area and along the Eastern boundaries. In this case it could be useful to reorganise the social wellness attitude through dedicated SF that take in charge equal opportunity, with attention on the female employment ratio;
- to support the social-medical research on fertility, particularly in areas where social organization is living a critical phase or is in restructuring.

Regarding **Quality at regional level**, it is proposed:

- to use some results (e.g. the social wellness aptitude) to reinforce the co-operative regional projects, evaluating economic variables in relationship with regional structural situations, looking at productive de-localisation to contrast the open global market and re-balance trans-regional productions with new network forms, involving the new Eastern regions;
- to revisit the regional welfare system towards a right equilibrium into both the old regions and the new ones, particularly with respect to the hospital beds' availability in front of the health regional demand; and in consideration also of the hotel beds availability linked to European fitness and health tourism;
- to develop technological regional equipment, into trans-national cooperative areas to develop the society of information, communication and knowledge, and to develop new types of technologies suggested to obtain the Lisbon objectives;
- to define new inter-municipal waste projects, particularly in matter of hazardous waste and waste recycling, evaluating the optimum territorial dimension of disposal relationship with new technology and energy self-sufficiency (e.g. FUA);
- to use SEA for building a regional Environmental Picture of knowledge to assess the project offer regarding the climate change and other environmental matters to combat the cross-damage of waste and natural hazards;
- to reduce the dependency of regional social cohesion resources from the income distribution, contrasting the risk of children exclusion and its dependency from the level of poverty; and to reinforce those EU regional systems that have already received some political cohesive inputs and pushes;
- to dedicate priority projects first to the Ireland-United Kingdom system, Estonia and Slovakia; immediately after, to the France-Italy axis, the Cyprus-Greek-Bulgaria-Romania axis with an involvement of the Latvia-Lithuania-Poland-Czech Republic one. Attention must be focused on the regional positions of Switzerland and Poland with the addition of Slovakia, Czech Republic, Slovenia, Estonia and United Kingdom. This confirms the previous suggestions about the trans-national cooperative priorities in these areas. *Life and environmental quality* adds to the Spanish critical situation the one of Italy, Ireland and Greece, introducing a more detailed priority into the cooperative trans-boundary field. Particular attention has to be focused on great part of Spain, Ireland and Austria, the North-East of UK, in the Centre-South-East of Italy, a great part of Greek-Bulgaria-Romania, the boundary regions in Poland toward Lithuania and Latvia (which must be included) and the central zone of France.

Regarding **Resources and Funds at national level**, it is proposed:

- to balance the regional differences in the new SF distribution, on the base of the regional capability to be competitive in sustainability;
- referring to the *Policies for the Lisbon Strategy (Structure)*, the Lisbon recommendation for regionally led innovation poles would seem to be most appropriate, particularly if backed by EIB funding, also as suggested by that strategy. To compensate for the inadequacies in Central and Eastern Europe, new strengths may emerge by building up interventions in leading areas as suggested by the team leaders in ESPON project 1.1.3. The map indicates that the central areas of the capital cities of Poland and the Czech Republic are already leading the way in this regard. Given the situation of peripheral areas, the recommendation of ESPON project 1.1.1 – to prioritise the provision of higher order services to second and lower tier cities would be pertinent – in order to broaden the competitive

position of the EU as a whole. In addition, targeting isolated rural areas to tackle depopulation as suggested by ESPON 1.1.2 and 1.3.2 teams would perhaps produce a more balanced picture in the future;

- referring to *Firms Aids*, polarisation as economic support is fairly clear cut – virtually the whole of Central and Eastern Europe, Ireland and Portugal have the *lowest* level of state support to firms. In the latter two cases the reason may be reliance on EU monies;

- referring to *Human Capital Expenditure*, here there is less polarisation, a more even spread of expenditure, except for Greece, the Czech Republic, most of Hungary and Slovakia and parts of Spain and Portugal.

- referring to *Public Expenditure for Employment*, to contrast the diagonal concentration of high public expenditure from Ireland through to Italy, with the South-West, North-East and Central-East exhibiting much lower levels of expenditure. It would seem logical to follow the Lisbon Strategy in terms of human resources – i.e. building up the service sector in IT, telecommunications etc. in these areas to sustain more specific Human Capital Policies

- referring to *Climate and Natural Resources Expenditure*, to sustain the expenditure in the East, only matched by Southern Portugal, Corse and small areas of Southern Belgium and Northern Italy. Recommendations drawn from ESPON project 1.3.1 may be most appropriate, stressing international exchange in relevant aspects of innovation and research and cross-border activities in pollution, risk prevention and tackling environmental problems.

- referring to *Structural Funds and Accessibility by Population* it is interesting in the light of the recommendation from project 2.1.1 that transport should be developed to enhance EU competitiveness as a whole – and not directed to national objectives. One would hope for a different situation in 15-20 years if ESPON recommendations (1.1.1 and 1.2.1) of developing corridors between urban areas are followed (n.b. The choice of indicator for accessibility is interesting here - hours by car - in view of ESPON 1.2.1 policy conclusions and the Gothenburg Agenda.).

- referring to *policies for the Gothenburg Strategy (Structure)*, it is necessary to combat the lowest expenditures of the Netherlands, Belgium, Germany and then Central and Eastern Europe, achieving the same systemic coverage. In the Gothenburg Strategy public health is one of four priority areas for inter-EU agreement, thus more standardisation in the future would be expected.

- About *Public Expenditure for Poverty and Ageing*, it is necessary to achieve a higher expenditure. Lower levels of expenditure may to a certain extent reflect demographic differences. High spending may also demonstrate the need, according to the principles of Lisbon, for labour markets to become more inclusive of older workers.

Regarding **Resources and Funds at regional level**, it is proposed:

- to oppose the constitutional differences which play an important role in the application of Lisbon and Gothenburg strategies;

- referring to the *Policies for the Lisbon Strategy (Structure)* some regions should be observed (UK, Belgium, Austria, Germany, Netherlands, France, Denmark, Sweden, Finland as well as the central areas of capital regions) that represent a good benchmark by the effects of an autonomous regional government (federalism

or similar system) organising a homogeneous and endogenous system of firms aids, too;

- referring to *Human Capital Expenditure*, it must be linked to *Public Expenditure for Employment*, opposing a diagonal concentration of high public expenditure stretching from Ireland through UK, down to the whole Italian regions, as well as combating the low expenditure in Spain, Norway and Greece to follow the Lisbon Strategy in terms of human resources. In these regional areas it should be necessary to sustain more specific *Human Capital Policies*, as well as in Austria and Belgium.

- referring to *Climate and Natural Resources Expenditure*, SF must be dedicated to counter a substantially lower expenditure in the Eastern regions. For them, some recommendations drawn from ESPON project 1.3.1 may be most appropriate, stressing international exchange in relevant aspects of innovation and research and cross-border activities in pollution, risk prevention and tackling environmental problems. Generally, the old EU regions have got a *high* and *medium-high* consciousness about environmental problems and a lot of them are drawing long-term plans to achieve the full sustainable development (see the recently revival of the Kyoto Protocol). In many cases, this choice is supported from the regional enterprises system (see Quality).

- in relation to *Structural Funds and Accessibility by Population*, it is necessary to balance *high* values of the capital regions with the low levels of Campania and Sicily (Italy), Herefordshire and Shropshire in the North of London (UK), Norte and Centro (Portugal), Castilla y Leó (Spain), Belgium and Rastand Holland (Netherlands), where there is a major sprawl of productive settlements (peri-urbanisation/rurbanisation phenomena) which need a quick access;

- referring to *policies for the Gothenburg Strategy (Structure)* and the relative public expenditure for public health, it is necessary to reflect about different priorities in the development regional plans. E.g., the public health (Gothenburg Strategy) is one of the priorities for the Mediterranean regional governments, but not for the Baltic area or in other countries, where the welfare organization is more balanced and the Expenditure for Public Health keep a constant and continuous level.

- to stress a radical changing in the regional government priorities into some countries and ask for their attention in applying the European policies about *Public Expenditure for Poverty and Ageing*. It should be presented as a measure of the cohesion trend too; and to influence the future *level of co-operation* for the INTERREG project use of resources, involving all the new regions towards a medium-high level, as that of the old regions.

- to overcome by the new ESDP the North/South divide, since it is the strongest division, followed by an East/West divide and, to a certain extent, by a Centre/Periphery one.

- referring to enterprises' aids, polarisation is a possible virtually economic support for the whole of Central and Eastern Europe to involve the older workers and female employment, too.





## **ESPON Project 3.3**

# **Territorial dimension of the Lisbon-Gothenburg strategy**

## **Final Report Revisited Part Three Annexes**

**15 December 2006**



# **Territorial dimension of the Lisbon-Gothenburg strategy**

## **Final Report Revisited Part Three Annexes**

This Report presents the Final results of a research project conducted from July 2004 to March 2006 within the framework of the ESPON 2000-2006 programme, partly financed through the INTERREG programme.

***The content of this Report does not necessarily reflect the opinion of the ESPON Monitoring Committee***

The partnership behind the ESPON programme consists of the EU Commission and the Member States of the EU25, plus Norway, Switzerland, Romania and Bulgaria. Each partner is represented in the ESPON Monitoring Committee.

Information on the ESPON programme and projects can be found on [www.espon.eu](http://www.espon.eu). The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This Final report (including Executive Summary and Annexes) exists both as paper version – ISBN 88-548-0504-1 – and as electronic version.

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As you will be asked for the name and address of the editor the Lead partner should as the responsible person of the project assume the role of the editor and give information accordingly.  
The registration in the world wide catalogue is free of charge.

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## 1. List of Indicators developed and datasets provided to the ESPON Database, including operational procedures and missing data

The 3.3 Project list of indicators, datasets, metadata and data were elaborated on the base of Nijmegen guidelines (march 2005, p. 11) and sent to BBR in agreement with ESPON MC suggestions. See in Table 1 an example of the "A" solution included in the 33\_METADATA\_rev\_31\_05\_06.xls file.

**Table 1:** Example of 3.3 data organisation from metadata file: 33\_METADATA\_31\_05\_06

Name	VP	VF
<b>ESPON project</b>	<b>3.3</b>	<b>3.3</b>
<b>Source of data</b>	CEIS, 2006 (LP)	CEIS, 2006 (LP)
<b>Author</b>	M. Prezioso, A. Salustri	M. Prezioso, A. Salustri
<b>Regional reference</b>	NUTS0, NUTS2 - EU25+4	NUTS2 - EU25+4
<b>Time reference</b>	Internet Users 2005 and 2004 for BG-IE-NO-RO-SI; Regional population 2004 and 2003 for GR-FR-UK, 2002 for DK-EE.	Firms with Internet Access 2005 and 2004 for BG-IE-NO-RO-SI; Regional population 2004 and 2003 for GR-FR-UK, 2002 for DK-EE.
<b>Frequency of data</b>	yearly	yearly
<b>Origin of data and data missing</b>	EUROSTAT Regio No data for MT, CH, FR	EUROSTAT Regio No data for CH
<b>Variable name</b>	<b>Internet users</b>	<b>Firms with Internet access</b>
<b>Variable description</b>	Regional population with internet access	Regional Firms with internet access
<b>Theoretical postulate</b>	Internet users (VP) = Virtual Population = Virtual shareholders	Firms with Internet Access (VF) = Virtual Firms
<b>Calculation algorithm</b>	Percentage of regional population having internet access at NUTS0 * regional population	Percentage of regional enterprises having internet access at NUTS0 * regional population
<b>Policy option relevant</b>	Lisbon	Lisbon
<b>NUTS Version</b>	2003	2003
<b>Type of data</b>	Indicator	Indicator
<b>Class breaks</b>	397313, 751980, 1240509	722800, 1209010, 1904359
<b>Map number and title</b>	IR 01 - Internet users	IR 02 - Firms with internet access



At the same time the list of indicators used in the “A-case”, the relative operational procedures and the statistical crosses are presented below.

**Table 2:** List of basic indicators used in the 3.3 Project (A case), compared with the list of 42, the short list of 14 indicators and the ESPON project list (underlined are the new indicators advised by the 3.3 Project)

Determinant	3.3 Indicator	42 Spring indicator (2003)	14 Short list indicator	ESPON references
<i>Innovation &amp; Research<sup>1</sup></i>	Internet users	II.3.1		project 1.2.2
	Firms with internet access	II.3.2		project 1.2.2
	<u>Available e-government services</u>			
	Universities students			project 1.1.2 (w. gaps)
	Innovative dependency index			ESPON DB
	Population with tertiary education			ESPON DB (w. gaps)
	Population in life-long learning	I.5		
	Research Centres			project 2.2.1
	Old and new technologies	III.3.3		project 1.2.2
	<i>Global-Local interaction</i>	General environmental concerns	V.7.2; g/f	
Specific environmental concerns		V.7.2		
<u>Manufacturing enterprise</u>				
<u>Products trademarks</u>				
Energy self-sufficiency index		V.2	Energy intensity of the economy	project 2.1.4
FDI intensity		III.6.6		
Trade integration of goods		III.6.4		
Trade integration of services		III.6.5		
Degree of Vulnerability in Europe			Volume of freight transport relative to GDP	project 1.3.1
Typology Multimodal Accessibility Potential		V.3		project 2.1.1
<u>Fiscal pressure</u>				
Labour - cost index (2000:100) - NSA		e		
Long-term interest rate		d	Financial market integration (convergence in bank lending rates)	

<sup>1</sup> For the calculation of the composite index “Innovation & Research” the indicator *Employment rate of older workers* was substituted with the *Innovative dependency index*. Nevertheless the older workers are indirectly considered in the indicator *Population in life-long learning*.

	Research Centres			project 2.2.1 project 3.3
	<u>Credit institutions</u>			
	<u>Insurance companies</u>			
	<u>Companies</u>		Employment rate	
	Stock market capitalisation - end of period - Billiards of euro - NSA	III.6.1		
	Population change			ESPON DB
	<u>Tourists inbound</u>			
	<u>Tourists outbound</u>			
	<u>Students inbound</u>			
	<u>Students outbound</u>			
	<u>Researchers inbound</u>			
	<u>Researchers outbound</u>			
	Active people	I.1.1		ESPON DB
Quality <sup>2</sup>	GDPpps per capita	a.1	GDP per capita (PPS)	ESPON DB
	<u>Consumption per capita</u>			
	Level of employment	I.1	Employment rate	ESPON DB
	Consumer price index	III.1.1		
	<u>Hospital beds</u>			
	<u>Hotel beds</u>			
	<u>Cultural opportunities</u>			
	Typology Multimodal Accessibility Potential			project 2.1.1
	Old and new technologies	III.3.3		project 1.2.2 project 3.3
	Municipal waste generation	V.5		
	<u>Hazardous waste generation</u>			
	<u>Municipal waste recycling</u>			
	<u>Degree of vulnerability in Europe</u>			project 1.3.1
	Total greenhouse emissions	V.1	Total greenhouse gases emissions	
	<u>Total gross abstraction of freshwater</u>			
	<u>CO<sub>2</sub> emissions</u>	V.7.1; V.7.2		
	<u>Confidence in EU Commission</u>			
	<u>Confidence in EU Council of Ministers</u>			
	<u>Confidence in EU Parliament</u>			
	<u>National public participation</u>			

<sup>2</sup> The indicator *Labour productivity per person employed* is used in the composite index "Quality". The indicator *Dispersion of regional employment rates* is not used because of missing cover data.

	<u>European public participation</u>			
	Early school leavers	IV.5.1		
	Inequality of regional income distribution	IV.1		
	Persons aged 0-17 who are living in households where no one works	IV.7	Long-term unemployment rate	
	At-risk-of-poverty rate before social transfers	IV.2.2	At-risk-of-poverty rate	
	Female employment	I.2.1		
	<u>Fertility rate</u>			
	<u>Healthy life years</u>			
<i>Resources and funds</i>	R&D expenditure	II.2.1	R&D expenditure IT expenditure	project 2.1.2
	(firms) National aids	III.5		
	Human capital expenditure (pps per capita)	II.1	Spending on human resources (public expenditure on education)	
	<u>Employment expenditure (pps per capita)</u>			
	<u>Climate and natural resources expenditure (pps per capita)</u>			
	<u>Efficiency and accessibility</u>			project 2.2.1
	Public Health expenditure (pps per capita)	III.5		
	Poverty and age expenditure (pps per capita)	III.5		
	<u>EU funds spending</u>			project 2.2.2
	Economic resources	III.1.1		

In general, the data were arranged in tables with the 1999 or the 2003 version of the NUTS2, according to the version from which the majority of data was provided (last available EUROSTAT update data, until February-March 2006). When the data to be combined were provided with a different version, this was pointed out (see par. 1.1.1 and following).

The 3.3 Project has recently concluded the verification about the data availability with the help of the Slovenia partner (data recall by ESPON Focal Points). The results of this recall were low and insufficient (only a few ESPON Focal Points answered, namely: Niels Boje Groth from Denmark; Saviour Formosa from Malta, Constantinos Alkides from Cyprus; Barbara Jeanneret from Switzerland. So the LP committed itself to conclude this checking during the months of April and May 2006 (see Annex III).

This was necessary since EUROSTAT data differed pretty much from those in the ESPON DB, particularly with regard to timing. The latter have been gathered from national sources, and probably suffer from different statistical local definition in available indicators levels. Norway data are an endemic problem.

In this revisited version of the Final Report, all maps are drawn by ESPON KIT at March 2005 (NUTS2 and NUTS3 in 1999 and 2003 versions), linking them to the geometry of the regions (particularly for the new Cyprus regional division). The differences between the two versions (TIR and Final Report) brought about no problems of aggregation or separation, and these have been addressed accordingly. Some problems in the FIR and TIR concerned the new NUTS2 subdivision of Finland (not a simple issue to address), and the changes involving NUTS3 subdivisions.

The data (metadata values and project aggregations) were sent to the BBR as partner of ESPON project 3.2 ([Volker.Schmidt-Seiwert@BBR.Bund.de](mailto:Volker.Schmidt-Seiwert@BBR.Bund.de)). Particularly:

1. The data used and created within the 3.3 ESPON project
2. The indicators related to the maps produced
3. The provision of the respective metadata files.

This was done according to the Nijmegen Guidance paper (chapter 4, pp 11), concerning data and file format and information needed.

Furthermore, as regards the map collection and the ESPON map archive to be established by the CU, all the maps included in 3.3 Revisited Final Report in a vector format (preferable as Illustrator .ai file) were delivered as final version, as well as all the maps from the 3.3 Project that have not been included in the Final Report.

The mapping covers the countries of EU 25 plus Norway, Switzerland, Bulgaria and Romania; but it was often challenging to find comparable information and data for all these countries. At this final level of the work, the main maps cover each one of the 29 countries, as a result of a "compensation" procedure of the data gaps, which has been performed in response to a specific request made by the CU regarding missing data: in a very rough approximation, those regions having no data were assigned a value according to the following rule:

- If the data gap regards a region within a nation otherwise covered, the value is the average value of that nation (this doesn't apply to France overseas regions);
- If the gap regards a whole nation from the former EU-15, CH or NO, the value is the EU-15 (plus CH or NO, if present) average
- If the gap concerns a whole nation from the new accession countries, the value is the average of the remaining accession countries.

As already explained in the Final Report, after having performed two experimental exercises and two different ways of mapping: *equal interval* (where the distribution of values is divided into intervals of equal width and the classes are accordingly determined) and *Quantiles* (where the distribution of values is divided into intervals of different width in order to equalize the numerosity of each class), the *Quantile Interval classification scheme is the final class breaks choice*. It is different for each indicator.

The "Quartile approach" leads to a complementarity of information concerning the skewing and it is also useful to analyse the distribution, disregarding particularly good or bad situations (the Quartiles are not influenced by atypical extreme values).

In order to translate the above consideration into "maps readability", as a matter of definition of such classification schemes, Quartiles tend to highlight the contrast between regions, because the classification is managed so as to equalize class numerosity; this usually allows a readout that is more detailed at the regional level.

Anyway, the rank A to D is associated to the Quartile class breaks according to its own meaning, "A" standing for "best performance" which, in turn, can be obtained either when the indicator gets its lower value or its higher one.

In the 3.3 Project methodological and operational proposal, some matrices define the combinations and the subsequent class reduction. They are explained in the Scientific Report.

The general rule of indicators was based on:

- literature review suggestions;
- factors classifying the numerical indicators. They are selected with the purpose of catching immediately both the mode and the position of the frequency distributions (Lisbon/Gothenburg objectives);
- the prevailing dimension, as well as the dimension that can be associated at least to a quarter (or a half) of the regions (both in relation to a specific indicator). They are useful as tools for political requests and inherent co-operation objectives;
- empirical experience and experts' assessment (Delphi Method);

in the following order: Aa>Ab>.....>Ba>Bb>.....>Dd (see Annex at Scientific Report).

Each dataset has then been arranged and linked to the geographical subdivisions; the qualitative variables or metadata are transformed in quantitative ones through weight assignment. These set of quantitative values are then summarised forming frequency distributions, with closed and non-overlapping classes.

In parallel, a Database/GIS tool for the automatic combination, starting from the basic indicators according to the methodology, has been developed as an added specific offer from the 3.3 Project. It could be used by policy makers as a tool for easy readout and choice. The design and capabilities of the tool are described in a dedicated section of Annex I.

In order to provide a territorial typology useful for data territorialisation, the following aspects were considered:

- the population structure and its incidence in areas with urban and rural characteristics (via typologies referring to the Functional Urban Areas and to urban-rural relationships);
- the relationships between urban and rural areas (via the typology referring to urban-rural relationships);
- cities' growth dynamics (via the typology referring to the Functional Urban Areas/MEGAs) and accessibility/connectivity. This typology also shows the spatial integration capacity (via the typology of FUA) that represents different competitiveness profiles and distinct patterns of social cohesion and environmental sustainability.

The typology of territories was selected as a function of the typologies of regions developed within the ESPON Programme, specifically those from Project 1.1.1. – "The role, specific situation and potentials of urban areas as nodes in a polycentric development" (2002-2004) and Project 1.1.2. – "Urban-rural relations in Europe" (2002-2004).

The classification of territories was developed in 3 steps and 7 classes (see Annex I at Scientific Report). The aggregation was made in order to highlight the real difference between the “regional/local areas” and the “no special function areas”.

In this choice the more depopulated areas are separated from those rural areas where are located medium-sized cities with regional/local economic bases.

Remembering that the main arguments of the analysis are:

- to identify the more competitive and dynamic territories based on knowledge and innovation, and relate them with urban and regional characteristics;
- to know if urban centres and metropolitan agglomerations play a crucial role in providing the framework conditions for a knowledge-based economic development;
- to understand the polycentric model at different scales, which includes the dynamics of urban growth centres and linking peripheral and disadvantaged areas with urban centres (ESPON, Terms of Reference, 2004)

This type of approach allows to construct an indicator which includes not only the information on the current situation according to its own specificities, but also to the real dynamics of the actions that enable the achievement of a given goal: in this case we turn from the simple territorial competitiveness to the **capability to generate territorial competitiveness in sustainability**.

The correlation matrices are shown and described in Annex I.

Then, this technical Annex focuses its attention on the following points for each Lisbon/Gothenburg key policy or determinant:

- the list of indicators chosen and their aggregations
- the operational procedure and sources
- the resulting maps.

## 1.1 Technical notes about Composite Indicators (A-case). Operational procedures, indicators, sources, maps

### 1.1.1 Innovation and Research

**Table 3:** Innovation & Research: structure of indicators

indicator	category	sector	typology	determinant	Territorial dimension	
Internet users (VP)	Virtual Population	Virtual shareholders	Virtual Society (VS)	Innovation & Research (IR 17)	Territorial I&R dimension at NUTS2 and NUTS3 (IR 18 and 19)	
Firms with Internet access (VF)	Virtual Firms	Virtual stakeholders (VSt)				
Available e-government services (VI)	Virtual Institutions					
Universities students (KCE)	Education structures	Knowledge creation education	Knowledge Innovative Structures (KIS)			
Innovative dependency index (IDI)	Human capital structure	Human Capital (HC)				
Population with tertiary education (PTE)	Human capital education (HCe)					
Population in life-long learning (PLL)						
R&D Centres (Science Parks, Business Innovation Centres, Universities) (RDI)	R&D infrastructures	Knowledge creation facilities (KCF)	Innovation Status quo			
Old and new technologies (LTD)	Level of Telecommunication development					

**IR 01) Internet users (VP) = Virtual Population = Virtual shareholders**

**Definition:** estimated Internet users; Percentage of regional population having internet access at NUTS0 \* regional population

**Source:** CEIS, 2006

**Origin of data and date:** Internet Users, EUROSTAT 2005 and 2004 for BG-IE-NO-RO-SI; Regional population, EUROSTAT 2004 and 2003 for GR-FR-UK, 2002 for DK-EE

**NUTS2 version 2003**

**Missing data:** MT, CH, FR

**Notes:**

*Class breaks*

397313, 751980, 1240509

**IR 02) Firms with Internet Access (VF) = Virtual Firms**

**Definition:** Percentage of regional enterprises having access to the Internet at NUTS0 \* regional population

**Source:** CEIS, 2006

**Origin of data and date:** Firms with Internet Access, EUROSTAT 2005 and 2004 for BG-IE-NO-RO-SI; Regional population, EUROSTAT 2004 and 2003 for GR-FR-UK, 2002 for DK-EE

**NUTS2 version 2003**

**Missing data:** CH

**Notes:**

*Class breaks*

722800, 1209010, 1904359

**IR 03) Available e-government services (VI) = Virtual Institutions**

**Definition:** number of public institutions at NUTS0 with the available e-government services out of those defined in the survey \* regional population

**Origin of data and date:** EUROSTAT available e-government service (supply side) – CapGemini survey, 2004; Regional population, EUROSTAT 2004 and 2003 for GR-FR-UK, 2002 for DK-EE

**NUTS2 version 2003**

**Missing data:** BG

**Notes:**

*Class breaks:*

223014, 521547, 1018564

**IR 04) The Virtual Stakeholders (VSt) value is obtained combining IR02) and IR03) with Indicator1 = VI and Indicator2 = VF**

**IR 05) The Virtual Society (VS) value is obtained combining IR01) and IR04) with Indicator1= VP and Indicator2 = VSt**

**IR 06) Universities students (KCE) = Education structures = Knowledge creation education**

**Definition:** No. of students in tertiary education/Pop. Aged 19-29

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, no. of students in tertiary education 2004; Pop. Aged 19-29, 2004 and 2003 for GR-FR-UK

**NUTS2 version 2003**

**Missing data:** CH, NO.

**Notes:** For the DE and UK data, only the national level (NUTS1) was available.

*Class breaks:*

0.169; 0.239; 0.325

**IR 07) Innovative Dependency Index (IDI) = Human Capital Structure**

**Definition:** (pop. 0-14 + pop. over 54)/pop. 15-54



**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

**Missing data:** CH, DE, NO, UK

**Notes:** In order to cover data gaps in the ESPON DB (e.g. CH, DE, NO, UK), the medium value from EU 15 was used.

*Class breaks:*

0.69; 0.90; 1.17

#### **IR 08) Population with tertiary education (PTE)**

**Definition:** Population with tertiary education/Total Population

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

*Class breaks:*

2.46, 3.31, 4.12

#### **IR 09) Population in life long learning (PLL)**

**Definition:** Participation of adults aged 25-64 in education and training (for 1000 adults)

**Origin of data and date:** EUROSTAT, from Life-long learning - Participation of adults aged 25-64 in education and training, at NUTS level 2 - EU-25 (1000), 2004.

**NUTS version 2003**

**Missing data:** BG, CH, NO, RO, FR83, FR93, GR13, GR22, GR41, GR42, PT2, PT3

**Notes:** In order to cover data gaps in the ESPON DB, the medium value of EU 15 was used for BG, CH, NO, FR83, FR93, GR13, GR22, GR41, GR42, PT2, PT3 and of NMS for RO.

*Class breaks:*

29.10, 55.20, 103.40

**IR 10) The Human Capital Education (HCe) value is obtained combining IR 08) and IR 09)**

with Indicator1 = **PLL** and Indicator2 = **PTE**

**IR 11) The Human Capital (HC) value is obtained combining IR 07) and IR 10) with Indicator1 = **HCe** and Indicator2 = **IDI****

**IR 12) In order to obtain the Knowledge Innovative Structures (KIS), we combine the IR 06) and IR 11) with I1 = **HC** and I2 = **KCE****

#### **IR 13) R&D Centres (RDI) = R&D infrastructures**

**Definition:** (Number of universities + 2 \* No. of BIC's + 3 \* No. of Science Parks)/total population.

**Source:** CEIS, 2006

**Origin of data and date:** Survey performed from the links listed in the official web site of the University of Bologna or from official ministerial websites, 2003; ESPON project 2.2.1; EUROSTAT population, 2001 and 2004.

**NUTS version 2003**

**Notes:** 1 \* No. of Universities or high level research centres + 2 \* No. of BIC's + 3 \* No. of Science Parks = R&D Infrastructures (RDI). It is envisaged to collect more harmonised data, probably from the list of the official CEE codes for the high education institutes.

*Class breaks:*

0.03; 0.07; 0.125

#### **IR 14) Level of Telecommunication Development (LTD)**

**Origin of data and date:** ESPON project 1.2.2 (Annex to the Final Report, page 134) 2002, 2005

**NUTS version 2003**

**Missing data:** CH, FR9

*Class breaks:*  
4; 6; 7

**IR 15) The Knowledge Creation Facilities (KCF)** = Innovation Status Quo, the value is obtained combining **IR13)** and **IR14)** with I1 = **RDI** and I2 = **LTD**

**IR 16) The Innovation (IV)** is obtained combining the **IR05)** and the **IR12)**, with I1 = **KIS** and I2 = **VS**

**IR 17) "Determinant I&R"** is obtained Combining the **IR 15)** with **IR 16)**, with I1 = **IV** and I2 = **KCF**

**IR 18) Territorial "Resources and Funds" at NUTS2** is obtained combining Determinant "Resources and Funds" **IR 17)** and Territorial Typology at NUTS2 level **ESPON\_33\_7k\_N2**

**IR 19) Territorial "Resources and Funds" at NUTS3** is obtained combining Determinant "Resources and Funds" **IR 17)** and Territorial Typology at NUTS3 level **ESPON\_33\_7k\_N3**

### 1.1.2 Global/Local Interaction

**Table 4:** Global/Local Interaction: structure of indicators

Indicator	Category	Sector	Typology	Determinant	Territorial dimension
General environment concerns (GEC)	General impact measures	General environmental interaction	International Cooperation on Environment (ICE)	Global-local interaction	Territorial Global – Local dimension at NUTS2 and NUTS3 (GL43 and GL44)
Specific environmental concerns (SEC)	Specific impact measures	Specific environmental interaction			
Manufacturing enterprise (ME)	Productive local system identity (PSI)	Productive system identity	Economy interaction (EcI)		
Product trademarks (Ptm)					
Energy self-sufficiency index (ESSI)	Energy dependency	Energy			
FDI intensity (FDIin)	Territorial appeal	Internationalisation (Intz)			
Trade integration of goods (TIg)	Trade integration (Tint)				
Trade integration of services (Tis)					
Degree of Vulnerability in Europe (Vuln)	Vulnerability	Strategic localization (SL)			
Typology Multimodal Accessibility Potential (TMAP)	Accessibility				
Fiscal Pressure (FP)	Costs (Cs)				
Labour cost index					

(LC)				
Long Term Interest rate (LTir)				
R&D Centres (RDI)	R&D infrastructures			
Credit institutions (Bnk)	Bank	Credit & Insurance attitude (C&IA)	Financial interaction (FI)	
Insurance companies (InsC)	Insurance			
Companies (local units) (BC)	Company	Management attitude (MA)		
Stock markets capitalization (STM)	Exchanges			
Population change (Pch)	Migration	Population and Cultural Mobility (PM)	Social interaction (SI)	
Tourists inbound (InT)	Tourism (TI)			
Tourists outbound (OutT)				
Students inbound (InStud)	Level of cultural student mobility (SM)			
Students outbound (OutStud)				
Researchers inbound (InRes)	Level of cultural researchers mobility (RM)			
Researchers outbound (OutRes)				
Active peoples (AcP)	Labour force	Active population		

### **GL 01) General Environment Concerns (GEC) = General Impact Measures = General Environmental interaction**

**Definition:** For each agreement of concerns the following data attributes are applied in relationship to their stage of adoption. The value is obtained using the weighted average of the relative treaties' status, where the weight attributed to each status is: ArCo (Arhus Convention) = Indicator 1 = initial value 0.5 or 1 if concern is signed (0.5) or is ratified, approved and accepted (1); EsCo (Espoo Convention) = Indicator 2 = initial value 1 = if concern is ratified, approved and accepted (1)

**Source:** CEIS, 2006

**Origin of data and date:** International Yearbook on Environment and Development 2003, 2004, 2005

**NUTS version 2003**

**Missing data:** MT

*Class breaks*

<0.75; >0.75

### **GL 02) The Specific environmental concerns (SEC) = Specific impact measures = Specific Environmental interaction**

**Definition:** For Indicators CEG and SEC (from 2a to 2g: Atmosphere (Aircraft Engine Emissions, LRTAP, UNFCCC, Protection of the Ozone Layer), Hazardous Substances (CRTD, Convention on the trans-boundary effects on industrial accidents, Basel, AND, ADR, Rotterdam, Stockholm convention on POPs), Marine Environment (London 1982, MARPOL 73/78, CLC 1969, AFS, FUND 1992, HNS, OPRC, Intervention, LOS), Marine Living reElaborations (CCAMLR, ICCAT, ICRW), Natural conservation and territorial living reElaborations (Antarctic Treaty, FAO International Undertaking on plant genetic reElaborations, World Heritage convention, CBD, Bern, CMS, CITES, Ramsar, CCD, ITPGRFA, ITTA 1994), Nuclear Safety (Assistance, Notification, Convention on Nuclear safety, Vienna convention on civil liability for nuclear damage), Freshwater reElaborations (ECE)), the same calculation approach was used: the value is obtained using the weighted average of the relative treaties' status, where the weight attributed to each status is: 0 if the law/treaty is not signed; 0.5 if the law/treaty is signed; 1 if the law/treaty is ratified, approved and accepted.

For Indicators CEG and SEC (from 2a to 2g), the same calculation approach was used: the value is obtained using the weighted average of the relative treaties' status, where the weight attributed to each status is: 0 if the lex/treaty is not signed; 0.5 if the lex/treaty is signed; 1 if the lex/treaty is ratified, approved and accepted.

For each of them the following data attributes apply:

#### **GL 2a) Atmosphere (Atm)**

- 1 = Aircraft Engine Emissions
- 2 = LRTAP
- 3 = UNFCCC
- 4 = Protection of the Ozone Layer (Vienna Treaty)

#### **GL 2b) Hazardous Substances (HS)**

- 1 = CRTD
- 2 = Convention on the Trans-boundary Effects of Industrial Accidents,
- 3 = Basel Convention
- 4 = AND
- 5 = ADR
- 6 = Rotterdam Convention
- 7 = Stockholm Convention on POPs

#### **GL 2c) Marine Environmental (ME)**

- 1 = London Convention 1972
- 2 = MARPOL 73/78
- 3 = 1969 CLC
- 4 = AFS Convention
- 5 = 1992 Fund Convention
- 6 = HNS Convention,
- 7 = OPRC
- 8 = Intervention Convention
- 9 = LOS Convention

#### **GL 2d) Marine living reElaborations (MLR)**

- 1 = CCAMLR,

2 = ICCAT

3 = ICRW

**GL 2e) Natural conservation and territorial living reElaborations (N&T)**

1 = The Antarctic Treaty

2 = FAO International Undertaking on Plant Genetic ReElaborations

3 = World Heritage Convention,

4 = Convention on Biological Diversity (CBD)

5 = Bern Convention

6 = CMS

7 = CITES,

8 = Ramsar Convention

9 = CCD,

10 = ITPGRFA,

11 = ITTA1994

**GL 2f) Nuclear Safety (NS)**

1 = Assistance Convention

2 = Notification Convention

3 = Convention on Nuclear Safety

4 = Vienna Convention on Civil Liability for Nuclear Damage

**GL 2g) Freshwater reElaborations (FR)**

1 = ECE Water Convention

**Source:** CEIS, 2006

**Origin of data and date:** International Yearbook on Environment and Development 2003, 2004, 2005

**NUTS version 2003**

**Notes:** by definition geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data.

*Class breaks*

0.716; 0.778; 0.794

**GL 03) The International Cooperation on Environment (ICE)** value is obtained combining (GL1) and (GL2) with Indicator1 = **GEC** and Indicator2 = **SEC**

**GL 04) Population Change (PCh) = Migration**

**Definition:** percentage of population change 1995-1999

**Source:** CEIS, 2005

**Origin of data and date:** ESPON DB, table 022\_Population\_change\_95-99\_Typo\_N2i, from ESPON project 1.1.4 Indicator PopC9599N2, 1995 - 1999

**NUTS version 2003**

*Class breaks*

- 0.4; 0.7; 1.9

**GL 05) Tourism inbound (InT)**

**Definition:** non-resident tourist arrivals/tot arrivals

**Source:** CEIS, 2005

**Origin of data and date:** EUROSTAT, 2003 and 2002 for CH

**NUTS version 2003**

**Missing data:** FR91; FR92; FR93; FR94; RO

*Class breaks*

0.066; 0.164; 0.372

**GL 06) Tourism outbound (OutT)**

**Definition:** resident tourist arrivals/tot arrivals

**Source:** CEIS, 2005

**Origin of data and date:** EUROSTAT, 2003 and 2002 for IE, UKG3, CH

**NUTS version 2003**

**Missing data:** some Germany, UK regions

**Notes:** To cover missing regions the average value of the country was used.

*Class breaks*

0.1163; 0.2546; 0.4476

**GL 07)** The **Tourism (TI)** value is obtained combining **GL05)** and **GL06)** with I1 = **InT** and I2 = **OutT**

**GL 08) Inbound Students (InStud)**

**Definition:** n° of inbound student / n° of total inbound student

**Source:** CEIS, 2006

**Origin of data and date:** Erasmus-Socrates Programme database, 2003-2004

**NUTS version 2003**

**Missing data:** MT (for population)

**Notes:** The data are available at Nuts0; Population aged between 18 and 25 was used to extrapolate the data into Nuts2 level.

*Class breaks*

0.0031; 0.0095; 0.0169

**GL 09) Outbound Students (OutStud)**

**Definition:** n° of outbound student / n° of total outbound student

**Source:** CEIS, 2006

**Origin of data and date:** Erasmus/Socrates Programme database, 2003-2004

**NUTS version 2003**

*Class breaks*

0.0062; 0.0121; 0.0205

**GL 10) Level of Cultural Student mobility (SM)** value is obtained combining **GL08)** and **GL09)** with I1 = **InStud** and I2 = **OutStud**

**GL 11) Inbound Researchers (InRes)**

**Definition:** n° of inbound researcher / n° of total inbound researcher

**Source:** CEIS, 2006

**Origin of data and date:** Erasmus-Socrates Programme database, 2003-2004

**NUTS version 2003**

*Class breaks*

0.63; 1.01; 1.80

**GL 12) Outbound Researchers (OutRes)**

**Definition:** n° of outbound researcher / n° of total outbound researcher

**Source:** CEIS, 2006

**Origin of data and date:** Erasmus-Socrates Programme database, 2003-2004

**NUTS version 2003**

*Class breaks*

0.22; 0.39; 0.74

**GL 13) Level of cultural Researcher mobility (RM)** value is obtained combining **GL11)** and **GL12)** with I1 = **InRes** and I2 = **OutRes**

**GL 14) The Cultural Exchange (CE)** value is obtained combining **GL10)** and **GL13)** with I1 = **RM** and I2 = **SM**

**GL 15) To obtain the Population and cultural Mobility (PM)** combine the **GL14)** and **GL07)** with I1 = **CE** and I2 = **TI** and then combine this result called CETI with **GL04)** with I1 = **CETI** and I2 = **PCh**

**GL 16) Active People (AcP) = Labour Force = Active Population**

**Definition:** regional economically active population / regional total population (EU-25 in %)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004 (population); 2001-2003 (active population)

**NUTS version 2003**

*Class breaks*

44.01; 47.31; 50.40

**GL 17) Social Interaction (SI)** value is obtained combining **GL15)** and **GL16)** with  $I1 = PM$  and  $I2 = AcP$

**GL 18) Manufacturing Enterprise (ME)**

**Definition:** regional number of Manufacturing Enterprises (NACE D) / tot. regional active population.

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT 2001-2004

**NUTS version 2003**

**Missing data:** NO, CH

**Notes:** to cover missing data, the NSM and EU15 averages were used.

*Class breaks*

5.21; 8.79; 14.29;

**GL 19) Product Trademark (PTm)**

**Definition:** number of registered community trademarks at OHIM (1996-2004) / number of manufacturing companies (2002)

**Source:** CEIS, 2005

**Origin of data and date:** OHIM, 1996-2004; EUROSTAT, 2002 and 2001

**NUTS version 2003**

**Notes:** The data are available at Nuts0; Population data were used to extrapolate the data into Nuts2 level.

*Class breaks*

0.996; 2.944; 4.047

**GL 20) The Productive System Local Identity (PSI) = Productive local identity** is obtained combining **GL18)** and **GL19)** with  $I1 = ME$  and  $I2 = PTm$

**GL 21) Energy Self-sufficiency Index (ESSI) = Energy Dependency = Energy**

**Definition:** we use the result of ESPON project 2.1.4 (final report p.17), ranked as follows

**Source:** CEIS 2005

**Origin of data and date:** ESPON project 2.1.4, 2002

*Class breaks*

15; 50; 89

**GL 22) Foreign direct investment intensity (FDIin) = Territorial Appeal**

**Definition:** Average value of inward and outward Foreign Direct Investment flows divided by regional GDP (%)

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

**Missing data:** BG, RO, NO, CH

**Notes:** regional GDP was used to extrapolate data to NUTS2 level. The value of Luxembourg looks quite strange (too high in comparison with the others)

*Class breaks*

0.5; 1.6; 2.5

**GL 23) Trade Integration of goods (TIg)**

**Definition:** Average value of imports and exports of goods divided by GDP, multiplied by 100

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

**Missing data:** IE

**Notes:** regional GDP was used to extrapolate data to NUTS2 level.



*Class breaks*  
20.7; 29.2; 36.6

**GL 24) Trade Integration of services (TIs)**

**Definition:** Average value of imports and exports of services divided by regional GDP multiplied by 100

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

**Missing data:** IE

**Notes:** regional GDP was used to extrapolate data to NUTS2 level.

*Class breaks*  
5,5; 8.7; 14,2

**GL 25) Trade Integration (TInt)** value is obtained combining **GL 23)** and **GL 24)** with I1 = **TIs** and I2 = **Tig**

**GL 26) Internazionalization (Intz)** value is obtained combining **GL 22)** and **25)** with I1 = **FDIin** and I2 = **TInt**

**GL 27) Vulnerability (Vuln) = Natural Hazard (NH)**

**Definition:** Degree of vulnerability in Europe (GDP and population density in 50:50 relationship) as from the results of ESPON project 1.3.1

**Source:** IGS 2005

**Origin of data and date:** ESPON DB, table 124\_Vulnerability\_95-99\_Typo\_N3i, from ESPON project 1.3.1 Indicator DeVu99N3, 1999-2000

**NUTS version 1999**

**Missing data:** CH, DE3, ES63, ES7, FR9, MT, NO, PL08, PT2, PT3

*Class breaks*  
2.28; 2.93; 3.2

**GL 28) Typology Multimodal Accessibility Potential (TMAP) = Accessibility**

**Definition:** we use the result of ESPON project 2.1.1 ranked as follows:

**Source:** CEIS 2006

**Origin of data and date:** ESPON DB, table 066\_Typology\_Multimodal\_Accessibility\_Potential\_N2i, from ESPON project 2.1.1 Indicator MACPT01N2

*Class breaks*

TMAP = very peripheral = d  
TMAP = peripheral = c  
TMAP = intermediate = b  
TMAP = central and very central = a

**GL 29) Fiscal Pressure (FP)**

**Definition:** Total general government revenue (% of regional GDP)

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2004, PL - 2003

**NUTS version 2003**

**Notes:** regional GDP was used to extrapolate data to NUTS2 level.

*Class breaks*  
40.6; 44.3; 47.6

**GL 30) Labour Cost index (LC)**

**Definition:** Annual average value of the quarterly total labour cost index in Industry and services (excluding public administration), NACE: C - K

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2004, IE, BG - 2002

### **NUTS version 2003**

**Missing data:** GR, MT, CY, NO

**Notes:** regional GDP was used to extrapolate data to NUTS2 level

*Class breaks*

110.925; 115.925; 120.875

### **GL 31) Long Term Interest rate (LTIr)**

**Definition:** 10-year government bond yields, secondary market. Annual average (%)

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, ECB-National Central Banks, 2004, CZ - 2002

### **NUTS version 2003**

**Missing data:** CH, EE, LU, NO, RO, SI

*Class breaks*

4.10; 4.22; 4.93

**GL 32) Costs (Cs)** is obtained combining the **GL29)** and **GL30)** with I1 = **LC** and I2 = **FP** and then combining this result, called **AC**, with **GL31)** with I1 = **LTIr** and I2 = **AC**

**GL 33) Strategic Localization (SL)** is obtained combining the **GL28)** and **IR13)** with I1 = **TMAP** and I2 = **RDI**; then combining this result, called **AE**, with **GL27)** with I1 = **Vuln** and I2 = **AE**; finally the result, called **En**, is combined with **GL32)** with I1 = **En** and I2 = **Cs**

**GL 34)** for **Economy Interaction (Eci)** first we combine the **GL26)** and **GL21)** with I1 = **Intz** and I2 = **ESSI**, then combine this result (which we may call **ESSI&Intz**) with **GL30)** with I1 = **SL** and I2 = **ESSI&Intz**; finally, we combine this result, called **SE**, with **GL20)** with I1 = **PSI** and I2 = **SE**

### **GL 35) Credit Institutions = Bank (Bnk)**

**Definition:** n° of local units of credit institutions / tot. population

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2000, LV, RO – 2001; 2003 for population

### **NUTS version 2003**

**Missing data:** CY, CZ, PL, MT

**Notes:** The data are available at Nuts0; Population data were used to extrapolate the data into Nuts2 level.

*Class breaks*

0.76; 1.44; 3.37

### **GL 36) Insurance companies (InsC) = Insurance**

**Definition:** n° of local units of credit institutions / tot. population

**Source:** CEIS 2005

**Origin of data and date:** EUROSTAT, 2000, LV, RO - 2001

### **NUTS version 2003**

**Missing data:** CY, CZ, PL, MT

**Notes:** The data are available at Nuts0; Population data were used to extrapolate the data into Nuts2 level.

*Class breaks*

0.49; 0.66; 1.04

**GL 37) Credit & Insurance attitude (C&IA)** value is obtained combining **GL35)** and **GL36)** with I1 = **Bnk** and I2 = **InsC**

### **GL 38) Companies (BC) = Company**

**Definition:** Number of regional employers (NACE A, B, C, D, E, F, G, H, I, K)/ total EU employers

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2002, 2001 (BE all NACE, LV NACE D E F G, UK NACE G)

**NUTS version 1999**

**Missing data:** NACE C: CZ, GR, SK, LU, UK, BG, NO, CH, MT, CY. NACE D: CZ, GR, SK, LU, UK, BG, CH, MT, CY. NACE E: CZ, DE30, DE50, DE60, DE80, GR, IE, SK, LU, UK, NO, CH, MT, CY. NACE F: CZ, GR, LU, BG, NO, CH, MT, CY. NACE G: CZ, DE, GR, IE, SK, LU, FI, BG, CH, MT, CY. NACE H: CZ, DE, GR, IE, SK, LU, FI, UK, CH, MT, CY. NACE I: CZ, GR, IE, SK, LU, FI, UK, CH, MT, CY. NACE K: CZ, GR, IE, SK, LU, FI, UK, CH, MT, CY

**Notes:** number of local units of the manufacturing enterprise (NACE C, D, E, F, G, H, I, K) / total number of companies

*Class breaks*

0.0015; 0.0027; 0.0045

### **GL 39) Stock market capitalisation (STM) = Exchanges**

**Definition:** Stock market capitalisation - end of period - Billions of euro – NSA

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2004; PT, NL - 2001

**NUTS version 2003**

**Missing data:** BG, CH, RO

*Class breaks*

57.14; 519.98; 842.745

**GL 40) Management attitude (MA)** value is obtained combining **GL38)** and **GL39)** with I1 = **STM** and I2 = **BC**

**GL 41) Financial Interaction (FI)** value is obtained combining **GL40)** and **GL37)** with I1 = **MA** and I2 = **C&IA**

**GL 42)** To obtain the **Global Local Interaction (GLI)** first we combine the **GL41)** and **GL34)** with I1 = **FI** and I2 = **EcI**, then combine this result (**E&FI**) with **GL03)** with I1 = **E&FI** and I2 = **ICE**; finally we combine this result (called **M&EI**) with **GL17)** with I1 = **M&EI** and I2 = **SI**

**GL 43)** to obtain The **Global Local Interaction: Territorial Dimension at NUTS2** we combine the **GL42)** with the **TT2 - Territorial typologies at NUTS2**

**GL 44)** to obtain The **Global Local Interaction: Territorial Dimension at NUTS3** we combine the **GL42)** with the **TT3 - Territorial typologies at NUTS3**

### 1.1.3 Quality

**Table 5:** Quality: structure of indicators

Indicator	Category	Sector	Typology	Determinant	Territorial dimension
GDPpps per capita (GDP)	GDP	Economic variables (EV)	Life quality (LQ)	Quality (Qty)	Territorial Quality dimension at NUTS2 and NUTS3 (Q 45 and Q 46)
Consumption per capita (CONS)	Consumption				
Level of employment (Emp)	Employment				
Consumer-price index (HICP)	Prices				
Hospital beds (HLT)	Health	Infrastructural variables of cohesion (IVC)			
Hotels beds (Htb)	Leisure (Ls)				
Cultural opportunities (CuOp)					
Typology Multimodal Accessibility Potential (TMAP)	Accessibility				
Old and New technologies (LTD)	Level of Telecommunication development				
Municipal Waste Generation (MWAs)	Municipal Waste	Waste (Ws)		Environmental Quality (EQ)	
Hazardous Waste Generation (Hwas)	Hazardous Waste				
Municipal Waste Recycled (RMWas)	Recycling Waste				
Degree of vulnerability in Europe (NH)	Vulnerability	Natural hazard			
Total greenhouse emission	Air	Natural ReElaborations			

(SA)					
Total gross abstraction of freshwater (SW)	Water use balanced	Status (NRS)			
CO <sub>2</sub> emissions (CC)	Ozone layer	Climate change			
Confidence in EU commission (CfCom)	Level of citizen confidence (CzCf)	Good Governance	Government quality (GQ)		
Confidence in EU council of ministers (CfCM)					
Confidence in EU parliament (CfEP)					
National public participation (PbPn)	Level of Public participation (PbP)				
European public participation (PbPe)					
Early school leavers (EdB)	Base education	Social Cohesion ReElaborations (SCR)	Social Quality and Cohesion (SQ&C)		
Inequity of regional income distribution (SCEc)	Economic Elements for Social Cohesion				
Persons aged 0-17 who are living in households where no-one works (Cer)	Risk of children exclusion	Risk of social exclusion (SEE)	Social Quality and Cohesion (SQ&C)		
At-risk-of-poverty rate before social transfers (Pvy)	Poverty				
Female employment (EqOp)	Equal opportunities	Social wellness attitude (SWA)	Social Quality and Cohesion (SQ&C)		
Fertility rate (Fty)	Wellness (Wns)				
Healthy life years (HLY)					

### **Q 01) GDPpps per capita (GDP) = GDP**

**Definition:** Gross Domestic Product per capita in Purchasing Power Standard

**Source:** IGS 2005

**Origin of data and date:** EUROSTAT, 2002 - CH, NO, BG, RO: 2000

**NUTS version 2003**

*Class breaks*

15236.9; 20206.3; 23665.1

### **Q 02) Consumption per capita (Cons) = Consumption**

**Definition:** consumption aggregates (Current prices) / population

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2002

**NUTS version 2003**

**Notes:** Original data are at NUTS0 level as percent of GDP. The regional values of GDP per capita has been used to draw the map at NUTS2 level as well as to introduce the population effect.

*Class breaks*

8597.07; 10910.85; 13721.07

### **Q 03) Level of employment (Emp) = Employment**

**Definition:** number of employees / population (%)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

**Missing data:** CH, NO, BG, RO

**Notes:** To cover missing data, the EU15 average was used for CH and NO; the new NMS average was used for BG and RO.

*Class breaks*

47.4; 51.6; 56.2

### **Q 04) Consumer-price Index (HICP) = Level of prices**

**Definition:** Harmonized Index of Consumer Prices

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2005

**NUTS version 2003**

**Missing data:** CH

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. Quantiles have been calculated on the number of nations, therefore classes at NUTS2 level are not evenly populated. To cover missing data, the EU15 average was used for CH.

*Class breaks*

114.1; 118.3; 129.1

**Q 05) Economic Variables (EV):** first we combine **Q01)** and **Q04)** with Indicator1 = **HICP** and Indicator2 = **GDP pps**, to obtain the intermediate result, called **Buying Power (BP)**; then, we combine **Q03)** and **Q02)** with I1 = **EMP** and I2 = **Cons**, to obtain the intermediate result called **Consumption Tendency (CT)**. Finally we combine the above results with I1 = **BP** and I2 = **CT** to obtain **EV**

### **Q 06) Hospital beds (Hlt) = Health**

**Definition:** number of hospital beds per 100.000 inhabitants

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004; Exceptions: GR, SE, UK – 2000; CY, LV, LT, HU – 2001; CZ,ES, IT, NL, PT – 2002; BR, DE, AT, SK,SI– 2003;

**NUTS version 2003**

**Missing data:** DK, IE, LU, NO, BG, RO, SI

**Notes:** To cover missing data, the EU15 average was used for NO, DK, IE LU; the new NMS average was used for BG, RO, SI.

*Class breaks*

417; 600; 817

#### **Q 07) Hotel beds (Htb)**

**Definition:** number of hotel beds per 100.000 inhabitants

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT (Number of establishments, bedrooms and bedplaces) 2004

**NUTS version 2003**

*Class breaks*

14926; 26254; 48011

#### **Q 08) Cultural opportunities (CuOp)**

**Definition:** Expenditure for recreation and culture (COICOP 09)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 1999; GDP 2000

**NUTS version 2003**

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level

**Missing data:** CH, NO

**Notes:** To cover missing data, the EU15 average was used for NO, CH.

*Class breaks*

36.8; 72.6; 180.45

**Q 09)** To obtain the level of **Leisure (Ls)** we combine the **Q07)** and **Q08)** with  $I1 = \text{Htb}$  and  $I2 = \text{CuOp}$

**Q 10)** To measure the **Physical Accessibility (PhAc)** we use the result of ESPON project 2.1.1 Typology Multimodal Accessibility Potential. The rank was already shown in the indicator **GL28**, as well as the class breaks.

**Source:** CEIS 2006

**Origin of data and date:** ESPON DB, table

066\_Typology\_Multimodal\_Accessibility\_Potential\_N2i, from ESPON project 2.1.1 Indicator MACPT01N2, 2004

*Class breaks*

Very central and Central = A

Intermediate = B

Peripheral = C

Very peripheral = D

**Q 11) Infrastructural Variables of Cohesion (IVC):** first we combine **Q10)** and **IR14)** with  $I1 = \text{PhAc}$  and  $I2 = \text{LTD}$  to obtain the intermediate result, called **Physical Accessibility and Telecommunication (PATE)**; then we combine this result and **Q09)** with  $I1 = \text{Ls}$  and  $I2 = \text{PATE}$  to obtain the intermediate result called **Physical Accessibility – Telecommunication – Leisure (PTLs)**; finally we combine the above result and **Q06)** with  $I1 = \text{HIt}$  and  $I2 = \text{PTLs}$  to obtain **IVC**

**Notes:** The **Level of Telecommunication development (LTD)** is taken from the first determinant Innovation and Research (**IR14)**

**Q 12) Quality of Life (LQ)** value is obtained combining **Q05)** and **Q11)** with  $I1 = \text{EV}$  and  $I2 = \text{IVC}$

#### **Q 13) Municipal waste generation (MWAs) = Municipal Waste**

**Definition:** Municipal waste generated at NUTS0 \* regional share of population

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2003

**NUTS version 2003**

**Notes:** Original data are at NUTS0 level. The regional share of population has been used to draw the map at NUTS2 level

*Class breaks*

392.9; 744.5; 1171.2

#### **Q 14) Hazardous Waste Generation (HWAs) = Waste Generation**

**Definition:** Hazardous waste generated at NUTS0 \* regional share of population

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2003

**NUTS version 2003**

**Missing data:** BE and FR

**Notes:** Original data are at NUTS0 level. The regional share of population has been used to draw the map at NUTS2 level. To cover missing data, the EU15 average was used for BE and FR

*Class breaks*

62.1; 116.2; 253.2

#### **Q 15) Municipal Waste Recycling (RMWas) = Recycling Waste**

**Definition:** Recycling of Municipal waste at NUTS0 \* regional share of population

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2002; exceptions: CY 1998; LU 1999; MT 2001; CH 2000

**NUTS version 2003**

**Missing data:** BG, LT

**Notes:** Original data are at NUTS0 level. The regional share of population has been used to draw the map at NUTS2 level. To cover missing data, the new NMS average was used for BG and LT.

*Class breaks*

25.2; 95.5; 221.8

**Q 16) Waste (Ws):** first we combine **Q14)** and **Q13)** with  $I1 = \text{HWAs}$  and  $I2 = \text{MWAs}$ , to obtain the intermediate result, called **Municipal and Hazard Waste (M&Hw)**, which is then combined with **Q15)** with  $I1 = \text{RMWas}$  and  $I2 = (\text{M&Hw})$ .

#### **Q 17) Degree of Vulnerability (NH) = Vulnerability = Natural Hazard**

**Source:** IGS, 2005

**Origin of data and date:** ESPON DB, table 124\_Vulnerability\_95-99\_Typo\_N3i, from ESPON project 1.3.1 Indicator DeVu99N3, 1999-2000

**NUTS version 1999**

**Missing data:** CH, DE3, ES63, ES7, FR9, MT, NO, PL08, PT2, PT3

**Notes:** It comes from **GL27**

*Class breaks*

2.28; 2.93; 3.2

#### **Q 18) Total greenhouse emissions (SA) = Air (State of)**

**Definition:** total greenhouse gas emissions: Percentage change since base year and targets according to Kyoto Protocol-EU Council Decision for 2008-2012 (in CO<sub>2</sub> equivalents).

Indexed on actual base year = 100.

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2003

**NUTS version 2003**

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data.

*Class breaks*

81.6; 9835; 116.8



**Q 19) Total gross abstraction of freshwater (SW) = balanced Water use**

**Definition:** Annual total gross water abstraction (mio3/year)

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2003

**NUTS version 2003**

**Missing data:** UKN, UKM1-2-3-4

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. For Northern Ireland and Scotland, the UK value was used.

*Class breaks*

6917.9; 13085; 37221

**Q 20)** to obtain the level of **Natural ReElaborations State** we combine **Q18)** and **Q19)** with I1 = **SA** and I2= **SW**

**Q 21) CO<sub>2</sub> emissions (CC) = Ozone layer = Climate Change**

**Definition:** national total CO<sub>2</sub> emissions (Thousand tonnes)

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2003

**NUTS version 2003**

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data.

*Class breaks*

76213.3; 321304.3; 487281.9

**Q 22) Environmental Quality (EQ):** first we combine **Q16)** and **Q17)** using I1 = **Ws** and I2 = **NH** to obtain the intermediate result, called **Waste and natural hazard (WSNH)**; then we combine this result to **Q21)** with I1 = **CC** and I2 = **WSNH**. The next intermediate result, called "**Waste-Hazard-Climate Change**" (**Y**) is used as Indicator2 in the final combination with I1 = **Q20)** to obtain **EQ = Environmental Quality**.

**Q 23) level of citizen confidence in EU Commission (CfCom)**

**Definition:** share of positive opinions (people who declare that they 'tend to trust') about this institution

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT – EuroBarometer bi-yearly survey, 2005

**NUTS version 2003**

**Missing data:** CH, NO

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. To cover missing data, the EU15 average was used for CH and NO.

*Class breaks*

44; 46; 57

**Q 24) level of citizen confidence in European council of ministers (CfCM)**

**Definition:** share of positive opinions (people who declare that they 'tend to trust') about this institution

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT – EuroBarometer bi-yearly survey, 2005

**NUTS version 2003**

**Missing data:** CH, NO

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. To cover missing data, the EU15 average was used for CH and NO.

*Class breaks*

39; 40; 50

**Q 25) level of citizen confidence in European parliament (CfEP)**

**Definition:** share of positive opinions (people who declare that they 'tend to trust') about this institution

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT – EuroBarometer bi-yearly survey, 2005

**NUTS version 2003**

**Missing data:** CH, NO

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. To cover missing data, the EU15 average was used for CH and NO.

*Class breaks*

49; 51; 54

**Q 26) Level of citizen confidence (CzCf):** arithmetical average of the quantities in Q23), Q24), Q25):  $CzCf = (CfCom + CfCM + CfEP) / 3$

**Elaboration:** CEIS, 2006

*Class breaks*

44; 45; 55.7

### **Q 27) National Public participation (PbPn)**

**Definition:** Voter turnout in national Parliamentary elections.

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT-international institute for democracy and electoral assistance, 2000-2004. Data for CH (date 2003) from Swiss Statistical Institute web page ([http://www.bfs.admin.ch/bfs/portal/fr/index/themen/politik/wahlen/blank/kennzahlen0/national\\_rat/wahlbeteiligung.html](http://www.bfs.admin.ch/bfs/portal/fr/index/themen/politik/wahlen/blank/kennzahlen0/national_rat/wahlbeteiligung.html))

**NUTS version 2003**

*Class breaks*

39.3; 43; 45.1

### **Q 28) European Public participation (PbPe)**

**Definition:** Voter turnout in European Parliamentary elections

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT-international institute for democracy and electoral assistance, 2004

**NUTS version 2003**

**Missing data:** CH, NO, BG, RO

**Notes:** To cover missing data, the EU15 average was used for CH and NO; the new NMS countries average for BG and RO.

*Class breaks*

60.3; 70.1; 79.1

**Q 29) Public participation (PbP):** arithmetical average of the quantities Q27) and Q28):

$PbP = (PbPn + PbPe) / 2$

*Class breaks*

49.35; 54.55; 62.05

**Q 30)** To obtain the level of **Government quality (GQ)**, we combine the **Q29)** and **Q26)** with  $I1 = PbP$  and  $I2 = CzCf$

### **Q 31) Early school leavers (EdB) = Base education**

**Definition:** Level of early school leavers: Percentage of the population aged 18-24 with at most lower secondary education and not in further education or training.

**Source:** CEIS 2006

**Origin of data and date:** Third Cohesion Report; origin EUROSTAT – Labour Force Survey (LFS), 2004

**Notes:** the table with the original data could not be found on EUROSTAT website. We made a data request with no answer. Classes were extracted by graphics processing of the map published in the 3<sup>rd</sup> CR; the 5 classes were recoded into 4 as follows:

*Class breaks*

New value	Original class
A	5
B	4
C	3
D	1 and 2

**Q 32) Inequity of regional income distribution (SCEc) = Economic Elements For The Social Cohesion**

**Definition:** Inequity of regional income distribution - Ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile). Income must be understood as equivalised disposable income.

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT 2004

**NUTS version 2003**

**Missing data:** CH

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data.

*Class breaks*

4.1; 4.5; 5.3

**Q 33)** To obtain the level of **Social Cohesion ReElaborations (SCR)** we combine **Q31)** and **Q32)** with I1 = **EdB** and I2 = **SCEc**

**Q 34) Person aged 0-17 who are living in households where no-one works (CEr) = Risk of Children Exclusion**

**Definition:** Share of persons aged 0-17 who are living in households where no one works

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT – Labour Force Survey, 2005

**NUTS version 2003**

**Missing data:** CH, PL, SE

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. To cover missing data, the EU15 average was used for CH; the new NMS countries average for PL and SE.

*Class breaks*

6.2; 9.6; 11.0

**Q 35) At-risk-of-poverty rate before social transfers (Pvy) = Poverty**

**Definition:** share of persons with an equivalised disposable income, before social transfers, below the risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income. Retirement and survivor's pensions are counted as income before transfers and not as social transfers.

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2004

**NUTS version 2003**

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data.

*Class breaks*

15; 16; 18

**Q 36)** To obtain the **Risk of Social Exclusion (SEE)** we combine **Q35)** and **Q34)** with I1 = **Pvy** and I2 = **CEr**

### **Q 37) Female employment (EqOp) = Equal Opportunities**

**Definition:** share of female employment / total employment

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2003

**NUTS version 2003**

**Missing data:** CH, NO, BG, RO

Note: To cover missing data, the EU15 average was used for CH and NO; the new NMS countries average for BG, RO.

*Class breaks*

42.77; 44.33; 45.49

### **Q 38) Fertility Rate (Fty).**

**Definition:** Total fertility rate - The mean number of children that would be born alive to a woman during her lifespan if she were to pass through her childbearing years conforming to the fertility rates by age of a given year. This rate is therefore the completed fertility of a hypothetical generation, computed by adding the fertility rates by age for women in a given year (the number of women at each age is assumed to be the same). The total fertility rate is also used to indicate the replacement level fertility; in more highly developed countries, a rate of 2.1 is considered to be the replacement level.

**Source:** CEIS 2006

**Origin of data and date:** ESPON DB, origin EUROSTAT, 1999

**NUTS version 1999**

*Class breaks*

1.27; 1.46; 1.70

### **Q 39) Healthy Life Years (HLY)**

**Definition:** The number of years that a person at birth is expected to live in a healthy condition. HLY is a health expectancy indicator which combines information on mortality and morbidity. The data required are the age-specific prevalence (proportions) of the population in healthy and unhealthy conditions and age-specific mortality information. A healthy condition is defined by the absence of limitations in functioning/disability. The indicator is calculated separately for males and females. The indicator is also called disability-free life expectancy (DFLE).

**Source:** IGS 2005

**Origin of data and date:** EUROSTAT 2003; CZ, MT, PL - 2002

**NUTS version 2003**

**Missing data:** CH, LU, RO, BG, SK, SI, LT, LV, EE.

**Notes:** Geographical detail is limited to the national level. Each NUTS2 region is given the NUTS0 data. CH and LU are given the EU15 average. The remaining nations are assigned a class judgement of "C" as they are too many to use the NMS average.

*Class breaks*

61.2; 64.4; 65.7

**Q 40)** To obtain the level of **Wellness (Wns)**, we combine **Q39)** and **Q38)** with I1 = **HLY** and I2 = **Fty**

**Q 41)** To obtain the level of **Social Wellness Attitude (SWA)** we combine **Q40)** and **Q37)** with I1 = **Wns** and I2 = **EqOp**

**Q 42)** To obtain **Social Quality and Cohesion (SQ&C)**, first we combine **Q33)** and **Q41)** with I1 = **SCR** and I2 = **SWA** to obtain the intermediate result called **Cohesion Attitude (ChA)**, which is then combined to **Q36)** with I1 = **SEE** and I2 = **ChA**

**Q 43)** To obtain the **Status Quo (SQ)**, first we combine **Q22)** and **Q12)** with I1 = **EQ** and I2 = **LQ** to obtain the intermediate result called "**Life and Environmental quality**" (**L&EQ**), which is then combined to **Q30)** with I1 = **GQ** and I2 = **L&EQ**

**Q 44)** Finally we obtain the **Determinant QUALITY (Qty)** combining **Q42)** and **Q43)** with I1 = **SQ&C** and I2 = **SQ**

**Q 45)** To obtain a **territorial dimension of the Quality (NUTS2)** we combine the **Q44)** with the **TT2 - Territorial typologies at NUTS2**

**Q 46)** To obtain a **territorial dimension of the Quality (NUTS3)** we combine the **Q44)** with the **TT3 - Territorial typologies at NUTS3**

### 1.1.4 Resources and Funds

**Table 6:** Resources and Funds, structure of indicators

Indicator	Category	Sector	Typology	Determinant	Territorial Dimension
R&D expenditure (LsS)	R&D	Policies for the Lisbon Strategy (structure)	Level of interventions towards the Lisbon Strategy (LS)	Resources and Funds (RF)	Territorial RF dimension at NUTS2 and NUTS3 (IR 18 and 18a)
National aids (NA)	Firms aids	Policies for the Lisbon Strategy (performance) (LsP)			
Human Capital expenditure (Hcex)	Human Capital				
Employment expenditure (Eex)	Employment				
Climate and Natural Resources expenditure (CNRex)	Climate and Natural Resources	Policies for the Gothenburg Strategy (structure) (GtS)	Level of interventions towards the Gothenburg strategy (GS)		
Efficiency and accessibility (Tex)	Transport				
Public Health expenditure (Phex)	Public Health	Policies for the Gothenburg Strategy (performance) (GtP)			
Poverty and Age expenditure (Pax)	Poverty and Age		Use of funds (RFsq)		
Funds spending (Funds)	European funds expending	Use of structural funds and pre access			
Economic resources (Co-op)	3rd Cohesion Report	Level of Co-operation			

**RF 01) R&D expenditure (LsS) = R&D = Policies for the Lisbon strategy (structure)**

**Definition:** (national R&D expenditure / national GDPppps) \* regional GDP - GERD (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT 2004 (R&D expenditure), ESPON DB 2000 (GDP).

**NUTS version:** 2003 – Level 2, except: UK at NUTS1; BE, IE, SE, RO at NUTS0

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level

*Class breaks*

340.26; 455.25; 622.40

**RF 02) National aids (NA) = Firms aids**

**Definition:** Level of national aids given to the firms; (national aids / national GDPppps) \* Regional GDP (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT 2003, 2002: RO-MT (national aids); ESPON DB 2000 (GDP)

**NUTS version 2003**

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level

*Class breaks*

70.38; 117.33; 173.58

**RF 03) Human capital expenditure (HCex) = Human Capital**

**Definition:** Expenditure (COFOG GF09): (national funds utilized for the human capital / GDPppps) \* Regional GDP (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004, 2003 for BE, FR, GR, HU, LU, PL, SE, SK (COFOG GF09), 2002: IE, 2000: IS; ESPON DB 2000 (GDP)

**NUTS version 2003**

**Missing data:** BG, CH, NO

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level. To cover missing data, the EU15 average was used for CH and NO, the average of the NMS for BG.

*Class breaks*

693.60; 1030.80; 1311.80

**RF 04) Employment expenditure (Eex) = Employment**

**Definition:** Expenditure (COFOG 1009): (national employment expenditure / national GDPppps) \* regional GDP (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004 (national expenditure); ESPON DB 2000 (GDP)

**NUTS version 2003**

**Missing data:** BG, CH, CY, CZ, EE, HU, LT, LU, LV, PL, RO, SI, SK

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level. For this indicator, no data at all were available for the enlargement countries. The above described gap-filling scheme was therefore impossible to apply. In order not to lose information in the map combinations following this indicator, a qualitative rank just below that of the EU-15 average was assigned to the countries missing data. This is, of course, a bad approximation to be corrected by gathering additional data in the future.

*Class breaks*

183.20, 363.60, 558.40

**RF 05) The measure of the Policies for the Lisbon Strategy (performance) (LsP)** is obtained first combining **RF3)** and **RF4)** with  $I1 = Eex$  and  $I2 = Hcex$ , to obtain the intermediate result called **Human Lisbon performance (HLP)**, which is then combined to **RF2)** with  $I1 = FA$  and  $I2 = HLP$

**RF 06) The Level of interventions to the Lisbon strategy (LS)** is obtained combining **RF1)** and **RF5)** with I1 = **LsS** and I2 = **LsP**

**RF 07) Climate and Natural Resources expenditure (CNRex) = Climate and natural Resources**

**Definition:** national expenditure (COFOG GF05): (national climate and Natural Resources expenditure / national GDPpps) \* regional GDP (in M€)

**Source:** CEIS 2006

**Origin of data and date:** EUROSTAT, 2004 and 2003 for FR, GR, HU, IT, LU, PL, SE, SK (COFOG GF05); ESPON DB 2000 (GDP)

**NUTS version 2003**

**Missing data:** BE, IE

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level. To cover missing data, the EU15 average was used for BE, IE.

*Class breaks*

80.20, 129.70, 190.60

**RF 08) Efficiency and Accessibility (Tex) = Transport**

**Definition:** structural funds spending (1994-1999) in relation to accessible population in 3 hours by car (1999)

**Source:** CEIS, 2006

**Origin of data and date:** ESPON project 2.2.1 (SIR map. 02), 1994-1999 (structural funds spending), 1999 (accessible population in 3 hours by car)

**NUTS version 2003**

**Missing data:** BG, CH, CY, CZ, EE, ES7, FR91, FR92, FR93, FR94, HU, LT, MT, NO, PL, PT2, PT3, RO, SI, SK,

**Notes:** The data from Project 2.2.1 are already ranked in a qualitative way. We re-ranked them as in the following table to meet the four classes approach here used. In order to fill the gaps in the map, no-data were replaced by the rank "medium-low" - C

A	A	C	+ <b>Spending</b> -
A	B	C	
B	C	D	
+ <b>Accessibility</b> -			

**RF 09) Policies for the Gothenburg Strategy (structure) (GtS)** is obtained combining **RF7)** and **RF8)** with I1 = **CNRex** and I2 = **Tex**

**RF 10) Public health expenditure (PHex) = Public Health**

**Definition:** national expenditure (COFOG GF07): (national health expenditure / national GDPpps) \* Regional GDP (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004, 2003: BE, FR, GR, HU, IT, LU, PL, SE, SK (COFOG GF07), ESPON DB 2000 (GDP)

**NUTS version 2003**

**Missing data:** BG, CH

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level.

*Class breaks*

885.50, 1276.70, 1609.30

**RF 11) Poverty and aging expenditure pps (PAex) = Poverty and Age**



**Definition:** regional expenditure in pps (COFOG GF10) / national GDPpps) \* Regional GDP (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** EUROSTAT, 2004, 2003: BE, FR, GR, HU, IT, LU, PL, SE, SK  
2002: IE-RO, 2000: IS (COFOG GF10); ESPON DB 2000 (GDP)

**NUTS version 2003**

**Missing data:** BG, CH

**Notes:** Original data are at NUTS0 level. The regional share of GDP has been used to draw the map at NUTS2 level. To cover missing data, the EU15 average was used for CH and the average of the NMS for BG.

*Class breaks*

2530.00, 3518.50, 4626.50

**RF 12)** A measure of the **Policies for the Gothenburg Strategy (performance) (GtP)** is given by the combination of **RF10)** and **RF11)** with I1 = **PAex** and I2 = **PHex**

**RF 13)** A measure of the **Level of interventions to the Gothenburg strategy (GS)** is given by the combination of **RF9)** and **RF12)** with I1 = **GtS** and I2 = **GtP**

**RF 14)** The **Lisbon/Gothenburg Interventions (RFv)** is obtained combining **RF13)** and **RF6)** with I1 = **GS** and I2 = **LS**

**RF 15) Funds spending (SFU) = European Funds expending = Use of structural funds and pre access**

**Definition:** Amount of all structural and cohesion funds expenditure (or pre accession funds expenditure) (in M€)

**Source:** CEIS, 2006

**Origin of data and date:** ESPON database, indicators SFT99N2 (EU15) and TPPA00N2 (NMS), 1994-1999 (EU15); 1998-2000 (NMS)

**NUTS version 2003**

**Missing data:** CH, NO

*Class breaks*

55.50, 156.50, 476.50

**RF 16) Economic resources (Co-op) = Cohesion Report = Level of cooperation**

**Definition:** Share of INTERREG III funds in million of euro

**Source:** -

**Origin of data and date:** European Union (web site) – INTERREG III 2000

**NUTS version 2003**

*Class breaks*

1.50; 6.70; 8

**RF 17)** The **Use of Funds (RFsq)** is obtained combining **RF15)** and **RF16)** with I1 = **SFU** and I2 = **Coop**

**RF 18) Determinant "Resources and Funds" (RF)** is obtained combining Lisbon/Gothenburg Interventions IR **RF14)** and the use of Funds IR **RF17)** with I1 = **RFv** and I2 = **RFsq**

**Definition:** Determinant "Resources and Funds" spatial value

**RF 19) Territorial "Resources and Funds" at NUTS2**

It is obtained combining Determinant "Resources and Funds" **RF18)** and Territorial Typology at NUTS2 level **ESPON\_33\_7k\_N2**

**RF 20) Territorial "Resources and Funds" at NUTS3**

It is obtained combining Determinant "Resources and Funds" **RF18)** and Territorial Typology at NUTS3 level **ESPON\_33\_7k\_N3**

## 1.2 Technical notes about the 14 Structural Indicators in light of European territorial Cohesion (B-case); their experimental use in the 3.3 Project and critical review

The task was to gather and present data of the 14 Structural Indicators listed in the annual "Spring Report" of the European Commission. This list of core indicators has changed somewhat over the years, but the one used here is given in the Spring Report 2004. It was agreed by the Commission and the European Council that this short list will be kept stable for three years, i.e. at least until the Spring Report in 2006.

The data source is mainly EUROSTAT and the date of extracting is June 2005. The data covers the whole ESPON area, i.e. EU 25 + Bulgaria, Romania, Norway and Switzerland. Exceptions are mentioned separately with each indicator. All the GDP data is regularly transmitted from countries to EUROSTAT according to the standards of ESA 95 (European System of Accounts).

Labour market data used here is mainly gathered with the Labour Force Survey (LFS), which uses a sample (mostly a random or a stratified random sample) of private households. Thus it excludes, for instance, people living in institutes and homeless people. Only the Nordic countries supply some data directly from population registers. The method of sample selection slightly differentiates between countries and samples themselves are subject to those errors associated with sampling. However, EUROSTAT has implemented basic guidelines for securing consistent reliability and comparability of data. The definitions of employment and related terms are in line with ILO. However, there are still some discrepancies between countries, which mostly stems from different ways of measuring the duration of unemployment.

The main challenge in this task was to gather the data at regional level, that is, at NUTS3 or NUTS2. Due to better availability of data, the level was decided to be NUTS2. Even then, we had to accept using rather old data (mainly from 2000) and filling gaps with data from another year or from upper regional level. This was done in order to cover the whole ESPON Space and analyse the 14 indicators together, i.e. to make a synthesis of them at regional level.

In addition to this, analysis was also made at national level in order to cover the 14's list in full and make the work more comparable with other studies. For this, we used the latest reliable data available, which mainly was from 2004. This analysis is presented as bar charts indexed on EU 25.

### **GDP per capita in Purchasing Power Standards**

Figures are indexed on EU 25 (=100). For NUTS2-level, the data is from 2000. The data for Norway and Switzerland is taken from ESPON Database 2.4, but the original source is EUROSTAT also for them. For country level, the data is from 2004, except for Ireland, Luxemburg, the Netherlands, Portugal and Romania (2003). Figures are EUROSTAT's forecasts for Bulgaria, Italy, Spain and United Kingdom.

## Labour Productivity

This indicator is measured as GDP in Purchasing Power Standards per person employed and indexed on EU 25 (=100). Persons employed include all persons who did any work for pay or profit, or were not working but had jobs from which they were temporarily absent. Family workers are also included. For NUTS2-level, the data is from 2000. Employment data for French overseas regions is from year 2001 and for German regions in Rheinland-Pfalz from 1999. Figures for Switzerland are own estimations for 2001, based on data from Swiss Federal Statistical Office. For country level, the data is from 2004. Figures are forecasts for Cyprus, Ireland, Portugal and Romania. Figures for Bulgaria, the Netherlands and Switzerland are from 2003.

The definition of employment is in accordance with National Accounts concepts (ESA 95), and it may differ from national labour force statistics. There is no separation between full-time and part-time work in this data, and thus differences in their shares may reflect on the productivity. For example, if GDP is high and number of employed persons is high due to part-time working, the productivity is respectively lower than if GDP is high and number of employed persons is low due to full-time working, even if the amount of work itself was the same.

## Total employment rate

This indicator is measured as employed persons aged 15-64 as a share of the total population of the same age group living in private households. In Norway, Spain, Sweden (1995-2000) and United Kingdom the age group is 16-64, which may cause comparatively high employment rates due to 15 years old persons rarely having jobs. For NUTS2-level the data is from 2000. For French overseas regions data is from year 2001 while for German regions in Rheinland-Pfalz is from 1999. Figures for Switzerland are own estimations for 2001, based on data from Swiss Federal Statistical Office. At national level, data is from 2004 and indexed on EU 25.

## Employment rate of older workers

Employed persons aged 55-64 as a share of total population of the same age group living in private households. For NUTS 2 -level, data is from 2000. Data for French overseas regions is from year 2001 and for German regions in Rheinland-Pfalz (DEB) from 2002. Data for Switzerland is at national level. At national level, data is from 2004 and indexed on EU 25. Data for Switzerland is from 2003.

## Gross domestic expenditure on Research & Development (GERD)

This indicator measures the total gross domestic expenditure on research and development (GERD) as percentage of GDP. For NUTS2 level, data is mainly from year 2000, but it turned out to have many gaps and thus some other years and sources were used. Data for Bulgaria and Malta is from year 2002. Data is from ESPON Database 2.4 for the following regions: Schwaben (DE27) and Niederbayern (DE22) in Germany, French overseas regions, Bolzano-Bozen (ITD1) and Trento (ITD2) in Italy. As the two latter NUTS2 regions in Italy were a single region until 2000, data for them has been disaggregated – i.e. they both get the same value as the old region. For the Spanish regions Ceuta and Melilla, no NUTS2 level data was

available, so they were given the value of their common NUTS1 region (Ceuta y Melilla, ES63). Data for United Kingdom is also from ESPON Database, but it has been disaggregated from NUTS1 level to NUTS2 and the reference year is 1999. Data is from UNESCO and only at national level for the following countries: Belgium, Ireland, Norway (year 2001), Sweden (year 2001) and Switzerland. At national level, data is mainly from 2002 and indexed on EU 25 (=100). Data for Greece is from 2003; for Belgium, the Netherlands, Portugal and Sweden is from 2001, and for Luxembourg is from 2000. Data for Switzerland is from UNESCO Institute for Statistics and the reference year is 2000.

The total gross domestic expenditure consists of the following sub-expenditures on R&D: business enterprises, higher education, government and private non-profit sector. GERD does not take into account international purchases of R&D performed abroad; this affects especially the expenditure figures of multinational enterprises. The data is gathered with surveys according to the Frascati Manual "Proposed standard practice for surveys of research and experimental development" (OECD 2002).

### **Youth education attainment level**

This indicator is measured as the percentage of population aged 20-24 having completed at least upper secondary education (ISCED level 3-4). Only persons living in private households are considered. Data in figures presented at national level is from 2004, except for Austria, the Netherlands, Luxembourg and Switzerland (2003). This indicator was not available at NUTS2 level, but we have used national data from 2000 in the synthesis analysis.

The data is gathered with the Labour Force Survey already discussed above, and the same notions are valid also with this indicator. The age group 20-24 is used because of the educational target set by European Commission for people aged 22. However, the use of this small age group may cause differences between countries, as graduation age varies between them. Persons studying abroad are also not taken into consideration, which affects especially the smallest countries with active student exchange programs.

### **Comparative price levels of final consumption by private households including indirect taxes**

Comparative price levels are measured as the ratio between Purchasing Power Parities (PPP) and the market exchange rate of the respective country, indexed on EU 25 (=100). Data is available only at national level. The reference year in figures presented at national level is 2002, while in regional synthesis analysis it is 2000.

The data is gathered with surveys at the same month in every country and mainly in capitals. Both spatial and temporal coefficients are needed to produce one annual figure for the whole country. Since EUROSTAT coordinates and regulates these procedures with OECD, comparability and reliability is fairly good, although errors due to sampling and coefficients are possible. The error margin for PPP data is +/- 5% at aggregated level.

## **Business investment**

Gross fixed capital formation by the private sector as a percentage of GDP, indexed on EU 25 (=100). Data is available only at national level. The reference year in figures presented at national level is 2004 and in synthesis analysis it is 2000. Data for Switzerland is from OECD.

## **At-risk-of-poverty rate after social transfers**

The share of persons with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income. Data is available only at national level. The data in national level figures is indexed on EU 25 (=100) and mainly from 2002, except for Czech Republic, Cyprus, Norway and Sweden (2003), for Austria, Belgium, Denmark, Greece, Ireland, Italy and Luxembourg (2001), and for Malta (2000). Data is provisional for Portugal, Norway and Sweden. Data for Switzerland is from Swiss Federal Statistical Office and the reference year is 1999. In synthesis maps the reference year is 2000, except for Czech Republic, Denmark and Sweden (2001), for Norway and Slovakia (2003, provisional). Data for Cyprus is from European social Observatory and the reference year is 1997.

The indicator measures relative poverty in each country, which means that a person at risk of poverty in one country might not be such in another country. The EU average is calculated as the average of national rates weighted by population in each country. The current concept of income is not taking into account some sources of income, like rents and unofficial financial support. Also the duration of poverty is not observed. Thus the state of being at risk of poverty does not necessarily mean low living conditions or poorness in general speaking. On the other hand, only persons living in private households are included in the survey, thus omitting e.g. homeless people.

The data for EU 15 is gathered with a survey under the European Community Household Panel (ECHP). Unlike in Labour Force Survey, the interviewees constitute a panel of households and individuals, and thus it is possible to have exactly the same sample every year. For new member states and candidate countries, national databases (mainly from Household Budget Surveys) are used. Even if national data is organised to be as comparable with ECHP data as possible, some discrepancies most likely exist. A new common survey method, EU-SILC, is being implemented from 2002 onwards, and thus there is no more recent data available yet.

## **Dispersion of regional employment (or unemployment) rates**

In the Commission's list, regional disparities in employment are measured as the coefficient of variation of employment rates (of the age group 15-64) across regions (NUTS2 level) within countries. This means that the indicator can't be calculated for those countries consisting of only one NUTS2 region: Cyprus, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta and Slovenia. Thus we have used this indicator only at country profiles (bar charts) in those countries where it was possible. The data is from 2003, except for France and Romania (2002), and gathered with the Labour Force Survey.

To depict regional disparities in employment, we have used the variation of unemployment, due to unemployment data being available more than employment

ones at NUTS3 level. The exact measure is a coefficient of variation of the rate of unemployment within a NUTS2 region as annual average. Unemployed persons are all persons aged 15-74 (16-74 in Norway, Spain, Sweden in 1995-2000 and United Kingdom) who were not employed at the time of the survey, had actively sought work during the last month and were ready to start working. The reference population is all employed or unemployed persons, i.e. active population. The final rate is an annual average from quarterly data. The data is from 2003, except for Greece, Malta and Ceuta & Melilla (2002). For Greece and Portugal no NUTS3 level unemployment data was available, so we have instead used regional variations between NUTS2 regions in these countries. Data is attributed from the Labour Force Survey NUTS2 level data to NUTS3 level by using the data for unemployment and active population from national statistical offices. This work is done in EUROSTAT, and the reliability and comparability of the end result data is fairly high, despite discrepancies stemming from the use of different data sources in different countries.

### **Total long-term unemployment rate**

Long-term unemployed as a percentage of the total active population. Long-term unemployment means that the search for a job or the time since latest job ended is at least 12 months. For NUTS2 level, the data is from year 2000, except for French overseas regions and Portuguese regions Centro (PT12), Lisbon e Vale do Tejo (PT13) and Alentejo (PT14) (year 2001), for Malta, the Netherlands, and German regions in Rheinland-Pfalz (DEB) (year 2002). For Norway and Switzerland data is available only at national level and from year 2003. At national level, the data is from 2004, except for Cyprus (2003).

### **Total greenhouse gases missions**

The total emission of six main greenhouse gases (the "Kyoto Basket") is measured as percentage change since base year and presented as an index (base year = 100). Emissions are measured as CO<sub>2</sub> equivalents and each gas is weighted by its warming potential. Only national data is available for this indicator. The reference year is 2002 (for Cyprus 2000) at national level analysis and 2000 at regional synthesis analysis. Data source for Switzerland is Bundesamt für Umwelt, Wald und Landschaft.

The base year referred to is mainly 1995 for fluorinated gases (HFC, PFC, SF<sub>6</sub>) and 1990 for non-fluorinated (CO<sub>2</sub>, N<sub>2</sub>O, NH<sub>4</sub>). Finland, France and Norway have 1990 as the base year for all the six gases, Romania has year 1989 and Hungary the average of 1985-1987. For non-fluorinated gases, Poland and Bulgaria use reference year 1988 and Slovenia year 1986. In addition, most new member states have difficulties in reporting all fluorinated gases. There are some differences in methodologies, background data and emission factors between countries, but these differences are well documented and apparently taken into account in calculations, as EUROSTAT estimates the comparability between countries to be very good.

### **Energy intensity of the economy**

Energy intensity is measured as gross inland consumption of energy divided by GDP at constant prices (base year is 1995), and indexed on 1996 (=100). The original

unit is kgoe (kilogram of oil equivalent) per 1000 Euro. The data is aggregated from five types of energy (coal, electricity, oil, natural gas and renewable energy source) and four sectors of inland consumption (production, storage, trade and consumption/use of energy). Only national level data is available. The reference year is 2003 at national level analysis and 2001 at regional synthesis analysis. For Switzerland, the original measure is Kwh/GDP in France and the source is Swiss Federal Statistical Office.

The data is gathered annually with a joint questionnaire separately for the five energy sources. The questionnaire is harmonized with all OECD and EU countries.

### **Volume of freight transport relative to GDP**

Index of inland freight transport volume relative to GDP, measured in tonne-km per GDP in constant prices (base year is 1995) and indexed on 1995 (=100). It includes transport by road, rail and inland waterways. Rail and inland waterways transport are based on movements on national territory, regardless of the nationality of the vehicle or vessel. Road transport is based on all movements of vehicles registered in the reporting country. At national level reference year is 2003, except for Portugal and the Netherlands (2002), and for Switzerland (2001). Figures for Greece and Italy are EUROSTAT's estimations. As no regional data was available, national data was disaggregated to NUTS2 level for synthesis analysis. The reference year in this analysis is 2000. For Cyprus and Slovenia figures are estimations. Some data for Greece is estimated by EUROSTAT as no data on road freight transport are available for Greece since 1999. No data on Malta was found in any year or area level.

The data is compiled from separate data sets for each transport mode. Road transport data is gathered by sample surveys of vehicles registered in the country, but some countries use a threshold for the size of the vehicle. Railway transport data is taken from registers and thus covers the whole population, but after market liberalisation in some countries small railway companies have been omitted. Also for inland waterway transport, the whole population is covered, but the method of gathering information varies between countries. Despite all these differences, the harmony of data in EUROSTAT can be considered good, and thus the comparability between countries is fairly good.

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- Q 04) Consumer-price Index (HICP) = Level of prices
- Q 05) Economic Variables (EV)
- Q 06) Hospital beds = Health (Hlt)
- Q 07) Hotel beds (Htb)
- Q 08) Cultural opportunities (CuOp)
- Q 09) Leisure (Ls)
- Q 10) Physical Accessibility (PhAc) = GL28
- Q 11) Infrastructural Variables of Cohesion (IVC)
- To include IR 14) Level of Telecommunication development (LTD)
- Q 12) Quality of Life (LQ)
- Q 13) Municipal waste generation = Municipal Waste (MWAs)
- Q 14) Hazardous Waste Generation = Waste Generation (HWAs)
- Q 15) Municipal Waste Recycling = Recycling Waste (RMWas)
- Q 16) Waste (Ws)
- Q 17) Degree of Vulnerability = Vulnerability (Vuln) = Natural Hazard (NH)
- Q 18) Total greenhouse emissions = Air (State of) (SA)
- Q 19) Total gross abstraction of freshwater (FW) = Water use balanced (SW)
- Q 20) Natural ReElaborations State (NRS) (MAP C 17)
- Q 21) CO<sub>2</sub> emissions = Ozone layer = Climate Change (CC)
- Q 22) Environmental Quality (EQ)
- Q 23) Citizen confidence in EU Commission (CfCom)
- Q 24) Citizen confidence in European council of ministers (CfCM)
- Q 25) Citizen confidence in European parliament (CfEP)
- Q 26) Level of citizen confidence (CzCf)
- Q 27) National Public participation (PbPn)
- Q 28) European Public participation (PbPe)
- Q 29) Public participation (PbP)
- Q 30) Government quality (GQ)
- Q 31) Early school leavers = Base education (EdB)
- Q 32) Inequity of regional income distribution = Economic Elements For The Social Cohesion (SCEc)
- Q 33) Social Cohesion ReElaborations (SCR)
- Q 34) Person aged 0-17 who are living in households where no-one works = Risk of Children Exclusion (CEr)
- Q 35) At-risk-of-poverty rate before social transfers = Poverty (Pvy)
- Q 36) Risk of Social Exclusion (SEE)
- Q 37) Female employment = Equal Opportunities (EqOp)
- Q 38) Fertility Rate (Fty)

- Q 39) Healthy Life Years (HLY)
- Q 40) Wellness (Wns)
- Q 41) Social Wellness Attitude (SWA)
- Q 42) Social Quality and Cohesion (SQ&C)
- Q 43) Status Quo of Quality (SQ)
- Q 44) Determinant QUALITY (Qty)
- Q 45) Territorial QUALITY at NUTS2
- Q 46) Territorial QUALITY at NUTS3

### Resources and Funds

- RF 01) R&D expenditure (LsS) = R&D = Policies for the Lisbon strategy (structure)
- RF 02) National aids (NA) = Firms aids
- RF 03) Human capital expenditure (HCex) = Human Capital
- RF 04) Employment expenditure (Eex) = Employment
- RF 05) Policies for the Lisbon Strategy (performance) (LsP)
- RF 06) The Level of interventions to the Lisbon strategy (LS)
- RF 07) Climate and Natural Resources expenditure (CNRex) = Climate and natural Resources
- RF 08) Efficiency and Accessibility (Tex) = Transport
- RF 09) Policies for the Gothenburg Strategy (structure) (GtS)
- RF 10) Public health expenditure (PHex) = Public Health
- RF 11) Poverty and aging expenditure pps (PAex) = Poverty and Age
- RF 12) Policies for the Gothenburg Strategy (performance)
- RF 13) Level of interventions to the Gothenburg strategy (GS)
- RF 14) The Lisbon/Gothenburg Interventions (RFv)
- RF 15) Funds spending (SFU) = European Funds expending = Use of structural funds and pre access
- RF 16) Economic resources (Co-op) = Cohesion Report = Level of cooperation
- RF 17) Use of Funds (RFsq)
- RF 18) Determinant "Resources and Funds" (RF)
- RF 19) Territorial "Resources and Funds" at NUTS2
- RF 20) Territorial "Resources and Funds" at NUTS3

### For the territorialisation "A case"

- TT2 - Territorial typologies at NUTS2
- TT3 - Territorial typologies at NUTS3

### For the 14 spring indicators, "B case"

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- Figure A2: Gross Domestic Product per person employed in Purchasing Power Standards
- Figure A3: Employment rate
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- Figure A14: Volume of freight transport relative to GDP
- Figure A15: Structural indicator performance on the national level
- Figure A16: Structural Indicators and the ESPON typology of Functional Urban Areas
- Figure A17a: Structural Indicators and the ESPON urban-rural typology – urban influence
- Figure A17b: Structural Indicators and the Urban-rural Typology – Human Intervention
- Figure A18: Structural Indicators and multimodal potential accessibility
- Figure A: Regional performance of fourteen Lisbon Short List Structural Indicators

### 3. List of missing data

With regard to the “A-case” (Composite indicators), see Chap. 1 in this Part Three, particularly parr. 1.1.1; 1.1.2; 1.1.3; 1.1.4.

See, also, the file 33\_METADATA\_31\_05\_06.

## 4. List of abbreviations and glossary

### 4.1 Abbreviations and Acronyms

<b>AcP</b>	Active people
<b>BAT</b>	Best Available Technology
<b>BC</b>	Companies
<b>BnK</b>	Credit Institutions
<b>C&amp;IA</b>	Credit & Insurance attitude
<b>CC</b>	CO <sub>2</sub> emissions
<b>CE</b>	Cultural Exchange
<b>Cer</b>	Persons aged 0-17 who are living in households where no-one works
<b>CfCM</b>	Confidence in European council of ministers
<b>CfCom</b>	Confidence in EU Commission
<b>CfEP</b>	Confidence in European parliament
<b>CI</b>	Composite Index
<b>CiS</b>	Competitiveness in Sustainability
<b>CNRex</b>	Climate and Natural Resources expenditure
<b>CONS</b>	Consumption per capita
<b>Co-op</b>	Economic resources
<b>Cs</b>	Costs
<b>CSFs</b>	Community Support Frameworks
<b>CSR</b>	Corporate Social Responsibility
<b>CuOp</b>	Cultural opportunities
<b>CzCf</b>	Level of citizen confidence
<b>EcI</b>	Economy Interaction
<b>EdB</b>	Early school leavers
<b>Eex</b>	Employment expenditure
<b>EIA</b>	Environmental Impact Assessment
<b>EMAS</b>	Eco-Management and Audit Scheme

<b>Emp</b>	Level of employment
<b>EQ</b>	Environmental Quality
<b>EqOp</b>	Female employment
<b>ESA</b>	Environmental Strategic Assessment
<b>ESDP</b>	European Spatial Development Perspective
<b>ESPON</b>	European Spatial Planning Observation Network
<b>ESPON_33_7K_N2</b>	Territorial typologies at NUTS2
<b>ESPON_33_7K_N3</b>	Territorial typologies at NUTS3
<b>ESSI</b>	Energy Self-sufficiency Index
<b>EU</b>	European Union
<b>EV</b>	Economic Variables
<b>FDlin</b>	Foreign direct investment intensity
<b>FI</b>	Financial Interaction
<b>FIR</b>	First Interim Report
<b>FP</b>	Fiscal Pressure
<b>FR</b>	Final Report
<b>Fty</b>	Fertility Rate
<b>FUA</b>	Functional Urban Area
<b>Funds</b>	Funds spending
<b>GDP</b>	Gross Domestic Product
<b>GDP</b>	Gross Domestic Product per capita in Purchasing Power Standard
<b>GEC</b>	General Environmental Concerns
<b>GIS</b>	Geographical Information System
<b>GL</b>	Global/Local
<b>GLI</b>	Global Local Interaction
<b>GQ</b>	Government quality
<b>GS</b>	Level of interventions towards the Gothenburg Strategy
<b>GtP</b>	Policies for the Gothenburg Strategy (performance)
<b>GtS</b>	Policies for the Gothenburg Strategy (structure)
<b>HC</b>	Human Capital

<b>HCe</b>	Human Capital Education
<b>Hcex</b>	Human Capital expenditure
<b>HICP</b>	Consumer-price Index
<b>HLT</b>	Hospital beds
<b>HLY</b>	Healthy Life Years
<b>Htb</b>	Hotel beds
<b>Hwas</b>	Hazardous Waste Generation
<b>ICE</b>	International Cooperation on Environment
<b>ICS</b>	Innovation and Communication Society
<b>ICT</b>	Innovation and Communication Technology
<b>IDI</b>	Innovative Dependency Index
<b>InRes</b>	Inbound researchers
<b>InsC</b>	Insurance companies
<b>InStud</b>	Students inbound
<b>InT</b>	Tourist inbound
<b>Intz</b>	Internationalization
<b>IPPC</b>	Integrated Pollution Prevention and Control
<b>IR</b>	Innovation/Research
<b>ISO</b>	International Standards Organization
<b>IV</b>	Innovation
<b>IVC</b>	Infrastructural Variables of Cohesion
<b>KCE</b>	Universities students
<b>KCF</b>	Knowledge Creation Facilities
<b>KIS</b>	Knowledge Innovative Structures
<b>LC</b>	Labour Cost index
<b>LQ</b>	Quality of Life
<b>Ls</b>	Leisure
<b>LS</b>	Level of interventions towards the Lisbon Strategy
<b>LsP</b>	Policies for the Lisbon Strategy (performance)
<b>LsS</b>	R&D expenditure

<b>LTD</b>	Level of Telecommunication Development
<b>LTIr</b>	Long Term Interest rate
<b>MA</b>	Management attitude
<b>ME</b>	Specific environmental concerns
<b>MEGA</b>	Metropolitan Economic Growth Areas
<b>MWas</b>	Municipal waste generation
<b>N2_TER_GL</b>	Territorial GL Dimension at NUTS2
<b>N2_TER_IR</b>	Territorial I&R Dimension at NUTS2
<b>N2_TER_Quality</b>	Territorial Quality Dimension at NUTS2
<b>N2_TER_RF</b>	Territorial R&F Dimension at NUTS2
<b>N3_TER_GL</b>	Territorial GL Dimension at NUTS3
<b>N3_TER_IR</b>	Territorial I&R Dimension at NUTS3
<b>N3_TER_Quality</b>	Territorial Quality Dimension at NUTS3
<b>N3_TER_RF</b>	Territorial R&F Dimension at NUTS3
<b>NA</b>	National aids
<b>NH</b>	Degree of Vulnerability in Europe
<b>NRS</b>	Natural ReElaborations State
<b>NUTS</b>	Nomenclature of territorial units for statistics
<b>Ops</b>	Operational Programs
<b>OuT</b>	Tourist outbound
<b>OutRes</b>	Outbound researchers
<b>OutStud</b>	Students outbound
<b>Paex</b>	Poverty and age expenditure
<b>PbP</b>	Public participation
<b>PbPe</b>	European Public participation
<b>PbPn</b>	National Public participation
<b>PCh</b>	Population Change
<b>PhAC</b>	Typology Multimodal Accessibility Potential
<b>Phex</b>	Public Health expenditure
<b>PIA</b>	Polycentric Integration Area



<b>PLL</b>	Population in Life long Learning
<b>PM</b>	Population and cultural Mobility
<b>pps</b>	purchasing power standard
<b>PSI</b>	Productive local System Identity
<b>PTE</b>	Population with Tertiary Education
<b>PTm</b>	Product Trademarks
<b>Pvy</b>	At-risk-of-Poverty rate before social transfers
<b>Q</b>	Quality
<b>QMS</b>	Quality Management System
<b>Qty</b>	Determinant Quality
<b>R&amp;D</b>	Research and Development
<b>RDI</b>	R&D Centres
<b>RDT</b>	RDT in Lisbon-Gothenburg strategies pp119
<b>RF</b>	Resources/Funds
<b>RFsq</b>	Use of Funds
<b>RFv</b>	Lisbon/Gothenburg Interventions
<b>RM</b>	cultural Researcher Mobility
<b>RMWas</b>	Municipal Waste Recycling
<b>SA</b>	Total greenhouse emissions
<b>SCEc</b>	Inequity of regional income distribution
<b>SCR</b>	Social Cohesion ReElaborations
<b>SEA</b>	Strategic Environmental Assessment
<b>SEC</b>	Specific environmental concerns
<b>SEE</b>	Risk of Social Exclusion
<b>SF</b>	Structural Funds
<b>SI</b>	Social Interaction
<b>SIR</b>	Second Interim Report
<b>SL</b>	Strategic Localisation
<b>SM</b>	Cultural Student Mobility
<b>SME</b>	Small Medium Enterprise

<b>SQ</b>	Status Quo
<b>SQ&amp;C</b>	Social Quality and Cohesion
<b>STeM Approach (STeMA)</b>	Sustainable Territorial Management Approach
<b>STM</b>	Stock market capitalisation
<b>SW</b>	Total gross abstraction of freshwater
<b>SWA</b>	Social Wellness Attitude
<b>TC</b>	Territorial Capability
<b>TEN</b>	Tens European Network
<b>Tex</b>	Efficiency and accessibility
<b>TI</b>	Tourism
<b>TIA</b>	Territorial Impact Assessment
<b>TIg</b>	Trade Integration of goods
<b>Tint</b>	Trade Integration
<b>TIR</b>	Third Interim Report
<b>Tis</b>	Trade Integration of services
<b>TLC</b>	Telecommunication
<b>TMAP</b>	Typology Multimodal Accessibility Potential
<b>ToR</b>	Terms of Reference
<b>TPG</b>	Trans-national Project Group
<b>TQ</b>	Total Quality
<b>VI</b>	Available e-government services
<b>VP</b>	Internet users
<b>vs</b>	versus
<b>VS</b>	Virtual Society
<b>VSt</b>	Virtual Stakeholders
<b>Vuln</b>	Degree of Vulnerability in Europe
<b>Wns</b>	Wellness
<b>Ws</b>	Waste

## 4.2 Title Glossary

<b>A</b>		
	<b>Aarhus convention</b>	Objective of the Convention is to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his/her health and well-being. Each Contracting Party to this convention shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention. The convention on access to information, public participation in decision-making and access to justice in environmental matters was adopted at the Fourth Ministerial Conference "Environment for Europe" in Aarhus, Denmark, on 25 June 1998.
	<b>Afforestation</b>	The establishment of a forest, stand or tree crop on an area not previously forested, or where forest cover has very long been absent.
	<b>Air emission</b>	Discharge of pollutants into the atmosphere from stationary sources such as smokestacks, other vents, surface areas of commercial or industrial facilities and mobile sources, for example, motor vehicles, locomotives and aircrafts.
	<b>Air pollutant</b>	Substance in air that could, at high enough concentrations, harm human beings, animals, vegetation or material. Air pollutants may thus include forms of matter of almost any natural or artificial composition capable of being airborne. They may consist of solid particles, liquid droplets or gases, or combinations of these forms.
	<b>Air pollution</b>	The presence of contaminant or pollutant substances in the air at a concentration that interferes with human health or welfare, or produces other harmful environmental effects.
	<b>Air quality standard</b>	Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

<b>B</b>		
	<b>Benchmarking</b>	Compared measurement of the performances with respect to the best practices as an instrument to define the objects of the improvement. It is applied from the enterprises to the entrepreneurial processes (for example within the respective field), or from the national or regional decision-makers (for example in connection with the support to the creation of new high-tech enterprises)
	<b>Best Practice</b>	The best practice is achievable only if there is harmony among the institutions, producing a system of shared rules that allows the territorial policy to evolve in

		"programs".
	<b>Biodiversity</b>	Biological difference or biodiversity, is the variability and variety of the living organisms and the environmental systems that contain them. In practice a measurer of the wealth of life on the Earth. For a complete approach it is necessary to distinguish three levels of biodiversity: the habitats variability, the animal and vegetable patrimony, the biodiversity of genes in a species or in a population.
	<b>Bottom-Up</b>	Model of development that allows the editing of a "bottom up participated" sustainable plan
	<b>Business Plan</b>	Programmatic document of definition of the strategies, of the objectives and of the necessary contents to the realization of a product; it is comprehensive of a careful dynamic and economic analysis of the cost-benefits and the amortizations.

<b>C</b>		
	<b>Carrying capacity</b>	This concept is to be distinguished from that of "sustainable competitiveness" which is commonly intended only in economic terms; identifying the territorial differences will mean providing the European regions and states with both cooperative possibilities on the basis of common carrying capacities and different chances to access the competitiveness arena (Structural Funds). The carrying capacity of the economic/territorial/environmental systems is the basis for regions (large areas) and states (spatial systems) to be "competitive in sustainability". (Definition in ESPON project 3.3)
	<b>Cohesion</b>	It is an expression of solidarity between the Member States and regions of the European Union. This means a balanced and sustainable development, reducing structural disparities between regions and countries and promoting equal opportunities for all individuals. To encourage the local co-operation and to sustain the share of the actors to the development through forms of participated plan, in practical terms it is achieved by means of a variety of financing operations, principally through the Structural Funds.
	<b>Competitiveness in sustainability</b>	Competitiveness is understood to mean " <i>high and rising standards of living of a nation with the lowest possible level of involuntary unemployment, on a sustainable basis</i> " (the Seventh Competitiveness Report, CEC, 2003), It participates in: <ul style="list-style-type: none"> <li>- To be able to sustain the market concurrence through those endogenous factors that differentiate the territorial whole/system (mix of social, environmental, economics indicators influencing the regional ranking within the enlarged Europe and in the international context).</li> <li>- To have some cheap raw materials linked to</li> </ul>

		<p>entrepreneurial vital and innovative factors within a stable social context;</p> <ul style="list-style-type: none"> <li>- To face market competition with scenarios capable of guaranteeing environmental, social, cultural and economic sustainability;</li> <li>- To have some management faculties (components) capable of guaranteeing territorial competitiveness: awareness of its innovative capacity, organisation in networks, capacity to integrate the different sectors and levels of activities, to cooperate in and with other territories, to involve different public and private subjects and institutions, to have a global, coherent vision about the use of local resources and to organise international, European, national, regional policies in a subsidiary point of view.</li> <li>- To have confidence in internal co-operation between different subjects and EU level for the environmental protection and development.</li> </ul>
	<b>Complexity</b>	Characteristic of a system whose elements are interactive and interdependent.
	<b>Participated plan</b>	<p>Instrument that allows the definition of the enacted strategies, objectives and addresses put into effect through the sharing of intents between the local institutions and the social representations. The participated plan is organised on two levels that operate autonomously but, at the same time, are tightly connected:</p> <ul style="list-style-type: none"> <li>- The general agreement that concerns the subjects of strategic and programmatic importance.</li> <li>- The sectorial agreement that operates on the most specific subjects individualized by the table of general participated planning.</li> </ul>
	<b>Coordination</b>	Fundamental element for the strategic planning. The coordination among local, sectorial and territorial authorities and functional agencies, is a priority element.
<b>CSR</b>	<b>Corporate Social Responsibility</b>	Innovative approach to the business management, through which the organizations, on a voluntary base, integrate social and environmental matters in their operations of business and in their relationships with the stakeholders. CSR means engagement in behaving itself in an ethical and correct way. Such approach has notably reflected on the sustainable development and the competitive environment.
	<b>Cultural heritage</b>	Feeling belonging to a place through the recognition of the cultural inheritance of the same place. The culture and the patrimony become synonymous of identity and therefore of competitive resource for a development of the territory

<b>D</b>		
	<b>Data validation</b>	In general, validation is the process of checking if

		something satisfies a certain criterion. Examples would be: checking if a statement is true, if an appliance works as intended, if a computer system is secure, or if computer data is compliant with a standard. This should not be confused with verification.
	<b>Driving force</b>	Driving forces describe the social, demographic and economic developments in societies and the corresponding changes in life styles, overall levels of consumption and production patterns. Primary driving forces are population growth and developments in the needs and activities of individuals. These primary driving forces provoke changes in the overall levels of production and consumption. Through these changes the driving forces exert pressure on the environment.

<b>E</b>		
	<b>Eco-compatible</b>	Concept inherent the relationship among the physical system and the anthropic system, such to guarantee conditions of welfare with a low consumption of environmental resources and a lower level of pollution.
	<b>Eco-Management</b>	Particularly careful and favourable management for the rationalization and the increase of the environmental efficiency, reducing impacts and produced wastes. In the route of eco-management it is necessary to respect the environmental legislation, to continually improve the environmental performances, using an Environmental Management System (EMS). It is in such sense important the recording EMAS (Eco-management and Audit Scheme), an Eco-management and Audit system.
	<b>Economic competitiveness</b>	Capacity to produce and to maintain as much added value as possible in a territory, making the best use of the resources also through local co-operation.
	<b>Enterprise</b>	Juridical-economic unity that produces goods and marketable services and that, according to the laws in force or to its own statutory norms, has faculty to distribute the realized profits to the subjects owners, either private or public. Among the enterprises are: sole-proprietor firms, partnerships, companies, cooperatives, special firms of communes, provinces or regions. Self-employed and professionals persons are also considered as enterprises." (ISTAT, 2001)
<b>EMAS</b>	<b>Eco-Management and Audit Scheme</b>	EEC Regulation (n. 1836/93) that allows the evaluation and monitoring of the potential environmental effects, thus determining the degree of environmental efficiency of the economic, industrial and productive activities, developing in a site. Besides it identifies the applicable environmental legislation to the activities in situ, and their relative conformity, as well as the improvements of the environmental performances on the technical and managerial level.
	<b>Environmental</b>	Verification Instrument of the conformity of the

	<b>audit</b>	management of a productive plant with the environmental rules, with the official policy and the inner parameters of the company. The audit is executed according to procedures defined from standards recognized at international level (ISO 14010, 14011 and 14012 or BS 7750). The Communitarian Regulation n. 1836/93, Eco-Management and Audit Scheme, defines the environmental audit as "The management instrument comprising a systematic, documented, periodic and objective evaluation of the efficiency of the organization, of the management system and of the processes assigned to the protection of the environment".
	<b>Environmental competitiveness</b>	Capacity to propose the environment to advantage, as it is a "peculiarity" of the territory, at the same time guaranteeing the protection and renewal of natural resources and – in broad terms – of the natural heritage.
	<b>Equalization /balance</b>	Concept tied to the taxation and the exemption of the territory that allows to start a development plan proportionate to its own sustainable development.
	<b>Equity</b>	The financial and institutional structures are called to guarantee a high-level of equity and equal opportunity.

<b>F</b>		
	<b>Flexibility</b>	Adaptation from the institutions to the social and economic changes.

<b>G</b>		
<b>GDP</b>	<b>Gross Domestic Product</b>	The Gross Domestic Product (GDP) is the total value of the goods and final services produced from a country or from a region in a determined time period through the employed productive factors inside the country or the region itself. If calculated with the current prices it is called nominal GDP; with the constant prices (those of the base year) it is called real GDP.
<b>GIS</b>	<b>Geographical Information System</b>	Logical tool of the sustainable plan that allows to organize the territorial information in a coordinated way, reporting it into a cartographic system. Projected as logical instrument and logical procedure for the sustainable plan, it synthesizes the complex system of the knowledge achieved in matter of IV generation planning, setting the analytical process at the base of the expression of programmatic judgments. The GIS pursues the general objective of contributing to the development of an integrated information society and has the purpose to operating so that the management of the informative system would be integrated in the management of informative systems of other Institutions or Corporate body, as the regions or local authorities.
	<b>Geo-referenced data</b>	It generally refers to data with geographic location information such as latitude and longitude. A necessary

		procedure in all the territorial analyses, it consists in the attribution of an univocal territorial code (region, province, commune, etc.) to every datum observed, connected to a mapping of reference, necessary to the cartography representations.
	<b>Governance</b>	System of shared rules that allows the free development of some potentialities of the territory, with the exploitation of resources through plans and projects.  The application field of these rules neither precede nor follows the planning choices; it accompanies them since the beginning, thus determining a method of technical-political job according to a logical scheme, able to guarantee the transparent and efficient behaviour of the subjects involved in the attainment of the sustainability objective, up to the last phase of realization of the programme/plan/project.
	<b>Government</b>	System of local government in which decisional interventions on the territory and competences of the administrations at superior level are proposed, determining the editing of a project of development.

<b>H</b>		
	<b>Habitat</b>	The place or type of site where an organism or population naturally occurs. Terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural.

<b>I</b>		
	<b>Industrial district</b>	Typology of functional classification of the local job (SLL). Set of monoproduktive/sectorial localised SMF which obtain external scale economics sharing common productive factors.
	<b>Integration</b>	It allows the mass relationship among the hierarchy of the questions and the optimization with the hierarchy of the offers and the satisfactions.
	<b>Internet Working</b>	It allows the transmission and the sharing of the data improving the efficiency and the quality of the life.
<b>ISO 9001 (Norma)</b>	<b>International Standards Organization</b>	Internationally recognized laws, voluntarily adopted by the Public administrations, that allow the activation of systems and management instruments first for the quality and then for the environmental management.

<b>J</b>		
	<b>Joint implementation</b>	The Kyoto Protocol establishes this mechanism whereby Annex I Parties (listed in Annex B of the Kyoto Protocol) can receive emissions reduction units when it helps to finance projects that reduce net emissions in an Annex I



		Party country.
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<b>K</b>		
	<b>Kyoto Protocol</b>	The Kyoto Protocol was adopted at the Third Session of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) in 1997 in Kyoto, Japan. It contains legally binding commitments, in addition to those included in the UNFCCC. Countries included in Annex B of the Protocol (most OECD countries and EITs) agreed to reduce their anthropogenic emissions of greenhouse gases (CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, and SF <sub>6</sub> ) by at least 5% below 1990 levels in the commitment period from 2008 to 2012.
	<b>Kyoto mechanisms</b>	Formerly known as flexibility mechanisms. Economic mechanisms based on market principles that parties to the Kyoto Protocol can use in an attempt to lessen the potential economic impacts of GHG (greenhouse gases) emission-reduction requirements. They include joint implementation (Article 6), the clean development mechanisms (Article 12), and emissions trading (Article 17).

<b>L</b>		
	<b>Local development</b>	Model of development in which grows the importance of the local economies; essential competitive advantages not only depend on the quality of the enterprise, but also on that of the territory where it is located, on the Institutions and on the competences that distinguish them.

<b>M</b>		
	<b>Mainstream</b>	Ruling vision
	<b>Management</b>	Every activity direct, through the organization of human and material resources, to ensuring the fruition of the cultural and environmental goods, contributing to the pursuit of the finalities of active guardianship and improvement.

<b>N</b>		
	<b>New Geography</b>	The passage from the industrial society to the "information" one has been characterized by the emerging of a different form of social organization, in which the development, elaboration and transmission of the information have become fundamental sources of productivity and power, thanks to the new potentialities of the information and communication technologies. This new social organization is marked by a new spatial logic. The space "of the flows" (of information, capitals, etc.), contrasts with the traditional space "of the places."

<b>NUTS</b>	<b>Regions Nomenclature of territorial units for statistics</b>	The nomenclature of territorial units for statistics (NUTS) was created by the European Office for Statistics (EUROSTAT) in order to create a single and coherent structure of territorial distribution. It has been used in the Community legislation pertaining to the Structural Funds since 1988.
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<b>O</b>		
	<b>Overlay mapping</b>	Useful method to get report thematic maps, through overlap (overlay mapping) of territorial data related to the geologic, topographical, ground use, hydrographical aspects, etc.

<b>P</b>		
	<b>Partnership</b>	Principles which implies the closest possible co-operation between the Commission and the appropriate authorities at national, regional or local level in each Member State, from the preparatory stage to implementation of the measures.
	<b>Participation</b>	Participation in the decision-making process is one of the basis of active citizenship, and contributes to participative democracy. Involvement of different groups, members of a community, to the political and territorial choices of the governance.
	<b>Planning</b>	Dynamic process composed by the whole of the cognitive, appraised and prescriptive acts, in the different sectors, that precede and accompany the decisions in matter of plans, transforming the desired objectives into admissible objectives. In the case of the territorial planning it also represents the performance it puts in action from the public and private institutions that have got the title to act on the territory.
	<b>Plan</b>	Conventional whole of the prescriptions for the use and the management of the territory in a determined period. It's formed by norms, relationships, rules and cartographic representations. It has different scales, levels, components. It uses different managerial tools, among which the Geographical Information System (G.I.S.)
	<b>Polycentric equipotential system</b>	Spatial model based on shared principles, where the equalization and the balanced distribution of resources are adopted, in order to respect the local identities. In the past years it was also called polynuclear system.
	<b>Private institution or public no-profit</b>	Juridical-economic unity, having more or less juridical personality, of public or private nature, that produces goods and services destined to the market or not, and that, according to the laws in force or to its own statutory norms, doesn't have faculty to distribute, also indirectly, profits or earnings to the subjects that have founded it or to the partners, except for the remuneration of the work

		lent. These constitute examples of private no-profit institutions: the associations, either recognized and not, the foundations, the non government organizations, the organizations of voluntary work, the social cooperatives and other not gainful organizations of social utility (ONLUS), the political parties, the labour unions, the religious corporate body civilly recognized and the religious organizations.
	<b>Programming</b>	Formulation of a based activity on the forecast of the costs, of the times and of the objectives to reach and in partnership to the concept of priority in the choices of the objectives to be reached.
	<b>Project finance</b>	Method of funding based upon two elements: <ul style="list-style-type: none"> <li>- division of the risk of enterprise among different subjects;</li> <li>- principal guarantee for the financiers, determined by the flows of cash of the same project.</li> </ul> It is an alternative technique to the traditional financing of enterprise.
	<b>Public institution</b>	Juridical-economical Unity whose principal function is to produce goods and services non destined to the sale and/or to redistribute the income and the wealth, and whose principal resources are constituted from obligatory withdrawals from the families, the enterprises and the institutions no-profit or from transfers without security received by other institutions of the public administration. These constitute examples of public institution: Port Authority, Chamber of Commerce, Municipality, Province, Region, public University, etc. (ISTAT, 2001)

Q		
	<b>Quality</b>	Degree in which a whole intrinsic characteristic satisfies the requisite established from a normative (e.g. ISO 9000:2000).
<b>QMS</b>	<b>Quality Management System</b>	It is intended "that part of the system of management of an organization that proposes, with reference to the objectives for the quality, to reach some results able to adequately satisfy the demands, the expectations and the requisite of all the interested parts" (ISO 9000:2000).

R		
	<b>Relational Database</b>	The GIS project, once acquired the tree of the environmental synergies among components projected in the Environmental Picture, turns into a relational Database, in which the analysis and the description, essentially conducted for thematic areas, allow the determination of the initial environmental value (IEV).

<b>S</b>		
<b>SEA</b>	<b>Strategic Environmental Assessment</b>	Formalized and systematic process of assessment of the environmental impact related to policy, plans, programmes and their alternatives. (European Directive 2001/42/EC "on the assessment of the effects of certain plans and programmes on the environment").
	<b>Social budget</b>	Instrument/document "not mandatory" that constitutes a moment of negotiation among the administration and the community and all the subjects "carriers of interest". Generally it joins together two separate finalities: <ul style="list-style-type: none"> <li>- simple accounting report to the citizens, of its own activity and of its choices in subject of services, firstly the social ones;</li> <li>- wish to implement the planning process through a dialogue with the Community.</li> </ul>
	<b>Social competitiveness</b>	Capacity of the subjects to intervene together (cooperatively cohesion) and effectively, basing on the agreements among the various institutional levels.
	<b>Status Quo</b>	It is the state of the determinants (the critical elements to be competitive) and is defined by state indicators.
	<b>Structural Funds</b>	Financial support from the Structural Funds mainly goes to the poorer regions to strengthen the Union's economic and social cohesion, so that the challenges of the single market can be met right across the EU.
	<b>Subsidiarity</b>	The subsidiarity principle is intended to ensure that decisions are taken as closely as possible to the citizen and that constant checks are made as to whether action at Community level is justified in the light of the possibilities available at national, regional or local level. Principle that privileges, in the trust of the assignments, functions and powers, the level of government and administration closer to the citizen, in order to provide the appropriate offer to the questions expressed by the citizens.
	<b>Sustainability</b>	A sustainable process or condition is one that can be maintained indefinitely without progressive diminution of valued qualities inside or outside the system in which the process operates or the condition prevails. (see Sustainable development too)
	<b>Sustainable development</b>	The concept of sustainable development refers to a form of economic growth which satisfies society's needs in terms of well-being in the short, medium and - above all - long terms. It is founded on the assumption that development must meet today's needs without jeopardising the prospects of future generations. In practical terms, it means creating the conditions for long-term economic development with due respect for the environment.  This is a concept defined by the Brundtland Report <i>Our common future</i> (1987), edited by the World Commission for Environment and Development (WCED), as "...a

		<i>development that satisfy the present needs without compromising the ability of future generations to meet their needs”.</i>
	<b>Sustainability domain</b>	Whole of biotic and abiotic elements that interact in a relational way, moved by a process to reach the same purpose. In the start-up phase of the sustainable environment plan, territory and system are therefore an only element and the dominion is represented by the political-administrative region taken in consideration.
<b>STeMa</b>	<b>Sustainable Territorial Management Approach</b>	Part of the system of general management that comprises the organizational structure, the responsibility, the practices, the resources to define and to put into effect the objectives and the principles of action in respect of the economic, environmental, social, territorial interventions and plans. The SteMA is by M. Prezioso.
	<b>Swot analysis</b>	Tool for the strategic evaluation of the economic-financial compatibility that consists in the accounting of the inside points of strength and weakness for the firm and the opportunities and external threats (analysis of the key elements for the positioning of a firm inside a market of reference).

<b>T</b>		
	<b>Territorial capability</b>	Capacity of the territory to produce value and to own competitiveness/rank at world level. The relationship between the competitive growth and the environmental development of economic systems is the aim of the analyses and measures to make concrete the paradigm of sustainability at various geographical scales.
	<b>Territorial governance</b>	Whole of procedures and standard rules, fixed and recognized at national and international level for the editing and the realizations of Plans and Projects.
	<b>Territorial marketing</b>	This term is pointed out for the promotion of a territory, capable also of producing innovations and of increasing the competitiveness of the interested areas.
	<b>Territory</b>	Linguistic convention to point out, through opportune forms of representation, the whole elements and signs that attest the presence of the human constructive action and the natural elements on a surface. The territory is an artificial concept however, a synthetic entity of reference to the concrete reality, that is to point out the projection of a space geographically given on a terrestrial surface and historically identifiable on which natural and artificial strengths act, drawing, managing and organizing this space (Spinelli, 1984; Dematteis, 1993).
	<b>Top Down</b>	Model of development, contrary to the “bottom up” one, in which there’s no participation “from the bottom” but “from the top”. In this model the local auto-conscience is not considered and it is always necessary give answer to the national policy.

<b>U</b>		
	<b>Urban area</b>	Geographic area with high density of people over a limited area. Houses and other types of buildings tend to be close.

<b>V</b>		
	<b>Vulnerability</b>	It is the description of the <i>effects</i> of the determinants and is defined by process indicators. It measures the risk of indicators and the process that link them to exceed the sustainable limits.

<b>Z</b>		
	<b>Zoning</b>	The control of land use by only allowing land development in fixed areas or zones.

## 5. List of references including the use of results from projects outside the ESPON programme

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Employment Strategy

[[http://www.europa.eu.int/comm/employment\\_social/employment\\_strategy/eestm\\_en.htm](http://www.europa.eu.int/comm/employment_social/employment_strategy/eestm_en.htm)]

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## **Economic and Social Cohesion**

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## **Research Strategy**

European Research Area

[[http://www.europa.eu.int/comm/research/era/index\\_en.html](http://www.europa.eu.int/comm/research/era/index_en.html)]

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## **Transport and Energy**

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### **Education, Learning and Training**

Education and Training

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eEurope (including the eLearning initiative)

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Lifelong Learning

[[http://www.europa.eu.int/comm/education/policies/lll/lll\\_en.html](http://www.europa.eu.int/comm/education/policies/lll/lll_en.html)]

### **Environment and Sustainable Development**

EU Sustainable Development Strategy

[[http://www.europa.eu.int/comm/sustainable/pages/strategy\\_en.htm](http://www.europa.eu.int/comm/sustainable/pages/strategy_en.htm)]

### **Spatial/Regional Issues**

European Spatial Development Perspective (ESDP)

[[http://www.europa.eu.int/comm/regional\\_policy/themes/spatial\\_en.htm](http://www.europa.eu.int/comm/regional_policy/themes/spatial_en.htm)]

Guiding Principles for Sustainable Spatial Development of the European Continent  
(GPSSDEC-CEMAT)

[[http://www.coe.int/T/E/Cultural\\_Co-operation/Environment/CEMAT/GPSSDEC/default.asp](http://www.coe.int/T/E/Cultural_Co-operation/Environment/CEMAT/GPSSDEC/default.asp)]

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## 5.2 Results from projects inside the ESPON programme

All the following ESPON projects were consulted, as presented on ESPON website:  
<http://www.espon.eu>

### **ESPON thematic projects reviewed**

- 1.1.1: The role, specific situation and potentials of urban areas as nodes in a polycentric development
- 1.1.2: Urban-Rural Relations in Europe
- 1.1.3: Enlargement of the European Union and the wider European perspective as regards its polycentric spatial structure
- 1.1.4: The spatial effects of demographic trends and migration
- 1.2.1: Transport services and networks: territorial trends and basic supply of infrastructure for territorial cohesion
- 1.2.2: Telecommunication services and networks: territorial trends and basic supply of infrastructure for territorial cohesion
- 1.3.1: The spatial effects and management of natural and technological hazards in general and in relation to climate change

### **ESPON territorial impact projects reviewed**

- 2.1.1: Territorial impact of EU transport and ten policies
- 2.1.2: Territorial impact of EU research and development policy
- 2.1.3: The territorial impact of CAP and rural development policy
- 2.1.4: Territorial trends of energy services and networks and territorial impact EU energy policy

## 5.3 Results from projects outside the ESPON programme

### 5.3.1 Metrex contribution<sup>3</sup>

Metrex concentrates on some points of the renovated Lisbon Agenda.

Here follows the specific Metrex recalling concerning the renovated Lisbon Agenda.

With the slogan "*A new start for the Lisbon Agenda: Working together for growth and jobs*", Metrex can contribute to the definition of spatial planning and development.

Its attention is focused on some themes:

- *A more attractive place to invest and work*, for which it asks particularly to improve European and national regulation (in Action Plan 3) and to expand and improve European infrastructure (Action Plan 4);

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<sup>3</sup> see *METREX Response Discussion Note*, Nürnberg Conference, May 2005

- *Knowledge and innovation for growth*, proposing both to facilitate innovation, the uptake of ICT and the sustainable use of resources (Action Plan 6) and to contribute to a strong European industrial base (Action Plan 7);

- *Creating more and better jobs*, by attracting more people into employment and modernise social protection systems (Action Plan 8) and improving the adaptability of workers and enterprises and the flexibility of labour markets (Action Plan 9)

Metrex promotes the metropolitan level and dimension to experiment this connection, because in these areas it is possible to have appropriate competencies, capabilities and processes and at the same time to test quickly comparatively the results of different policy initiatives.

In order to choose some appropriate instruments to apply the renovated Lisbon Agenda, several contributions concentrated on *benchmarking*, as a propaedeutic approach to marketing actions.

Another useful indication comes from the studies about vertical and horizontal integration. This is linked both with the subsidiarity (for its real application in all EU countries) and the planning integration at the different Nuts levels: *the vertical and horizontal integration of strategies and plans appears an important aspect of effective governance and hence of economic competitiveness* in each one of the best experiences. Of course this recommendation applies to the financial system, too.

About the contribution to the definition of European Spatial Planning, 3.3 Project agrees with some Metrex and other purposes:

- to have a major business confidence between goods and services exchanges;
- to reduce investment risk
- to maintain high and stable levels of economic growth
- to sustain social progress, which recognizes the needs of everyone
- to realize an effective protection of the environment by a prudent use of resources

and about the new start for the Lisbon Strategy

- to sustain more attractive places to invest and work
- to specify the investment in knowledge and innovation for growth, creating more and better jobs

Particularly, 3.3 Project subscribes to and integrates the Metrex spatial planning and development contribution to the Lisbon Strategy:

a) about Maintenance of high and stable levels of economic growth:

- 1 Accessibility to metropolitan interchanges for the modal transfer of people and goods *to reduce the need for road travel and to facilitate the efficient import and export of goods*
- 2 Effective primary transport network *to minimize congestion and facilitate the efficient movement of goods*
- 3 Good public transport to the main centres of employment *to widen their accessibility to the labour market*
- 4 Adequate economic development opportunities *to accommodate business needs*

b) about Social progress, which recognizes the needs of everyone:

- 5 Balanced distribution of population, housing, employment and services *to facilitate accessibility between activities*
- 6 Where there is an unequal distribution of employment and services, take action to reduce disparities *to make the urban area more equitable*
- 7 Where there is poor accessibility to employment and services, take action to improve this *to make the urban area more equitable*
- 8 Adequate housing in terms of size, tenure and affordability *to provide an acceptable and affordable home for every household*
- 9 Identify areas that suffer from multiple deprivation *to focus integrated remedial action*
- 10 Acceptable environmental standards within urban areas in terms of noise and air pollution *to protect and improve the health of residents and workers*
- 11 Provision of a linked network of open spaces *to provide access to recreational opportunities for all*

c) about Effective protection of the environment and links with the Gothenburg Strategy

- 12 Safeguard and enhance the quality and character of the landscape *to protect the setting of metropolitan areas*
- 13 Safeguard and enhance the quality and character of the urban heritage of buildings and public spaces *to make metropolitan areas more attractive places in which to live and work*
- 14 Safeguard and enhance biodiversity *to contribute to better ecological balance*
- 15 Safeguard and enhance water catchment areas *to maintain and improve the quality of water supplies*
- 16 Safeguard the capacity of flood plains from development *to reduce the risk of flooding*

d) about Prudent use of resources (Gothenburg Strategy):

- 17 Maximise urban development capacity through the reuse of urban land and buildings *to reduce the need for urban expansion*
- 18 Protect high quality agricultural land from development *to sustain this resource for future generations*
- 19 Planned development of mineral extraction *to reduce the consumption of minerals from primary sources (optimize recycling)*
- 20 Within a waste treatment strategy of waste reduction, recycling, treatment and disposal, enable the development of waste management facilities *to facilitate a more sustainable approach*

Another shareable Metrex slogan is *Urban Change created Climate Change*, so:

- Urban Change must solve Climate Change to achieve stability at 450-550 ppm;
- Kyoto seeks a 12.5% cut by 2012
- UK government has a target of 20% reduction by 2012

- IPCC target is 60% reduction by 2050; it implies 35-45% by 2030. Precautionary principle indicates 80% cut by 2050
- Renewable sources and energy saving can achieve only about 20% of this level of reduction
- Urban change implies behavioural change both individually and corporately
- Assessments and budgets of all kinds on carbon cost and its financial basis
- Carbon viability becoming a key consideration
- Non essential travel will become too carbon costly
- A far greater emphasis on local/regional networks, facilities and economies, which are carbon light
- A move away from centralized operations of all kinds, which involve long lines of communication and are carbon heavy
- Long distance production and distribution, commuting and tourism becoming carbon uneconomic
- Increasing emphasis on maximizing renewable sources of energy and efficiency savings but a recognition that these will not provide more than 20% of the reduction target of 80%
- Recognition of the need for absolute reductions in fossil fuel usage
- Recognition that this means much of the remaining fossil fuel resources remaining unused
- Recognition that the only effective and certain way to achieve the necessary reductions will be through global/national quotas, economic sectoral caps, per capita rationing and carbon trading
- The Contract and Convergence (C and C) approach being promoted by the Global Commons Institute ([www.gci.org.uk](http://www.gci.org.uk)) demonstrates one way of achieving this
- There will be a debate about the wisdom of further nuclear energy plants to mitigate the need for carbon reductions
- The need of a more effective involvement of the Regions, because the EU documents about a new start for the Lisbon Strategy calls for a European partnership and for mobilisation at the national level.
- This mobilisation is only possible if the various players feel that the policies proposed concern them and that they are truly involved in the decision making and implementation process. One of the reasons for the failure of the implementation of the Lisbon Strategy is the insufficient commitment of the States. But above all it is the involvement of the regions and the other local authorities that has failed and has to be strengthened.
- In EU document the role of the Regions is envisaged to be very weak. The document often speaks about "social partners" but only once about Regions and local authorities. But it is at this level, the level of local areas and institutions, that it is possible to act on the complex relationships between competitiveness, jobs and the environment. About these themes there is the important "position paper" presented by the "Lisbon Regions" network.

### 5.3.2 EESC and COR positions

EESC by Joost van Iersel thinks the Lisbon Strategy must be recognized for what it is, a very ambitious agenda for building a European society of prosperity, welfare, competitiveness, social inclusion and a high awareness of the environment.

In agreement with Metrex suggestions, 3.3 Project proposes to communicate more actively with social partners and organized civil society, because the Lisbon Strategy has been too much identified as only an economic agenda.

To have a common language useful for the Lisbon objectives communication it is essential to stress the *concept of quality* (quality of goods, services, regulation, governance, employment, social relations and environment), as it was pictured by the fourth determinant. The implementation of the Lisbon strategy is therefore needed, and this should be an integral element of the annual evaluations of progress performed at regional and national level in EU countries.

The COR position is different and well expressed by Gerhard Stahl, which is strongly in favour of an integrated approach, in agreement with the 3.3 Project position.

The origin of this opinion comes from the analyses of population demand, that looks more at specific offers (as the sustainability of public finances and the development of services) than the general ones. So it is necessary to propose effective measures for developing and encouraging people to stay within the offer of regional employment.

To achieve this result, it's necessary to consider economic, employment, social, environmental, education and research policy as integrated and complementary elements in the Lisbon Strategy in order to offer specific support to the regional capabilities to be competitive in sustainability, and at the same time to obtain economic growth acting on social cohesion.

In implementing the Lisbon Strategy the primary focus is considered the improvement of employment and competitiveness. A major decentralized approach should be adopted to save that good part of the open coordination method, thereby providing local and regional players with real opportunities to develop local and regional strategies. Nevertheless these strategies should be part of a coactive national strategy to receive and apply the EU inputs.

In this option regional governance plays an essential role, particularly in order to realize the employment strategy.

Governance is also important to achieve the goals of the renewed Lisbon Strategy, balancing them with Gothenburg's goal of a most sustainable development.

## 6. Publication dedicated to ESPON 3.3 Project

Some ESPON 3.3 project maps and topics and draft results were published in:

- Prezioso M. (2005), *Territorial dimension of the Lisbon/Gothenburg Process*, in *Proceedings of International Conference Metrex*, Nurnberg Meeting 15-18 June, (CD).
- Prezioso M. (2005a), *Politiche e strumenti per sviluppare sostenibilità e competitività delle città e delle destinazioni turistiche*, invited paper at Adamo F. (ed.), "Competitività e sostenibilità" - Giornate del turismo 2005, Stresa, 16-18 October 2005, in printing.
- Prezioso M. (2005b), *Territorial Cohesion and Sustainable Development in Europe*, in *Proceedings of International Conference "European Territorial Cohesion and the Sustainable Development: Convergence and Competitiveness"*, session *Governance*, Benevento 6-7 October 2005, in printing.
- Prezioso M., Bencardino F. (ed by) (2006), *Economic Geography Handbook*, McGraw-Hill, Milano. ISBN 883866330-0.
- Prezioso M. (ed. by) (2006a), *Territorial Dimension of the Lisbon-Gothenburg Strategy – Final Report*, March 2006, Roma, ARACNE, ISBN 88-548-0504-1
- Prezioso M. (2006b), *La dimensione territoriale della strategia di Lisbona e Gothenburg: l'approccio concettuale e metodologico*, in *Bollettino (Journal) della Società Geografica Italiana*, XII, XI(1), pp. 9-34. In this special number devoted to the 3.3 Project (in Italian and English language) ed. by M. Prezioso, all TPG members published, with the following distinguished contributions:
  - Dominic Stead and Bas Waterhout, *A theoretical background for assessing the potential contribution of the Lisbon and Gothenburg Strategies to territorial cohesion*, pp. 53-68;
  - Christer Bengs, Tomas Hanell, Hanna Ristisuo, Sirkku Wallin, *The Short List of Structural Indicators in Light of European territorial Cohesion*, pp. 60-90.
  - Isabella Carbonaro, *Problemi metodologici per la costruzione di un indice composito di "capacità territoriale di competitività in sostenibilità"*, pp. 91-106.
  - Luigi Mundula, *Innovazione e rapporto globale–locale: due elementi chiave per il raggiungimento della competitività territoriale in sostenibilità*, pp. 107-120.
  - Gianluca Imparato, Cristina Spagnoli, *Qualità ed utilizzo delle risorse e dei fondi per la competitività in sostenibilità*, pp. 145-166.
  - Eduarda Marques Da Costa and Nuno Marques Da Costa, *The territorialisation of the Lisbon/Gothenburg strategy*, pp. 167-184.
  - Andreu Ulled, *The G.I.S. as "toolbox" to manage the process*, pp. 185-192.
  - Simin Davoudi, Ian Strange, Michelle Wishardt, *Lisbon-Gothenburg scenarios. A review of ESPON policy recommendations*, pp. 229-242.
- Prezioso M. (2006c), *STeM Approach: strumentazione in sostenibilità per prevenire i rischi della competitività*, invited paper at Università degli Studi di Udine- Associazione dei Geografi Italiani, *Giornate della Geografia: rischi e territorio nel mondo globale; Session: Nuove tecnologie per lo studio, la prevenzione e la gestione dei rischi*, Udine, 24-25-26 maggio.



- Prezioso M. (2006), Territorial Impact Assessment (TIA) and Strategic Environmental Assessment (SEA), renovated and integrated into Italian SIAE patent (All copyright reserved). N.0602007/2006.

Some papers from the 3.3 Project are currently in press on Economic Geography international journals.

## 7. Indications of performance indicators achieved with regard to the “A” case

### 7.1 Innovation & Research

Key element in the field of competitiveness performance, the Innovation & Research area is today a capital point in the territorial competitiveness performances. It could be seen as a Schumpeterian process with three moments, not strictly delimited in several cases: **Virtual Society**, **Knowledge Innovative Structures** (human resources) and **Knowledge creation facilities** (technological equipment).

The model of innovation suggested implies that not only one direction of innovation creation exists, but there are many forms that require more importance to relationship grade between agents besides their ability to capture information and knowledge.

This articulation between agents, and between agents and institutions, becomes an important element to create dynamic competitive advantages, in the formation, transmission and evolution of innovation. This implies that the essential support of this area is the available knowledge for the various territorial actors, the entrepreneurial environment and the productive framework where they intervene and act.

Thus, the specific location becomes a knowledge generator.

Overcoming the various and sartorial definitions of innovation, the Information and Communication Technology (ICT) can be seen as the contemporary and cross-border expression of the Innovation & Research field.

The Information and Communication Technologies are generating a new cultural revolution, as important and driving as those of the past centuries. It's a revolution based on the information, that is expression of the human knowledge. Technological progress today allow to elaborate, store, find and communicate information regardless their format (oral, written or audio-visual), without distance, time and volume limits. It's a revolution that allows the community to gain new capacities.

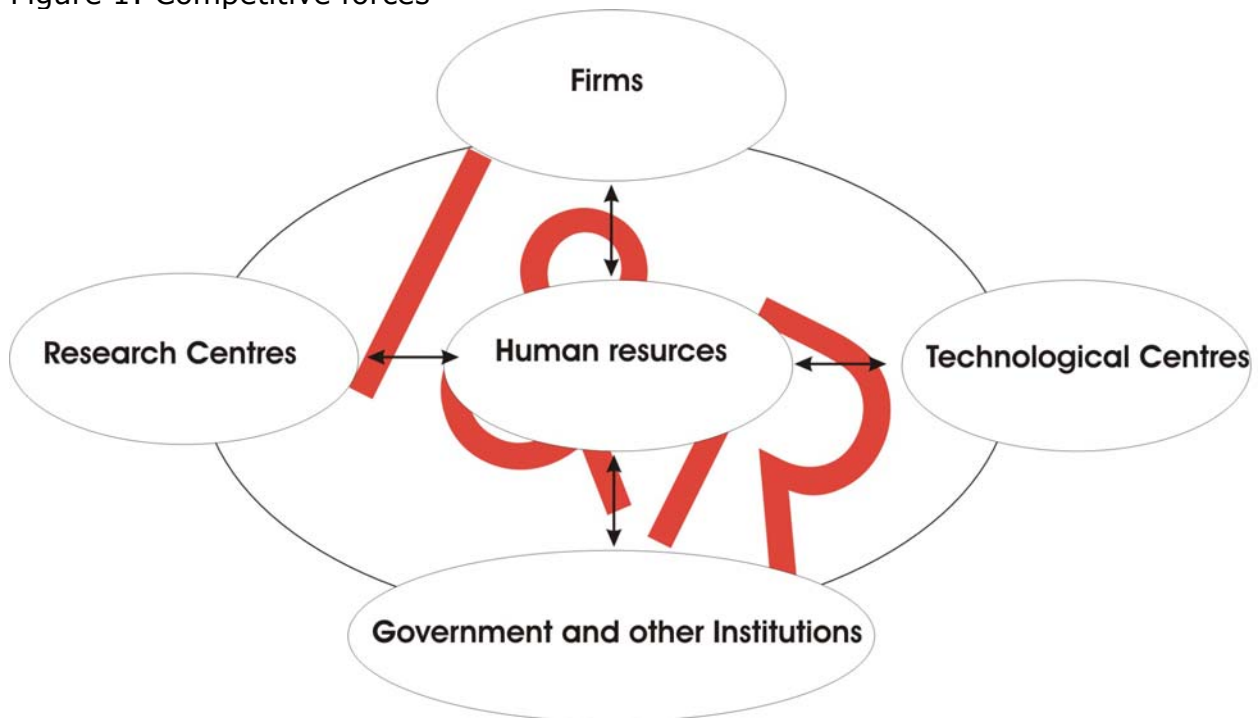
The fast development of ICT has brought deep changes in our working and living ways, since its widespread diffusion is accompanied by organisational, commercial, social and legal innovations.

According to this framework, from an operative point of view Innovation & Research (IR) is a function of Virtual Society (VS), Knowledge Innovative Structures (KIS) and Knowledge Creation Facilities (KCF).

Our society is now defined as the "Information Society", a society in which low-cost information and ICT are in general use, or as the "Knowledge(-based) Society", to stress the fact that the most valuable asset is investment in intangible, human and social capital and that the key factors are knowledge and creativity. This new society, that we may call Knowledge and Information Society, presents great opportunities: the chance of new employment possibilities, more fulfilling jobs, new tools for education and training, easier access to public services, increased inclusion of disadvantaged people or regions.

These trends highlight new strategies of competitive development of regions that have their centre of interest in the creation of networks of innovators, where institutions, companies and firms are related by knowledge influence. In that context, dynamic flows are characterized by their cooperative character as far as the contribution of knowledge. This would constitute a new frame of analysis in the style of the competitive forces of Porter, that in an extended rivalry scheme allow the regions to obtain a favourable or unfavourable result. In the new frame of analysis the forces are cooperative internally to obtain a greater competitiveness externally, which can be denominated cooperative-competitive or coercive forces (Fig. 1).

Figure 1: Competitive forces



In this analytical scheme two main characteristics can be emphasized. In the first place the relationships set between Firms, Population and Institutions are moreover oriented towards new technologies' use, so much that this could be called a virtual society. A second characteristic of the scheme enunciated in Figure 1 is that those relations, when correctly oriented, lead to knowledge creation that is often related with research centres as Universities, Science Park, Business Innovation Centres (BIC) and so on.

In order to measure the Knowledge and Information Society it is therefore necessary to find a value for the two different sectors: virtual society (VS) and the other elements that can explain the aim in object.

### Virtual Society (VS)

A society is as much virtual as its various components (population, firms, institutions) use new ITC technologies (such as Internet).

It's necessary to study in depth each category and finally join the results

Virtual society (VS) = f [internet users (VP), firms with internet access (VF), available e-government services (VI)]

Where:

- *Internet users (VP)* is the percentage of regional population that have internet access;
- *Firms with internet access (VF)* is the percentage of regional enterprises that have internet access;
- *Available e-government services (VI)* is the number of public institutions with the available e-government services

### **Knowledge Innovative Structures**

Virtual Society is not the only constraint to success and spread of the innovation. This clue comes from the low rate of Internet use in the less developed regions, even where the physical access is available (Pigato, 2001). The access is bound rather with the high costs (it's necessary to own a computer), from the contents inadequacy (e.g. the lack of contents in the local language), from the lack of familiarity with the means (Nanthikesan, 2000) and from a not really dynamic institutional atmosphere.

So another fundamental characteristic is the skill level of the human resources available.

The changes in the structure of professions may be a better (more immediate) indicator of structural changes of the economy than the changes between economic sectors. E.g. the ICT-sector was in its initial phase more easily recognisable through changes in the professional set-up than through sector indicators.

Since the early twentieth century, Max Weber highlighted the central role of social networks as driving forces to information circulation and trust improvement, with relevant economic consequences in terms of development because of their capacity to promote exchanges.

Even if Weber did not use the term Human Capital, he actually used the idea of "social networks" as a tool able to influence the economic development of a region. The concept of human capital "is defined comprehensively, so that it embraces capacities for interpreting flows of sensory data and structured information required for goal-directed individual actions and inter-personal transactions, and for providing various physical labour service-inputs in ordinary production processes. More conventionally, it subsumes the creative faculties for generating new scientific and technological knowledge, the cognitive basis of entrepreneurship, and the competences for managing market and non-market production as well as household consumption activities". (David, 2001)

Through human capital a region improves its knowledge resources such as information, skill, trust, that allow the different players to realize targets otherwise not accessible. Moving from the individual to an aggregate level, it's possible to say that a certain territorial context appears rich of human capital depending on individual or collective resident subjects' involvement in relationship nets. "Social networks" is so composed from a range of relationships between structural

variables and immaterial-relational variables that jointly concur to define human resources quality.

This link with human resources quality implies the sharing of a common language and basic knowledge that allow to best exploit technologies and codified organizational structures (Becattini e Rullani, 1993).

From this point of view human capital can be regarded as a local resource able to favour local development and, compared with the past, improves the possibility of territorial players to pro-actively influence the development process.

The latter does not depend on incentive forms or other costs advantages attracting foreign enterprises, but on the capacity to use human capital to develop a knowledge and skill set as guarantee for the future of the region. Human capital is therefore able to improve the specialization of external economies and to root knowledge in a certain local context.

In terms of competitiveness, human capital quality of each territorial system is a strong driving force. Interventions supporting human capital become over and over strategically important, so that the most competitive regions at international level are those supported by strong cooperation between social actors, by high education level and by a balanced employment structure.

In order to measure the performance of the Knowledge Innovative Structure (KIS) we use the follow indicators:

Knowledge Innovative Structure (KIS) = f [Universities students (KCE), Innovative dependency index (IDI), Population with tertiary education (PTE), Population in life-long learning (PLL)]

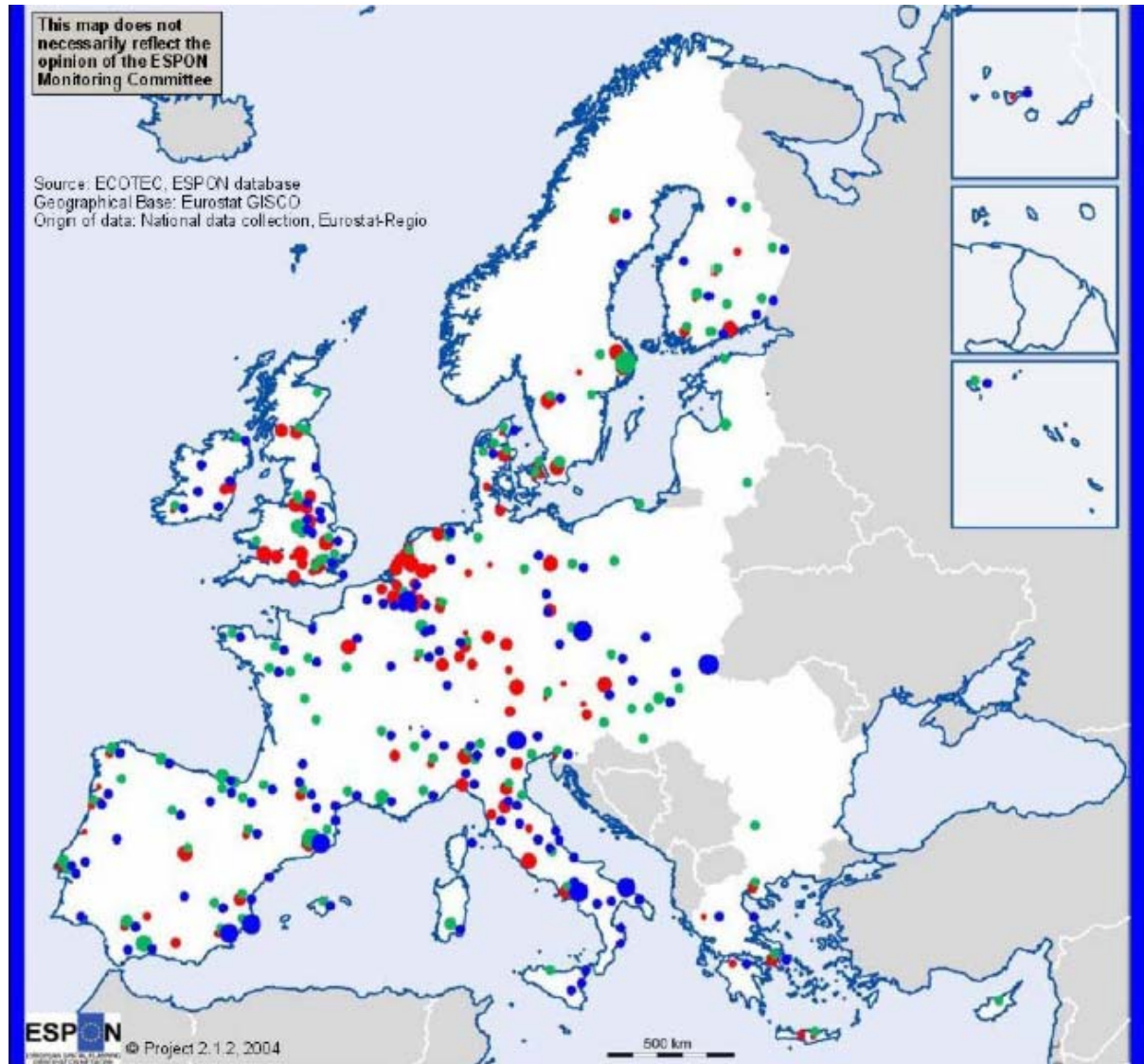
where

$$IDI = \frac{POP_{0-14} + POP_{over54}}{POP_{15-54}}$$

### **Knowledge creation facilities**

To find the value of Knowledge creation facilities (KCF) we combine the level of the R&D infrastructures with the level of telecommunication development and we use the ESPON project 2.1.2 results in order to measure the level of the R&D infrastructures and the ESPON project 1.2.2 results to measure the level of telecommunication development.( Fig. 2 and Fig. 3)

**Figure 2:** High level R&D infrastructure across Europe



**Number of publications per university/  
public research institution**

Origin of data: ESPON Data Base

Source: ESPON Data Base

- <2000
- 2000 to 4000
- 4000 to 8000
- 8000 to 14000
- >14000

**Number of science parks (members of ISPA)**

- 1 science park
- 2 science parks
- 3 science parks
- 4 science parks
- 5 science parks
- 6 science parks

**Number of business innovation centres**

- 1 centre
- 2 centres

### Telecommunication development

A further crucial element that concur to the Innovation & Research field is the Technological endowment, which is today considered more and more a positive development engine. Analyzing the ICT impacts in relation to its potentialities in supporting and favouring the territorial development, a wide typological variety of use, access, production, technologies between different territories emerges. These differences are found between customers when income, instruction, sex and nationalities are different, but it is particularly important between developed and less developed regions (Zook, 2000) generating the so-called *digital divide*.

From this point of view one of the most important changes in the telecommunications network market in Europe in the last decade was the movement of the service delivery from the national network towards new carriers that have built a great number of alternative infrastructures at "pan-European" scale. The result is the capability to offer the most part of the services *up to date* directly connecting the greater cities, the financial hubs, the customers and the offices in real time. These pan-European telecommunication networks have become the main road of the information society in Europe and represent the infrastructural foundations to deliver competitive services across the Europe.

As the *majors* tend to prefer quick accessibility, high quality and low costs, the localization and extension of these kinds of infrastructure have a significant implication for the economic development and the competitive advantage of the regions and the urban centres. Unlikely, for example, a region without accessibility to the infrastructural pan-European network would be able to attract economic investments, as unlikely the majors would be interested to localize in such a region.

The presence of multiple networks and a higher competition level in the delivering of the service provide the enterprises with direct access to globally integrated services, higher quality, more protected infrastructure, faster data communications and (in absence of market bias such as cartels or transversal agreements) decreasing service costs.

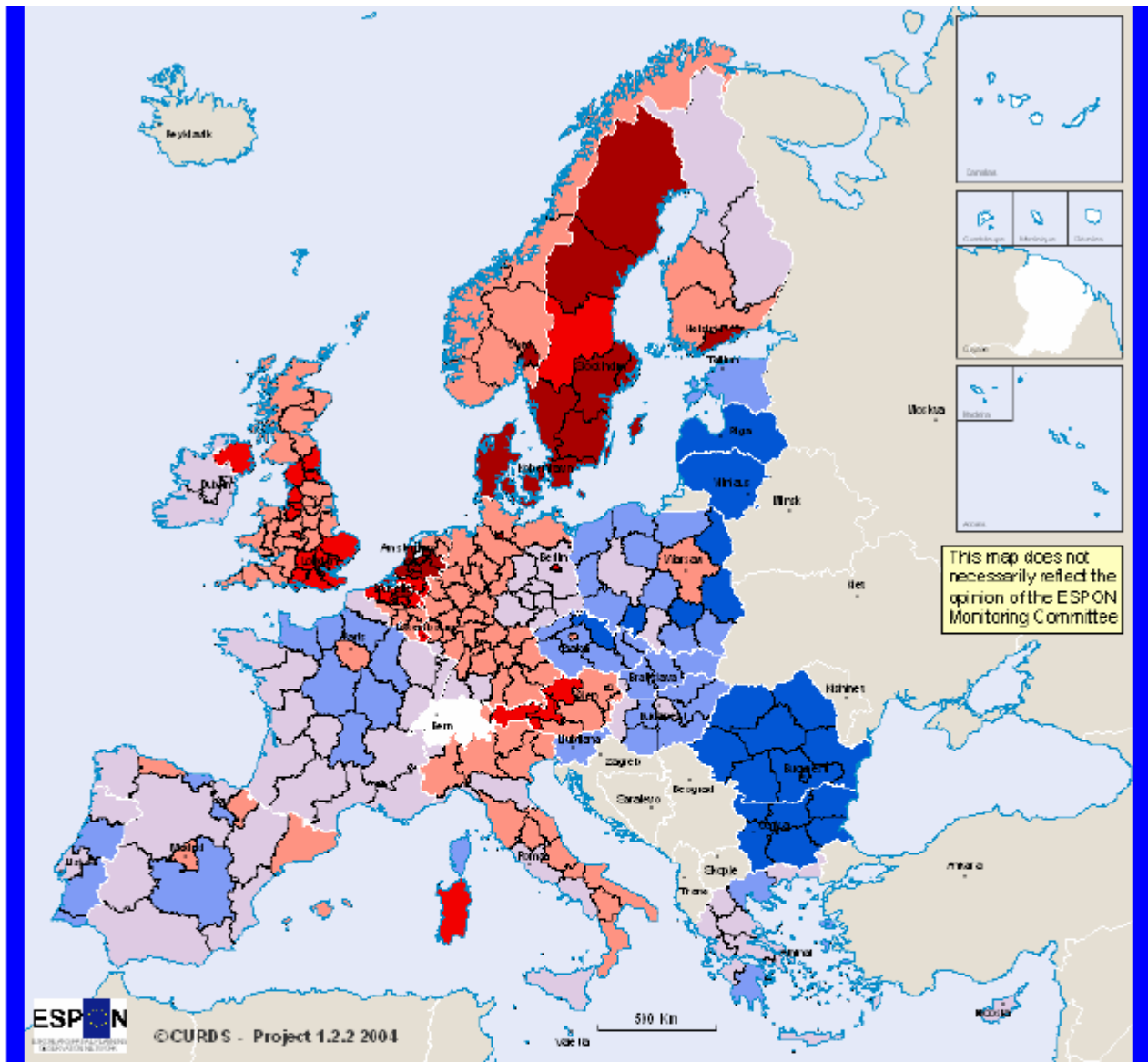
Investment in telecommunication network infrastructures can be seen both as a regional and urban economic development engine and as an extremely affordable indicator about the economic development models, so that an analysis of its geographies can be very useful in order to examine the dynamics of the urban and regional development in Europe.

Examining the territorial models linked to telecommunications, it's important to analyze a range of telecommunication technologies and services to understand the different territorial implications and the reasons for these technologies are strictly correlated. Revolutionary systems as the wireless or the satellite systems, for instance, depend on previous investments in the fixed network backbone.

According to this vision, the European situation is neither homogenous nor of unambiguous interpretation, analyzing both the upgrades benefits by the new computer technologies and the risks connected with their use in a sustainable territorial development vision.

To analyze this typology the results and classification from the ESPON project 1.2.2 could be used, to obtain  $Te_R$  as showed in the following map (final report p. 200).

**Figure 3:** Level of telecommunication development



©EuroGeographics Association for administrative boundaries  
Regional Level: NUTS 2

**Level of telecommunications development**

- Highly advanced
- Advanced
- Moderately advanced
- Moderate
- Lagging
- Highly lagging
- No available data

Origin of data: CURDS

Source: ESPON Data Base



## 7.2 Global Local interaction

Globalization increases both opportunities and competition for investment. It offers opportunities for local businesses to develop new markets and also presents challenges from international competitors entering local markets. Multi-site, multi-national manufacturing, banking and service corporations vie globally to find cost efficient sites in which to locate. Technologically advanced industries require more highly specialized skills and technology infrastructure.

The set of changes in the context of development (at different geographic scales) refers to what Dicken (1998) called the new 'geo-economy'. This consists of three factors, namely: a) space reducing technologies in transport and communication; b) technological and managerial changes in production of goods and services; and, last but not least, c) the growing volume of people, capital, and firms that are mobile across (parts of) the globe.

In this new global vision the Local Territories make the difference in the international competition, therefore they present the local community's comparative advantage and hence its ability to attract and retain investment. Even small towns and their surrounding rural regions can find niche opportunities at a national or international level by building on their inherent advantages.

The global-local interaction is the process by which public, business and nongovernmental sector partners work collectively to create better conditions for economic development and the growth of international exchange. The aim is to improve the quality of relation between local and global market. So global-local interaction can be considered as the ability of the regional territories to have relations of international exchange.

Practicing improve this interaction means by working directly to build up the economic capacity of a local area to improve its economic future. Prioritizing the local economy and increasing the productive capacity of local firms, entrepreneurs and workers is crucial if communities are to succeed in the fast changing world. The ability of communities and their government to improve the interaction lives of their members today depends upon them being able to adapt to the fast changing and increasingly competitive international market environment.

So this component seeks to investigate the relationship and the ongoing re-alignment between public, private and citizenship actors in the territorial interaction processes, with special emphasis on the role of regional territories as the domain where local and global forces interact most strategically. So we must analyze some thematic fields:

- International cooperation on environment
- Economy interaction
- Financial interaction
- Social interaction

How these performances of forces of global integration affect local conditions and livelihoods is an important question. This component's perspective is interested in finding out to what extent, and under what conditions, economic globalisation offers opportunities for improvement to actors and groups at the local level.

In this respect Global-local interaction (GLI) will be function:

GLI = f [International cooperation on environment (ICE); Economy interaction (EcI); Financial interaction (FI); Social interaction (SI)]

## International cooperation on environment

This section concerns the most important international agreements on environment and development. According to the Fridtjof Nansen Institute<sup>4</sup>, we have divided the agreements into eight subsections:

- General Environmental Concerns;
- Atmosphere;
- Hazardous Substances;
- Marine Environment;
- Marine Living Resources;
- Nature Conservation and Terrestrial Living Resources;
- Nuclear Safety;
- Freshwater Resources.

The terms used in this section, denoting various stages in the status of participation related to international agreements, are legal-technical ones, based on the Law of Treaties as contained in the 1969 *Vienna Convention on the Law of Treaties* and in the 1986 *Vienna Convention on the Law of Treaties between States and International Organizations or between International Organizations*, as well as in customary international law.

Upon the negotiation of a treaty, there are often several stages required before it enters into force:

**Adoption** is the formal act by which the form and content of a proposed treaty text are established. As a general rule, the adoption of the text of a treaty takes place through the expression of the consent of the states participating in the treaty-making process. As a rule, however, adoption does not yet mean a consent of a state to be bound by a treaty.

**Signature** may sometimes be definitive, meaning that it establishes the consent of the state to be bound by the treaty. This is usual in most bilateral treaties. For multilateral treaties, however, the signature is as a rule not definitive, meaning that the treaty is subject to ratification, acceptance, or approval in order to enter into force. Although in those cases the signature does not establish the consent to be bound, it is a means of authentication and expresses the willingness of the signatory state to continue the treaty-making process (i.e. to proceed to ratification, acceptance, or approval). It also creates an obligation to refrain, in good faith, from acts that would defeat the object and the purpose of the treaty.

**Ratification** defines an international act whereby a state indicates its consent to be bound to a treaty if the parties intended to show their consent by such an act. In the case of multilateral treaties the usual procedure is for the state to notify the depositary of its ratification; the depositary keeps all parties informed of the situation regarding ratifications. The institution of ratification grants states the necessary time-frame to seek the required approval for the treaty on the domestic level and to enact the necessary legislation to give domestic effect to that treaty.

**Acceptance** or **approval** have the same legal effect as ratification and consequently express the consent of a state to be bound by a treaty. In the practice

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<sup>4</sup> Yearbook of International Co-operation on Environment and Development, 2004

of certain states, acceptance and approval have been used instead of ratification when, at a national level, constitutional law does not require the treaty to be ratified by the head of state.

**Accession** is the act whereby a state accepts the offer or the opportunity to become a party to a treaty already negotiated and signed by other states. It has the same legal effect as ratification. Accession usually occurs after the treaty has entered into force. The conditions under which accession may occur and the procedure involved depend on the provisions of the treaty; a treaty might provide for the accession of all other states or for a limited and defined number of states.

**Entry into force** of an international treaty does not necessarily coincide with its ratification (acceptance, approval) by individual states. It is common for multilateral treaties to provide for a fixed number of states to express their consent for entry into force. Some treaties provide for additional conditions to be satisfied, e.g. by specifying that a certain category of states must be among the consenters. The treaty may also provide for an additional time period to elapse after the required number of countries have expressed their consent or the conditions have been satisfied. A treaty enters into force for those states which gave the required consent. A treaty may also provide that, upon certain conditions having been met, it shall come into force provisionally.

According to this differences we can attribute a different value to the different stage of a treaty:

Signed = 0.5

Ratified, approved and acceded = 1

## **Economy Interaction**

Economy interaction (EFI) is a function of Productive System identity (PSI), Energy self-sufficiency index (ESSI), Internationalization (Intz) and Strategic localization (SL).

### Productive system identity (EFI)

Identity is the quality of a product, service or landscape, which is unique, different, distinguishable and distinguished in the wide definition of the term. Identity is a cultural quality which is inherent to individuals and goods allowing them to be recognized by others as special and from that perspective they bring forward something different contributing to the enrichment of society at large. Promoting development with territorial or local identity implies privileging what distinguishes a geographic location allowing it to compete in absolute advantages as a result of its uniqueness and in comparative advantages related to better conditions in delivering a product or service.

The local productive system provides the framework under which labour, capital, and product markets operate. These rules and institutions are fundamental for productivity because they facilitate the efficient operation of markets. They need to be transparent and comprehensible to ensure that individuals and organisations recognise their rights and responsibilities.

The economic base of a local productive system may be identified with one or several productive models (agricultural, manufacturing or service activities e.g. trading or tourism). In addition to this the other local economic activities supply the local market and the development and growth of the local productive system. The

economic base normally consists of one or more geographical concentrations (clusters, district) of local producers. Firms district and clusters may grow and specialise in their activity. This specialisation itself is an important growth mechanism towards the creation of a local identity of production that can drive the whole economy. Thanks to specialisation local producers may achieve internal economies of scale, which in their turn may generate increasing returns. This results in enhancing the competitiveness and the capability of the territory to attract new capital.

The performance of the Productive System Identity Index (PSI) is a function of Manufacturing enterprise and Product Trademarks.

### Internationalization (Intz)

The assessment of the degree of actual and potential internationalisation has been the subject of quite a few contributions of research (Dunning and Pearce, 1981; Ietto-Gillies, 1989, 1998 and 2001; Sullivan, 1994; UNCTAD, 1995) and analysed from various perspectives. Specifically:

- The degree of **aggregation** at which we want to operate. Firm or industry levels: large companies and/or SMEs; the macro-economy (at the local, regional or national levels).
- The **internationalization mode** we are interested in: trade; FDI; internal and external business networks; portfolio investment.

The choice regarding the **degree of aggregation** depends on the specific research project and problem studied and the type of effects to be analysed.

A similar variability applies to the **internationalisation mode** chosen for investigation. In this case, however, there are considerable complications due to the strong interconnections between the various modes. One internationalisation mode is likely to affect others either in a complementary or substitutive relationship. Moreover, the effects and relationship can be contemporaneous or evolve in time. These relationships and effects are particularly strong in the case of trade and FDI (Cantwell, 1994; Ietto-Gillies, 2001: chap. 2).

Nevertheless, whatever these boundaries and, therefore, whatever the level of aggregation, internationalisation mode and type of activity, we concentrate on the performance of: foreign direct investment intensity, trade integration of goods (TIg), trade integration of services (Tis).

### Strategic localization (SL)

Macro-economic, fiscal and monetary policies affect local territories. National regulatory and other legal conditions (e.g. telecommunications deregulation, environmental standards) also influence the shape of local business climates, which can help or harm local economic development goals.

These performances have local economic consequences on the possibility to attract new investments. The threats as well as the opportunities of local territories need to be taken into consideration if we want to measure the global-local interaction.

The irreversible processes of globalization are fundamentally changing the way enterprises make their choices. The global spread of the free market economy, the liberalization of key industries, ongoing work on a global political and economic framework, and the implementation of a uniform technical and logistics infrastructure have brought all areas of the world closer than ever before, even as key technologies from various business sectors have converged to provide an unprecedented level of technical infrastructure around the world.

At the same time, the ICT has levelled the playing field for companies and economies throughout the world, providing a low-cost global platform for advertising, marketing, sales, distribution, and support. Entry barriers for foreign markets have tumbled, but competition on domestic ones is increasing dramatically, and the whole world is watching what you'll do. Companies must think far ahead when reorienting their strategies, plan effectively, and implement fast. To be successful in this new challenge, organizations must modify their offerings to give them the look and feel of locally-made products. So the key element for the strategic localization (SL) become: degree of physical vulnerability (Vuln), potential accessibility (TMAP); costs (fiscal pressure, labour cost and long term interest rate), R&D infrastructure.

### Financial interaction

Statistical analysis shows that the effect of the level of financial institutional development on economic growth and on the global/local interaction is linear. We can see that for countries with undeveloped financial institutions the effect is not significant; for countries with an average level of financial institution development the effect on their global/local interaction is significantly positive. In this project the level of financial interaction is function of two sectors: **Credit & Insurance attitude (C&IA)** and **Management attitude (MA)**.

The level of the "Credit & Insurance attitude" is measured as function of the number of credit institutions (Bnk) and the number of insurance companies (InsC); while the "management attitude" is measured as function of the number of local units (BC) and the level of the stock markets capitalization (STM).

### Social interaction

The measure of the performances of the social interaction is function of two important elements: Population and Cultural Mobility (PM) and the level of Active Population (AcP)

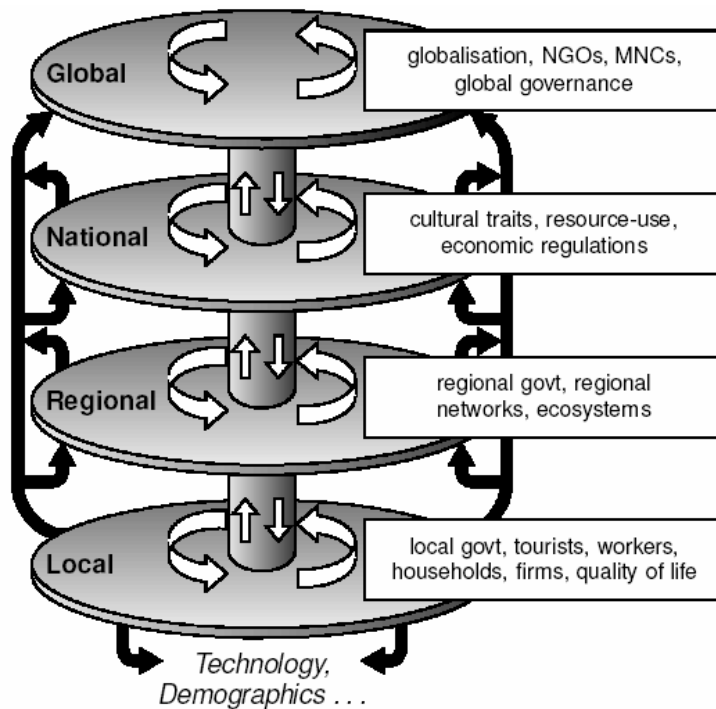
#### Population and Cultural Mobility

The level of Population and Cultural Mobility is function of some dynamic factors: tourism, migration, level of students mobility, level of researchers mobility.

There can be no denying that tourism is a major global economic force. Hardly a day goes by without a new pronouncement about the wider significance of what many call the world's largest industry. International tourism has grown substantially in recent decades, with technological improvements, rising living standards and broader processes of globalization leading to rapid increases in visitors number.

A key issue in the development of local economy in the global market, is the way in which these processes of global tourism expansion, uneven development and, in some cases, retraction, play their role at the sub-national levels of regions and local communities.

The regional territories (and their land use) are all influenced by tourism to some extent, and also play important roles in shaping the structure and nature of the local economy. To help us conceptualize the links that exist between the global and the local we adopt the notion of the global-local nexus (figure 4).



**Figure 4:** Tourism and the global–local nexus (Alger 1988)<sup>5</sup>

Therefore it is essential to look carefully at how interactions between the global and the local shape development outcomes for individuals, households, communities and regions. Tourism, in simple terms, must be viewed as a transaction process which is at once driven by the global priorities of multi-national corporations, geopolitical forces and broader forces of economic change, and by the complexities of the local, where residents, visitors, workers, governments and entrepreneurs interact with each other. To measure the value of tourist flows of a region fundamental elements are: Inbound Tourism (InT) and Outbound Tourism (OutT). Like tourism, another important element of the relationship between the local society and the “global-local” interaction is the cultural exchange, which is a function of Students mobility (SM) and Researchers Mobility (RM). International migrants constitute a diverse group of people who have historically included manual workers ready to sell their work force, enslaved people, and people forced to move through other coercive mechanisms. Intellectuals, professionals, and entrepreneurs with limited access to capital, as well as wealthy capitalists, have also been part of the process. This is an important element of social interaction, and the level of the migration is measured as percentage of population change (Pch) (ESPON project 1.1.4).

#### Active population

The level of the people in working age is a good element to measure indirectly the level of social interaction. The economically active civilian population is composed of all those people who are entitled to, and at the same time willing and able to, offer their labour in the labour market.

<sup>5</sup> Alger, C. F. 1988. Perceiving, analysing and coping with the local-global nexus. *International Social Science Journal* 40: 321–39.

## 7.3 Quality

The Lisbon strategy is based upon 4 great structural reforms which have their completion in the fifth action field proposed by the European Council of Gothenburg in 2001: sustainability, in whose respect economic, social and environmental effects of all policies must be evaluated in order to be an integral part of the decisional process (see also the European Council of Barcelona in 2002, the «European Environmental VI Action Plan» on environment and the Perspective of Johannesburg, 2002).

In perspective of a sustainable European policy, the national and regional quality must be considered an overriding and combined measure of phenomena ranging from the climatic change to deterioration and poverty (health, safety, quality of life), to the not self-sustainable economic and social systems in the great urban areas (irrational use of resources, energy wastage, waste management, noise pollution and air pollution due to traffic congestion), so that the EU gives a uniformed and balanced answer to the big issues involving the relations between infrastructure, environment, citizens' health and safety (exposition to electromagnetic fields, to noise pollution, to new integrated technologies of mobile telephony and to electric energy availability). The new general policies will have to be the result of sartorial actions and policies directly connected to the territorial dimension of the development.

The study of this determinant consists of the analysis of data grouped into 4 different typologies<sup>6</sup>:

- Quality of life (LQ)
- Environmental Quality (EQ)
- Government Quality (GQ)
- Social Quality and Cohesion (SQ&C)

Quality = f [Quality of life (LQ), Environmental Quality (EQ), Government Quality (GQ), Social Quality and Cohesion (SQ&C)]

### Quality of life (LQ)

“Quality of life” is a very common expression of our present language, even though its real content should be carefully analysed. Up to 10 years ago in fact, it was a common belief that the growth of economic wealth was the only indicator for the quality of life (progress=wealth) without taking into account social and environmental problems. Since then, the idea of quality of life has extended. Joachim Vogel<sup>7</sup> has well explained this change: “Quality of Life (QoL) gives the possibility to enjoy health and personal security, to express one’s own personality by experiencing a cultural growth, a professional satisfaction or improvement, a feeling of self-accomplishment in enjoying one’s own spare time, as well as to have

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<sup>6</sup> Thanks to a multiphase weighting system, a general index of territorial quality can be obtained (on different scales). The indicators are classified into: Quality indicators, when by increasing they produce an improvement in quality; and Trouble indicators, when by increasing they produce a worsening in quality

<sup>7</sup> Vogel, J (2001) The Swedish ULF system. I: Quality of Life Indexes for National Policy: Review and Agenda for Research. Special issue of Social Indicators 2001.

at one's disposal enough material goods and services, human relationships, personal freedom and possibilities to participate in the public sector".

On the contrary, Prof. Lanfranco Senn<sup>8</sup> states that the three cornerstones for the quality of life are in the first place the environment, but also the economic wealth and the access to services. The territorial accessibility and availability of services are further parameters of quality: the more the services are easily reachable and close one another, the more the quality of life in terms of time saving.

A way to measure the level of the "quality of life" was introduced with "The first Human Development Report" by combining indicators of life expectancy, educational attainment and income into a composite index, the Human Development Index (HDI). The breakthrough for the HDI was to find a common measuring unity for the socio-economic development. The HDI sets a minimum and a maximum for each dimension and then shows where each country stands in relation to these scales - expressed as a value between 0 and 1. It also permits instructive comparisons of the experiences within and between different countries. Starting with this new approach we must define a method that take into account several economic and social aspects that directly and indirectly have an impact on the citizens' life. To this purpose, our model use 2 sector indicators:

- Economic Variables (EV);
- Infrastructural Variables (IVC).

These 2 sectors include a set of variables which globally lead to an evaluation of the performance of the life quality.

From the **economic variables** point of view, the quality of life is directly proportional to the GDP level and to the consumption level, but indirectly proportional to the level of employment and poverty.

From the **infrastructural variables** point of view, the quality of life is directly proportional to hospital and hotel beds, cultural opportunities, potential accessibility and level of telecommunication development.

### **Environmental Quality (EQ)**

In the process of analysis and evaluation of the environmental quality, it is of utmost importance to collect all the environmental data performances for the evaluation of the territory, both on the basis of its characteristics and of a qualitative and quantitative evaluation, by integrating all natural and anthropical factors contributing to the determination of the environment conditions and of any possible critical factors.

In fact, any governance activity bringing changes to the pre-existing physical conditions should be well aware of the practical implications of the decisions taken, as they have a direct impact on the effectiveness of all human actions by conditioning populations' health and their quality of life in general.

The environmental quality is influenced positively by those human activities that are evaluated according to *social responsibility* and move to a common objective to improve the quality of life, to decrease the uneasiness determined by purely speculative actions as the environmental pollution or the calamitous events difficult to control:

- Quality of natural elements (air, water, and soil);

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<sup>8</sup> Professor of Regional Economy at Bocconi University of Milan, his areas of interests include: Regional and urban economy, transports, regional policies assessment, input/output analysis.



- Natural hazards: earthquakes, flood events, forest fires, volcano risk (vulnerability);
- Public and private institution responsibility measured by the level of waste and recycling

### **Government Quality (GQ)**

The relationship between government and citizens is becoming increasingly complex. Policy decisions are taken at multiple levels of government. Many problems (e.g. environmental degradation, tax evasion, crime) must be addressed in a global and increasingly inter-related environment, requiring co-operation and agreement across regions, nations, or on a global basis.

In considering these challenges, governments increasingly realise that they will not be able to conduct and effectively implement policies, as good as they may be, if their citizens do not understand and support them. Thus, governments are looking to new or improved models and approaches for better informing and involving citizens in the policy-making process.

Variations in political participation between areas are conventionally explained by the different socio-economic make-up of localities: wealthier areas are expected to have higher levels of participation than more disadvantaged ones. However, it is widely recognised that this so called 'resource model' cannot explain all variations in participation. Nowadays this gap it's not the only cause of a potential low participation of citizens in local government. So it's necessary to investigate the different factors, other than socio-economic variables, that influence the level and style of participation in different areas and the level of citizen satisfaction of the local government services.

The level of public knowledge of local government, people's satisfaction with local service provision, public views and complaints about local services it's a good method to measure the level of quality of local government. The studies in the past years show that the level of public knowledge of local government was low and people did not complain about local government services although the level of satisfaction was low<sup>9</sup>as well, but now the situation it's changing.

The study of local government quality must analyse three aspects of strengthening relations between governments and citizens (considered as individuals and as groups):

- Government information for citizens: how governments manage, disseminate and communicate information to ensure that citizens can obtain it, understand it, and make good use of it.
- Government consultation with citizens in the development and implementation of public policies.
- Government efforts to ensure active participation by citizens. Public participation can be seen as ranging from information-sharing to consultation, to more active forms of participation, such as partnerships, which involve a strong citizen influence over public policies and services. It is considered here in this most active sense
- Level of local government welfare structure

The performance of the quality of government will be measured by:

---

<sup>9</sup> The belief that complaints would have no effect is the main reason for not complaining. The impact of sex, age, education, income, length of residence in the locality, housing tenure, and political opinion on public attitudes to local government is also assessed. Of these variables, age, education and income levels are found to be significant.

- Level of Participation in the national and European elections (PbP)
- Level of citizen confidence in the European institutions (CzCf)

## **Social Quality and Cohesion**

When wondering about the meaning of “social quality” and “cohesion” we are about to put questions which concern in the first place the domain of ethics and the ways in which it has an influence on the traditional economic analysis.

Everyday experience shows how some human factors, such as solidarity, voluntary work etc., are essential to the implementation of social and hence economic relations, so that some phenomena can be considered as complementary to competition.

Therefore, the definition of the principles identifying respectable standards of life and the inclusion in these life standards of as much population as possible in order to give an idea of sustainable development under the economic, environmental, social and cultural point of view, is the primary goal of every modernisation process.

However, the social quality can be measured and quantified by means of specific indicators set by the scientific research in the last decades.

These indicators reveal, in the first place, the causes of divergence between economic wealth and welfare and, in the second place, how crucial ethical and emotional evaluations can be in the determination of a set of values which are well far beyond the concept of usefulness.

By using these indexes is possible to observe how the GDP growth does not necessarily lead to an increase of the welfare. The most paradoxical result in the evaluation of the set of values determining quality of life highlights that economic growth, assessed in terms of GDP, salaries, prices etc., and welfare, assessed in terms of employment/unemployment, justice/injustice, corruption, crime, discrimination etc., hardly ever are the same thing, even though, if properly integrated, they can give a reasonable exhaustive outline of the quality of life for this kind of determinant.

The daily life, therefore, shows us some “human” factors, as the level of human capital (schooling), the risk of children exclusion, the level of social integration (equal opportunities), the level of inequity of income distribution, level of poverty and the level of wellness (fertility rate, healthy life years).

## 7.4 Use of resources and funds

What has been suggested before is the starting point in linking the Lisbon/Gothenburg strategy to the financial availability scheduled for the 2007-2013 Structural Funds. This requires a more focused attention to the models of economic and financial resources management, which are considered, sometimes wrongly, among the causes of hindrance for the social and economic development of the European regions, especially for those historically underdeveloped (as Italy's Mezzogiorno). The evaluation of the economic resources scarcity is nevertheless the subject that also catalysed attention from realities considered historically strong (as the Pentagon), attracting the policy makers attention towards an optimal and effective allocation of resources.

The use of economic resources has direct and indirect effects on the economy and the society of a territory. The economic resources are fundamental in order to guarantee a harmonious development of the territories, under the aspect of infrastructures and under the social aspect.

This typology want to measure the effect of the use of economic resources on the countries development and their capability to be competitive. This typology will be function of funds availability for:

- R&D (LsS);
- National firms (NA);
- Human capital (Hcex);
- Employment (Eex);
- Climate and natural resources (CNRex);
- Accessibility (Tex);
- Public health (Phex);
- Poverty and age (Pax);

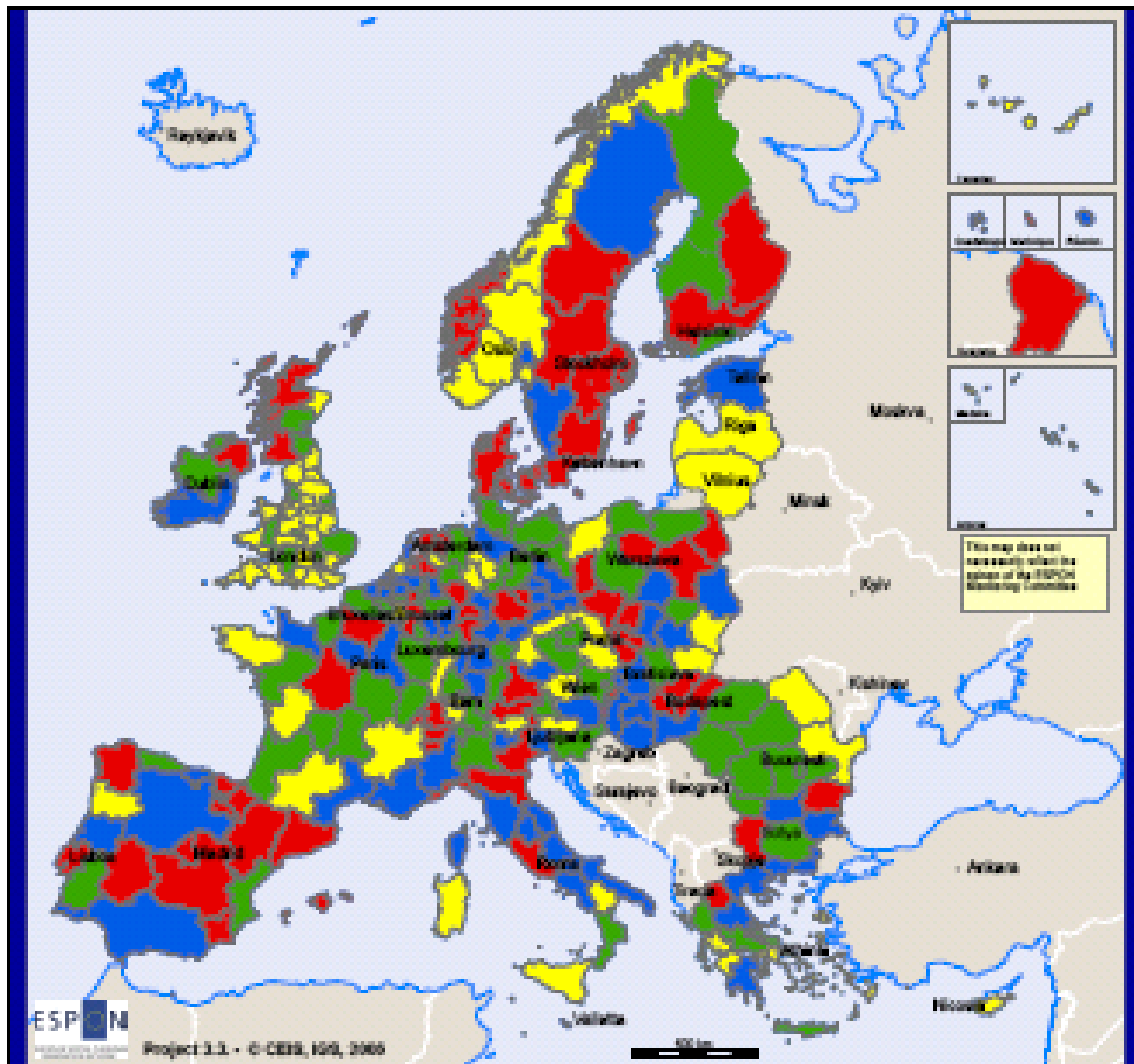
and function of:

- Use of structural funds (funds);
- Economic resources for cooperation (Co-op)

## 8. Additional maps not included in the core text of the Report

### 8.1 Innovation and Research

MAP IR 04 - Virtual Stakeholders

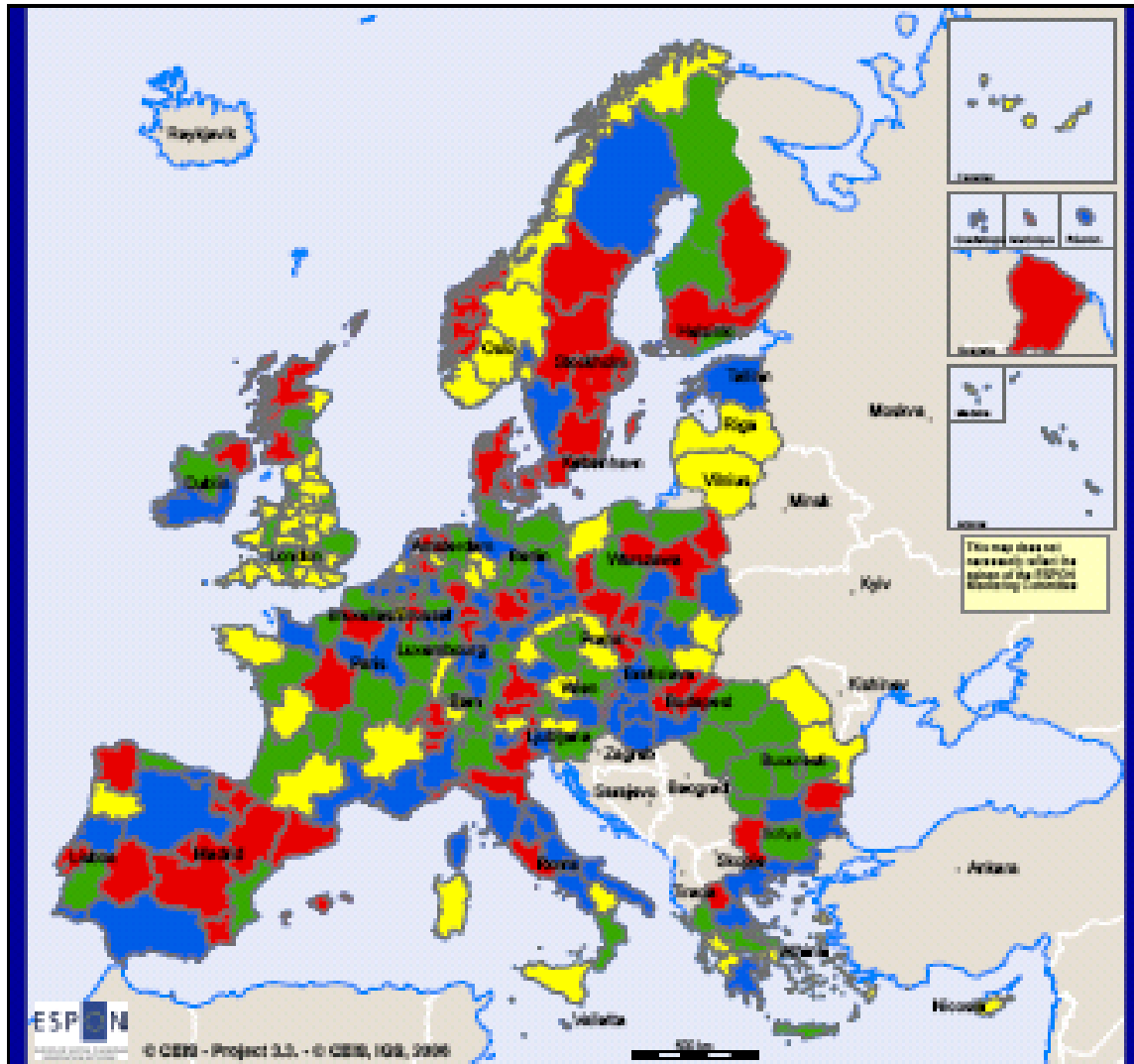


Values obtained combining  
Firms with Internet access and  
Available e-government services



© Eurogeographic Association for the geographic foundation  
Espo 3.3 (ESPON 3.3), 2003  
Scale of date 1:10, 000, 000

MAP IR 05 - Virtual Society

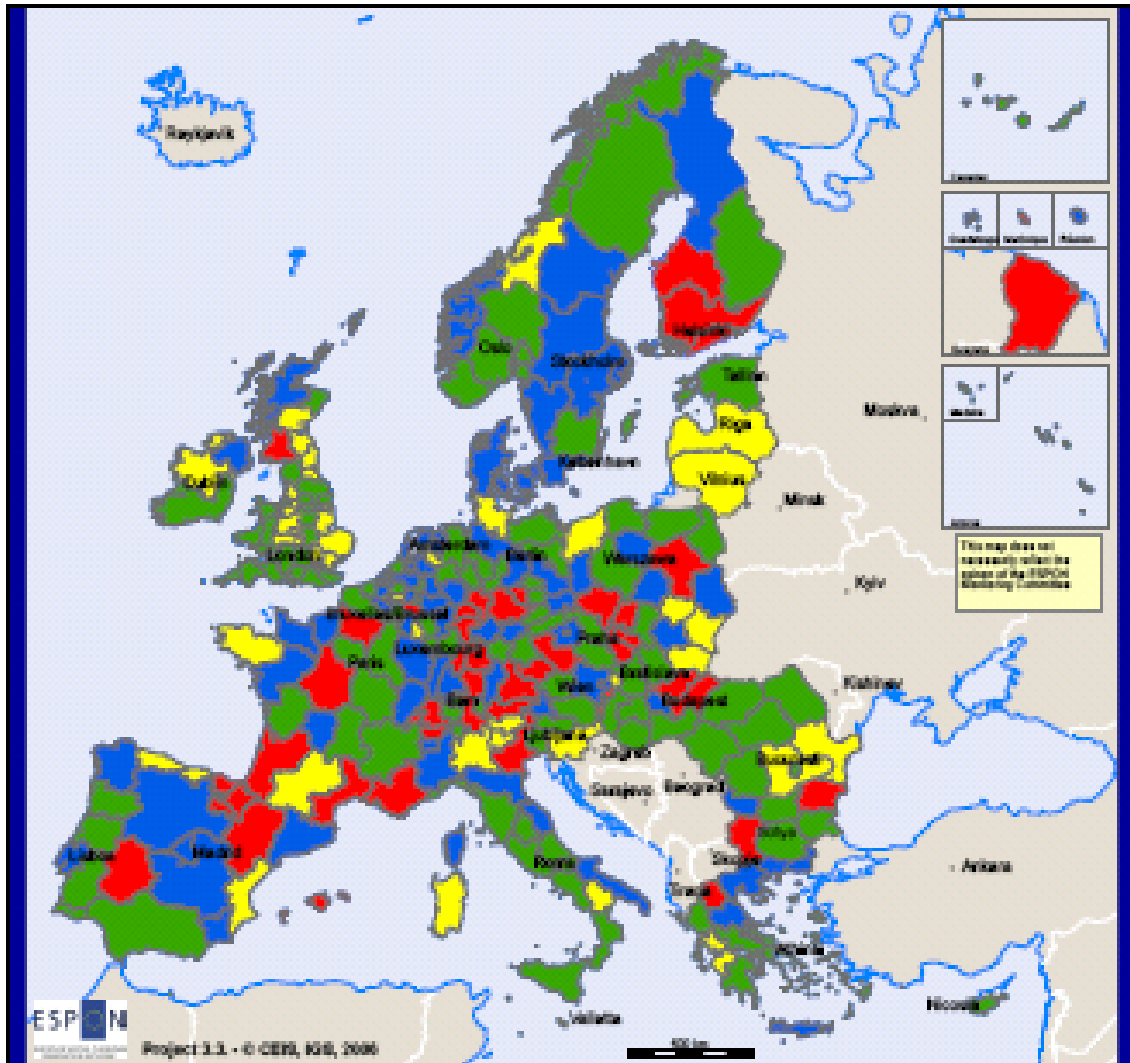


Values obtained combining  
Internet users and Virtual  
Stakeholders

- High
- Medium high
- Medium low
- Low

© IT map preparation: the authors for the geographic base data  
Regional reference: EUROSTAT, 2000  
Origin of data: EUROSTAT, 2000

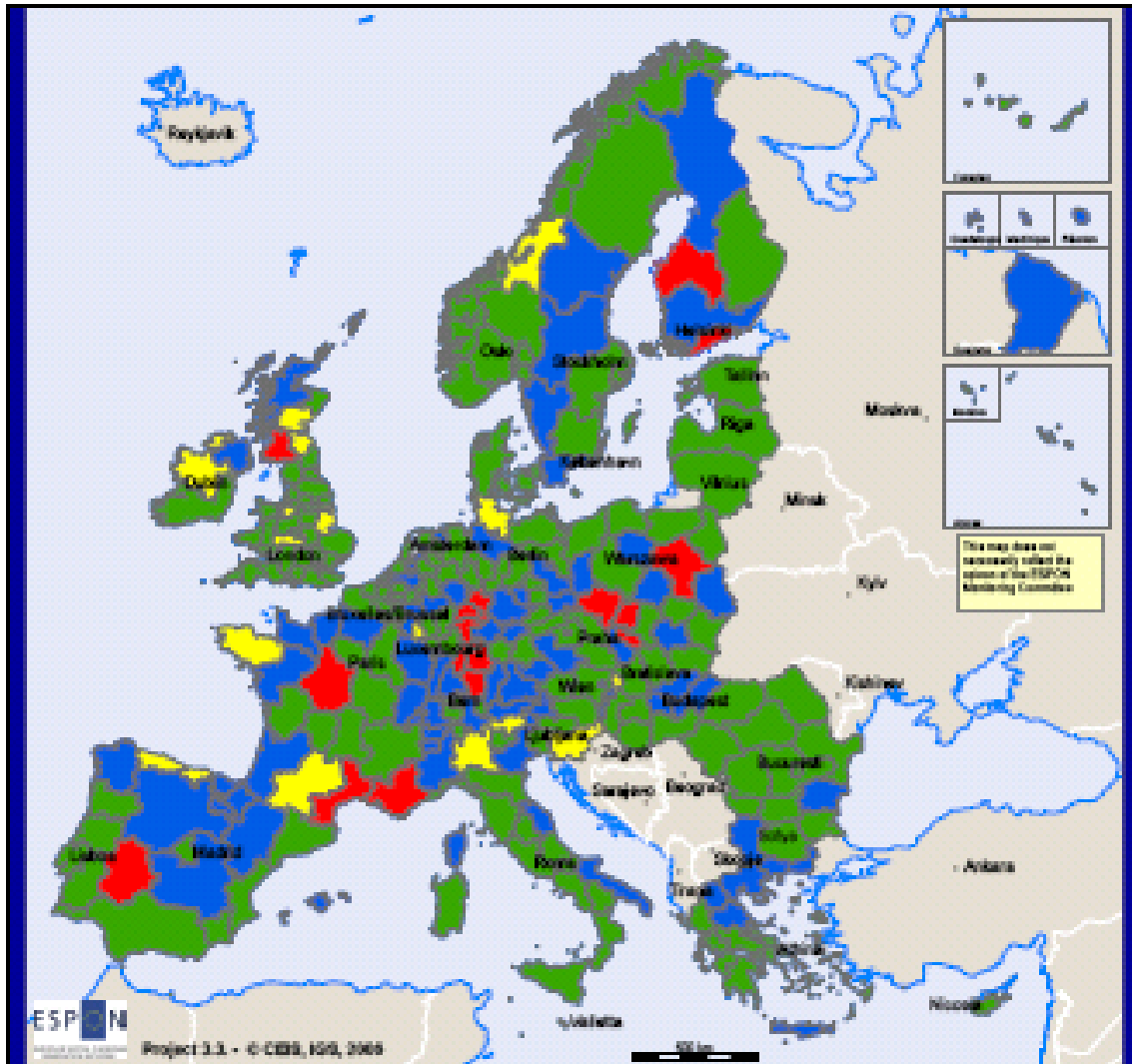
MAP IR 10 - Human Capital (Education)



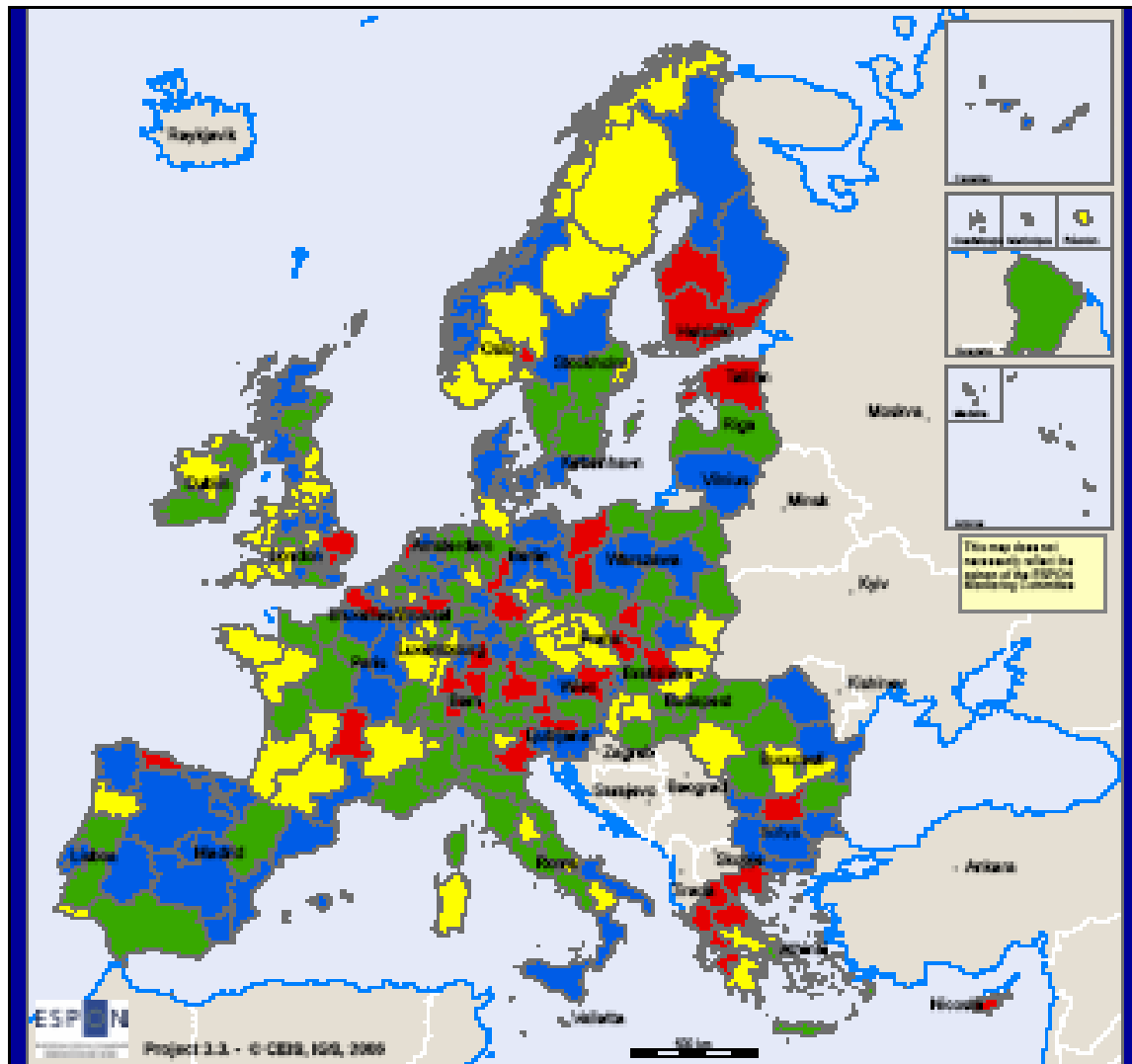
Values obtained combining  
Population with tertiary education and  
Population in life long learning

- High
- Medium high
- Medium low
- Low

MAP IR 11 - The Human Capital

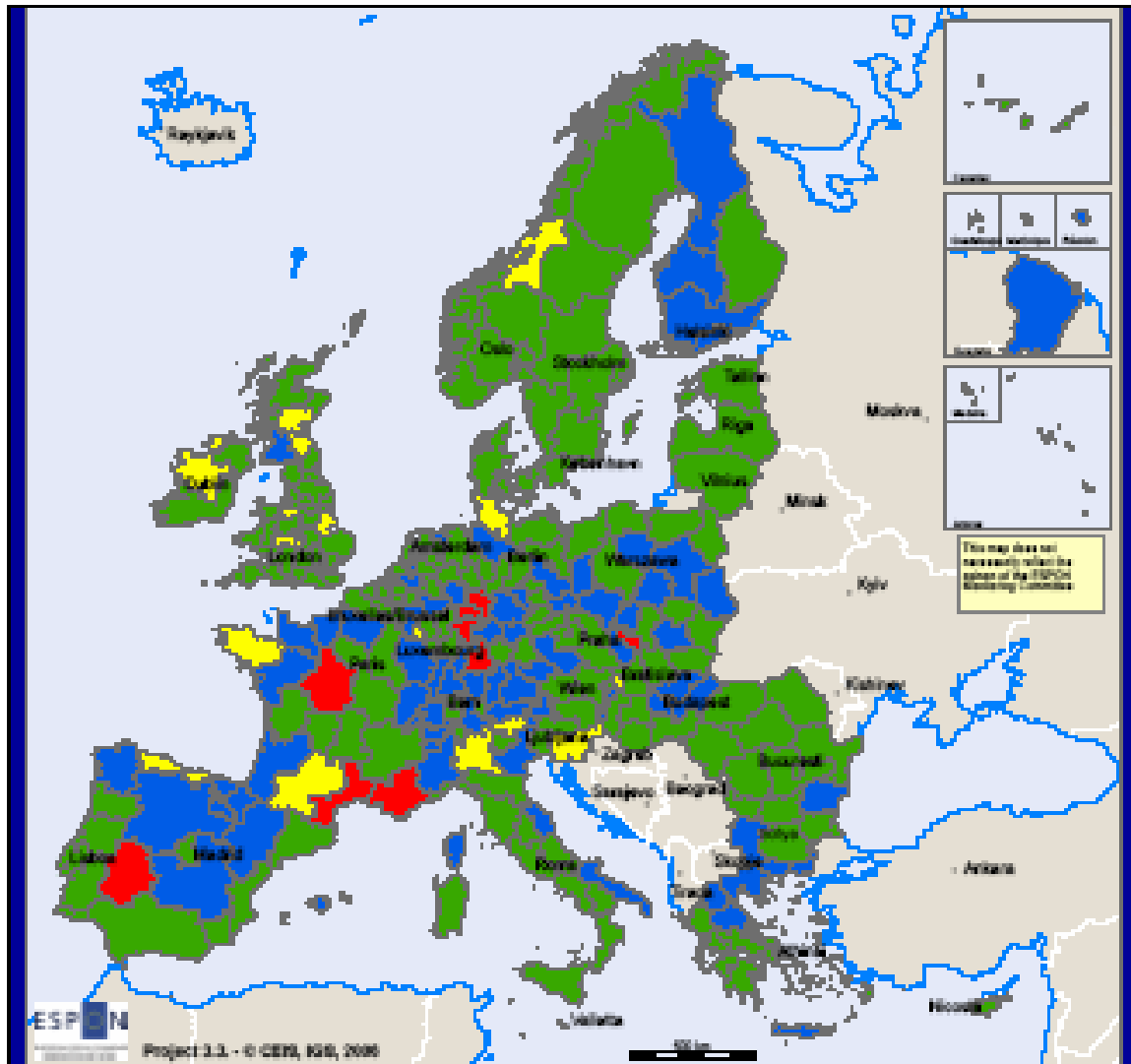


MAP IR 15 - Knowledge Creation Facilities





MAP IR 16 - Innovation



Values obtained combining  
Virtual Society and Knowledge  
Innovative Structure

- High
- Medium high
- Medium low
- Low

Map using geoprojection: its coordinates for the geographic coordinate  
system is written on: EPSG:31466  
Origin of data: CBS, 2005

### MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2

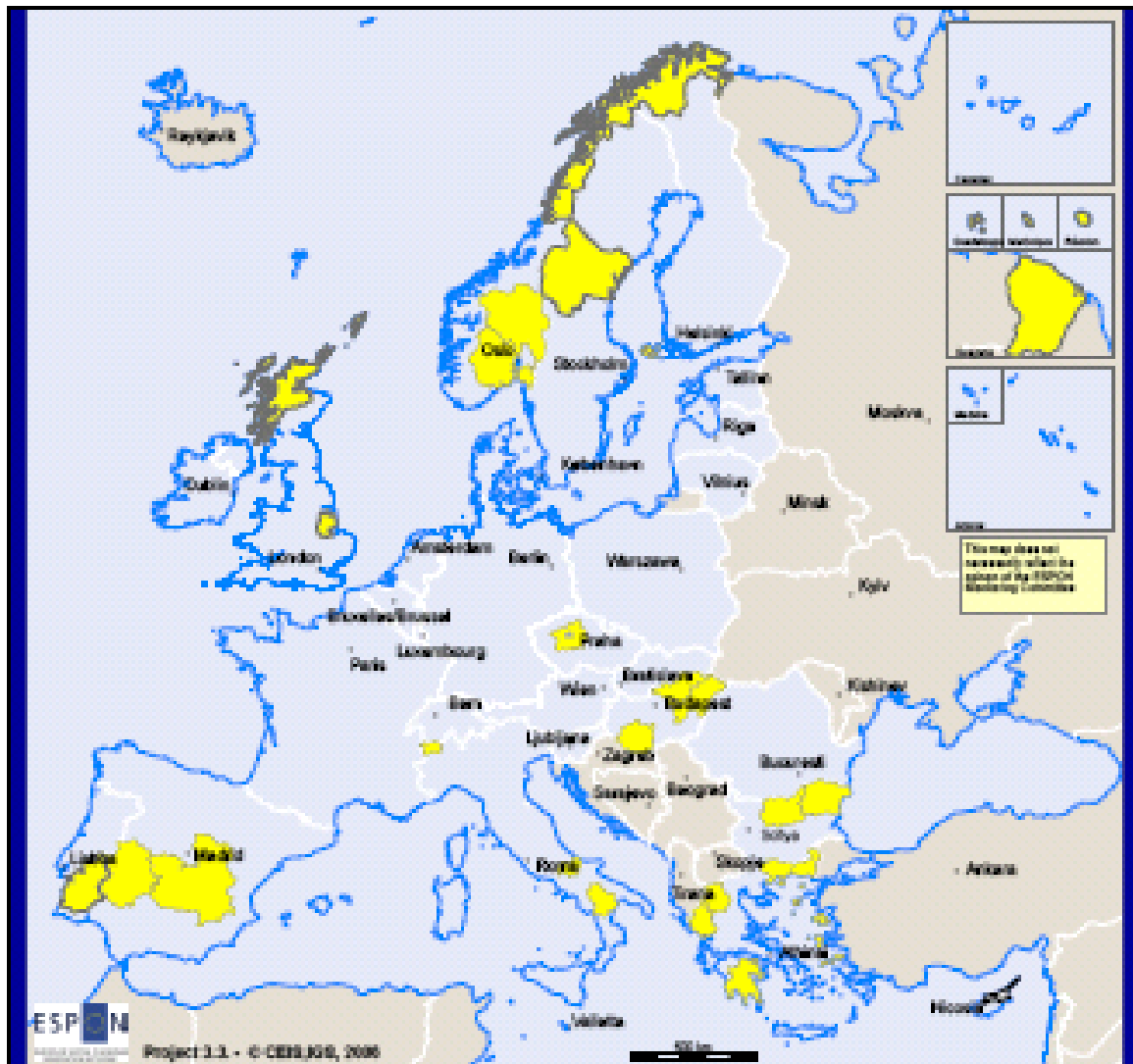


Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

MEDIUM

© Geographical Institute of the Czech Academy of Sciences for the geographic knowledge  
Digital elevation data © 2000  
Origin of data: CIA, CIA, 2000

### MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2



Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

LOW

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MAP IR 18 - Innovation and Research: Territorial Dimension at NUTS 2



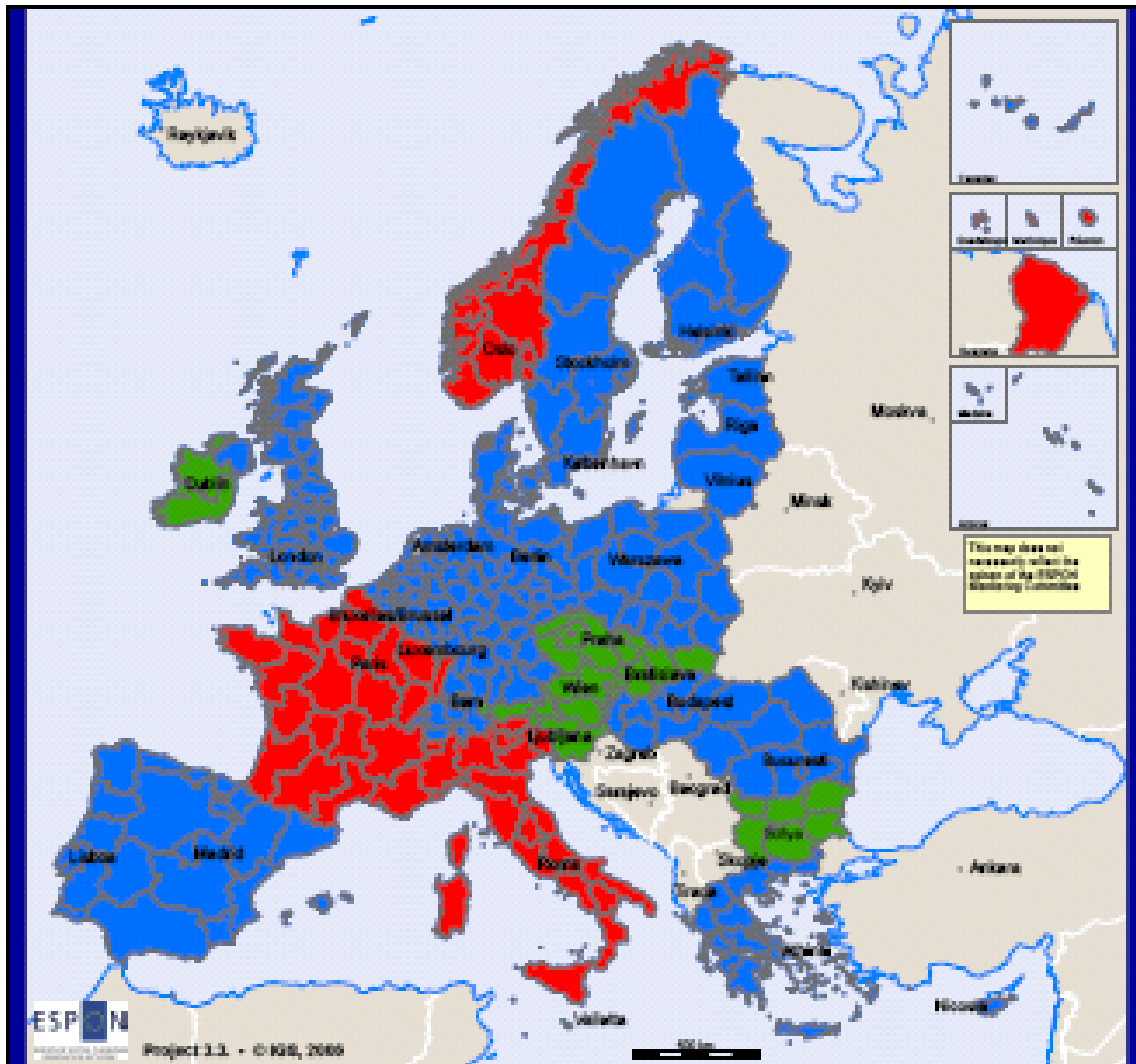
Values obtained combining Innovation and Research: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

VERY LOW

All geographical boundaries for the geographic coordinates displayed on this map are based on the ESPON Working Document

## 8.2 Global/Local Interaction

MAP GL 03 - International Cooperation  
on Environment

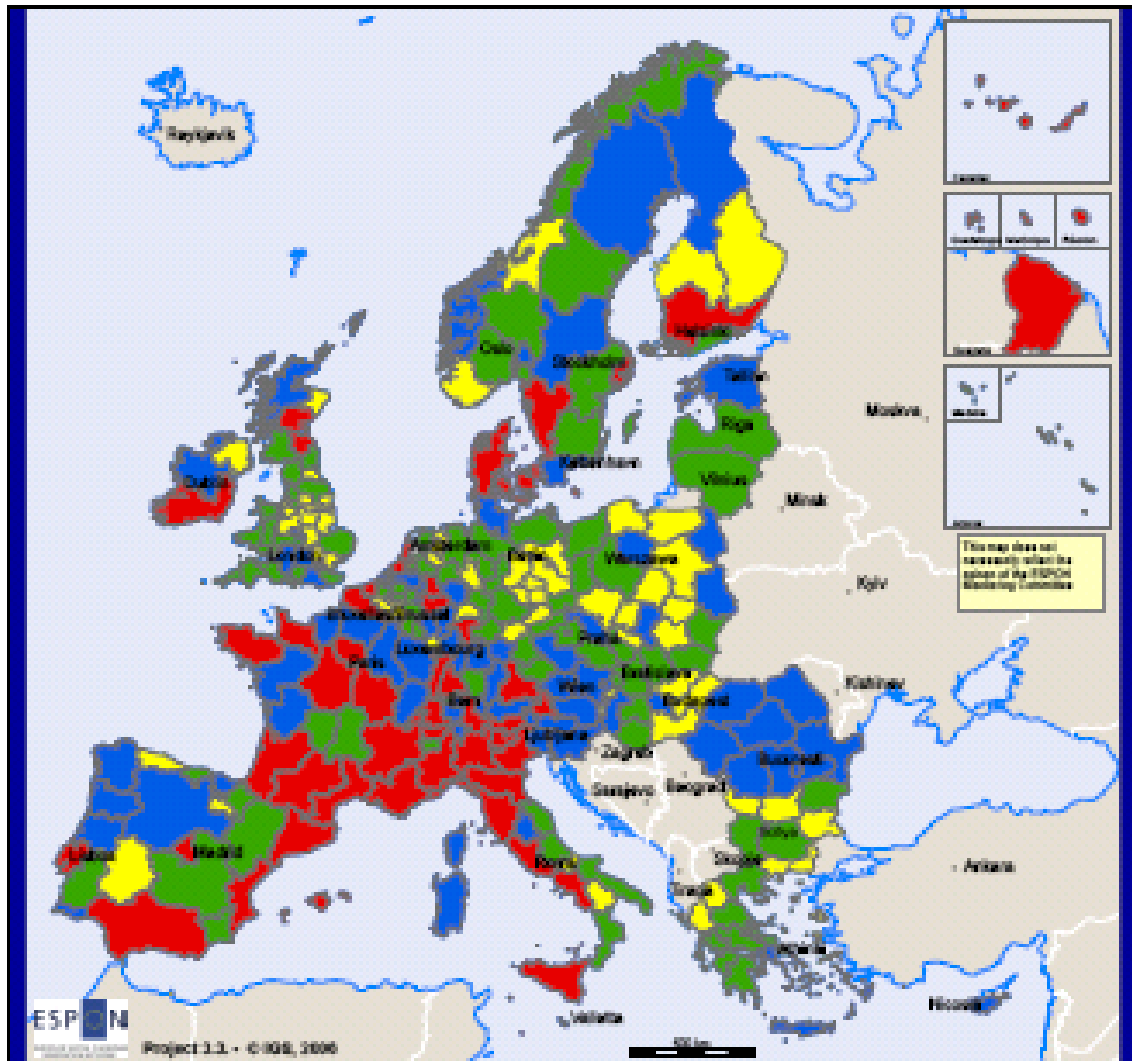


Values obtained combining general environment concerns and specific environment concerns

- High
- Medium high
- Medium low

All the geographic coordinates for the geographic locations displayed reference: ETRS2000  
Origin of data: IAG, 2009

MAP GL 07 - Tourism

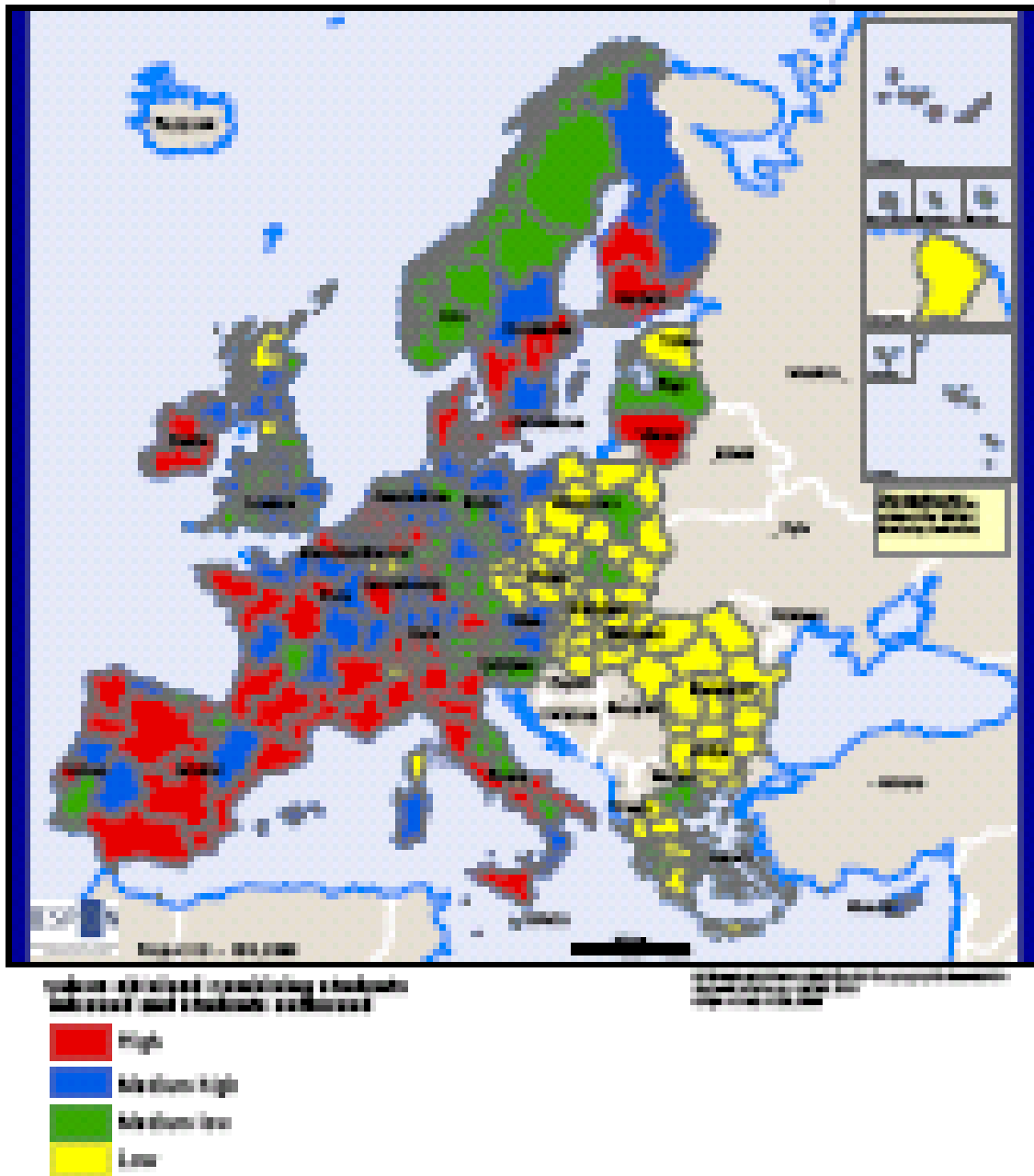


Values obtained combining tourism  
Inbound and tourism outbound

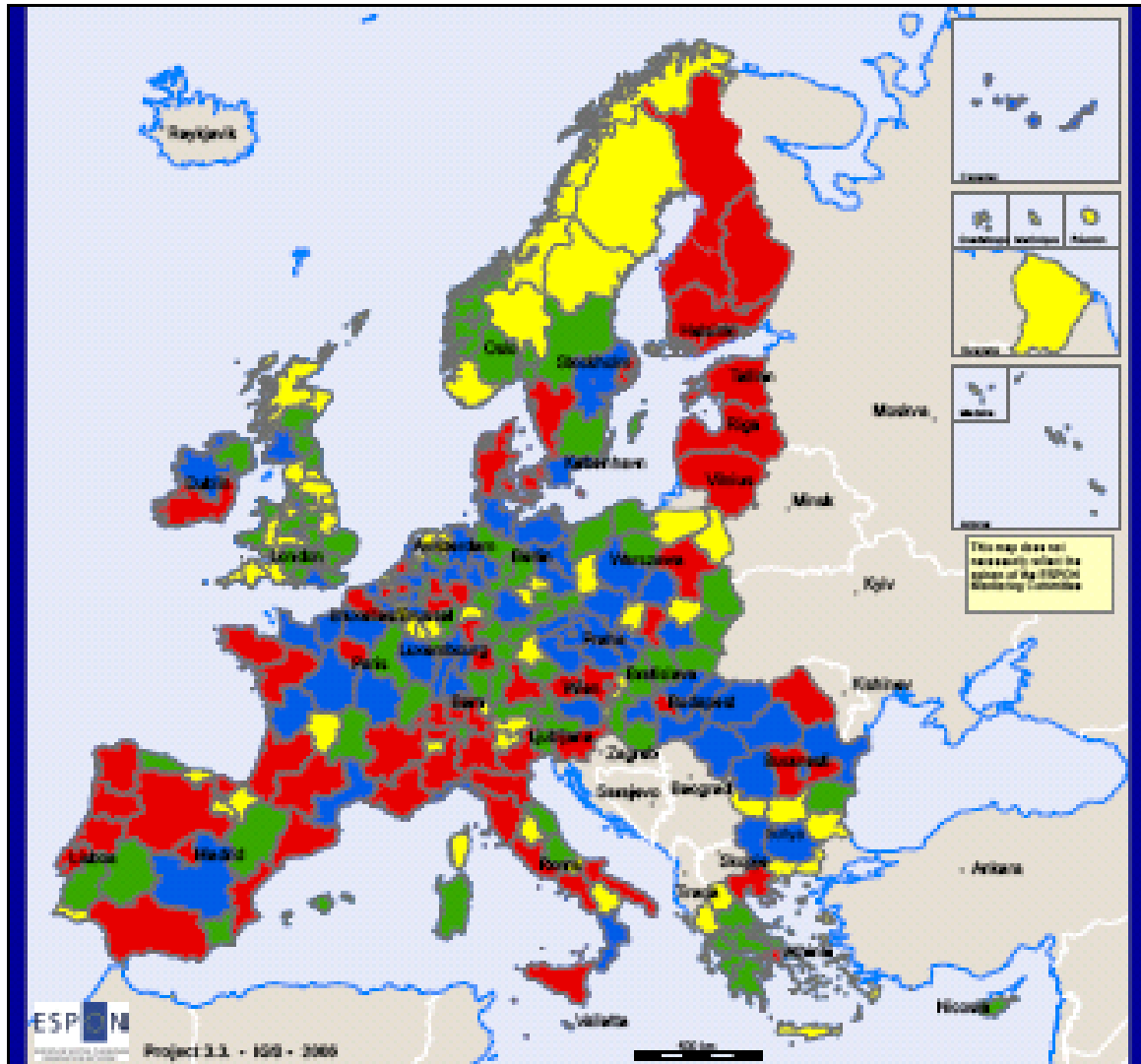
- High
- Medium high
- Medium low
- Low

© Geographische Association für die geographische boundaries  
Regional information: IGG, 2006  
http://www.igg.org

MAP GL 10 - Student Mobility



MAP GL 13 - Cultural researchers Mobility



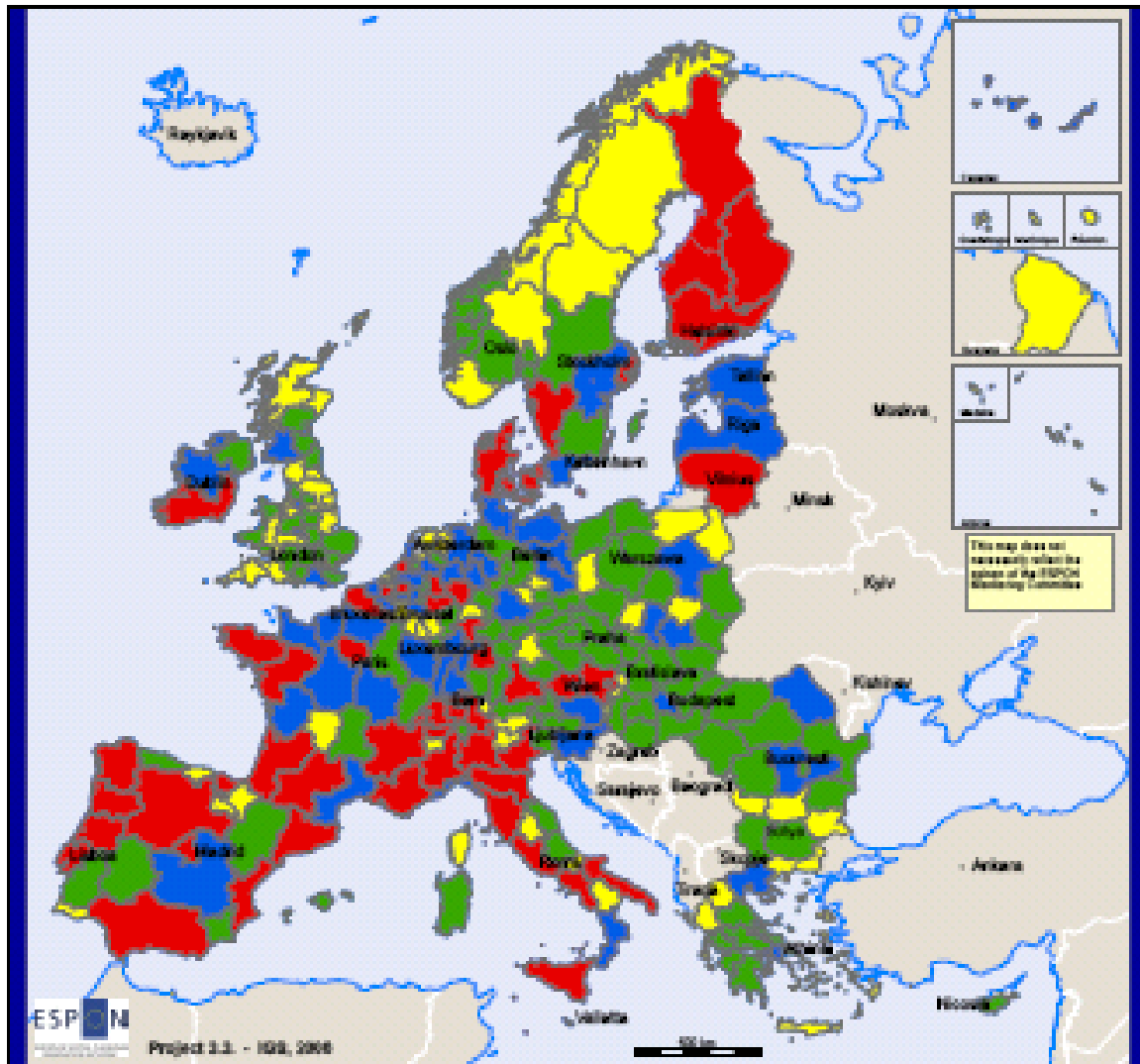
values obtained combining researchers inbound and researchers outbound

- High
- Medium high
- Medium low
- Low

© Eurogeographic data centre for the geographic coordinates  
Regional data source: ESPON, 2009  
Origin of data: ESPON, 2009



MAP GL 14 - Cultural Exchange

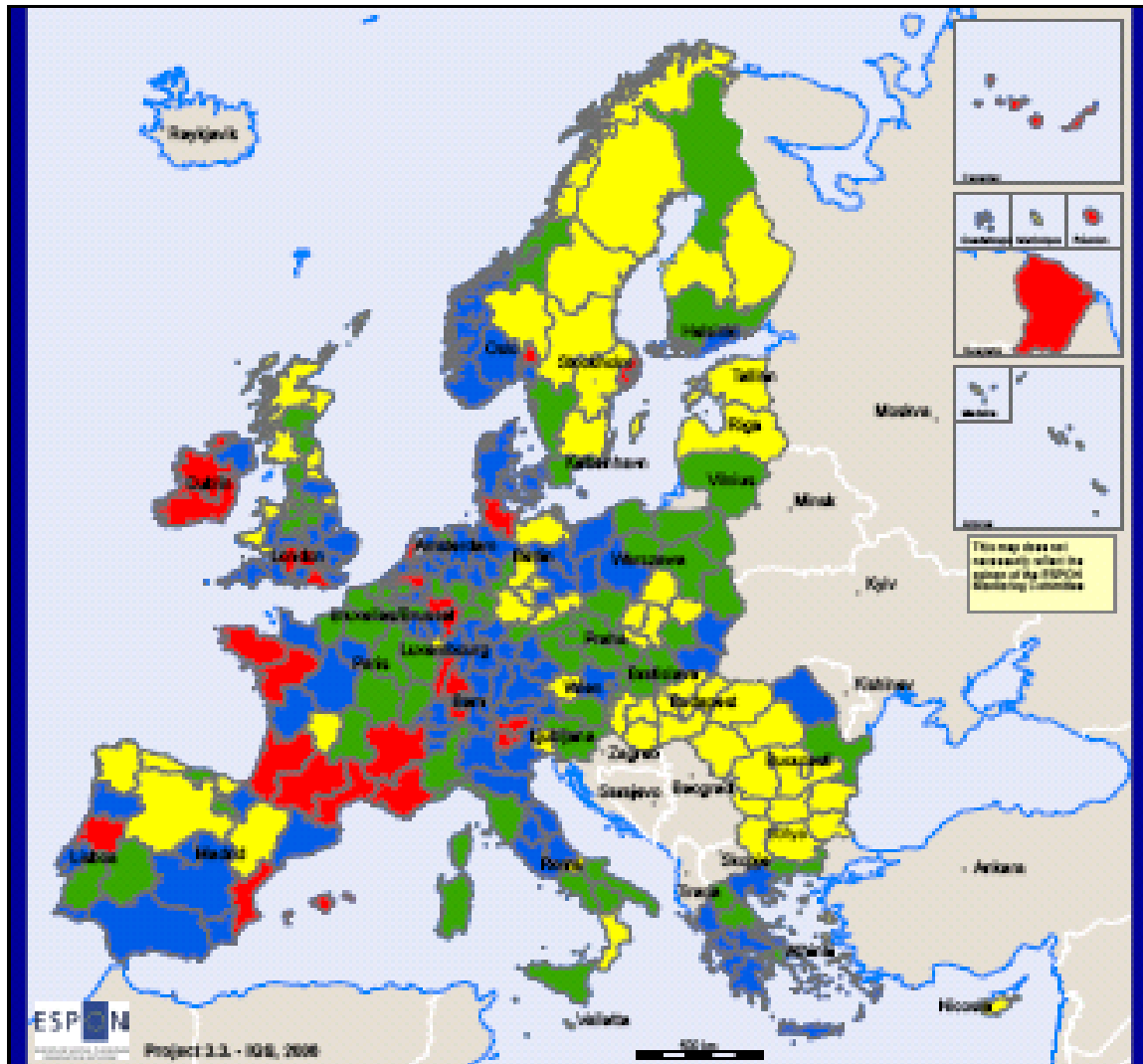


values obtained combining student mobility and cultural researchers mobility

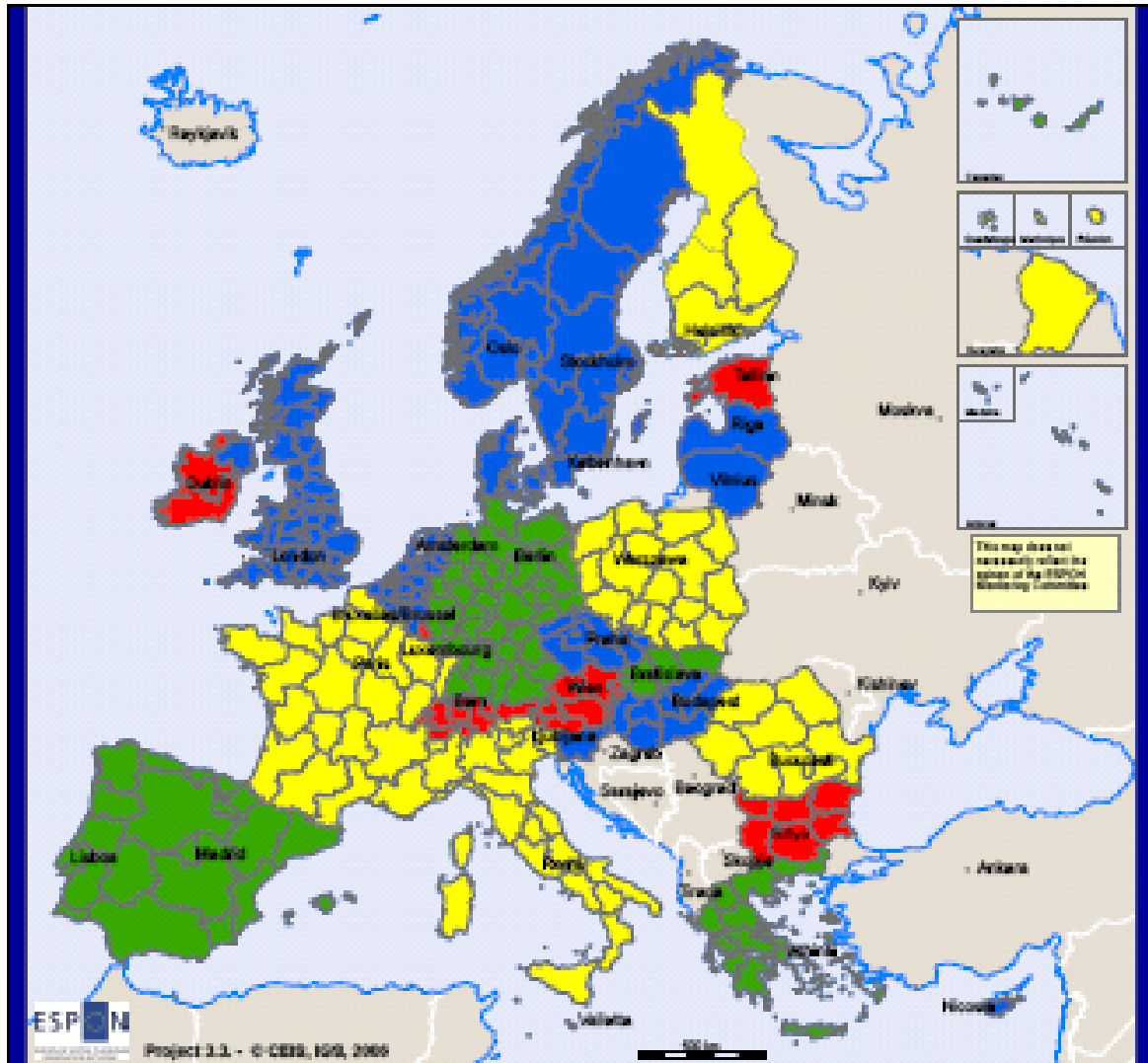
- High
- Medium high
- Medium low
- Low

© 2009 Geographic Association for the geographic territories  
Regional cartography 2009 (2009)  
Scale of year 2008, 2009

MAP GL 15 - Population and cultural mobility



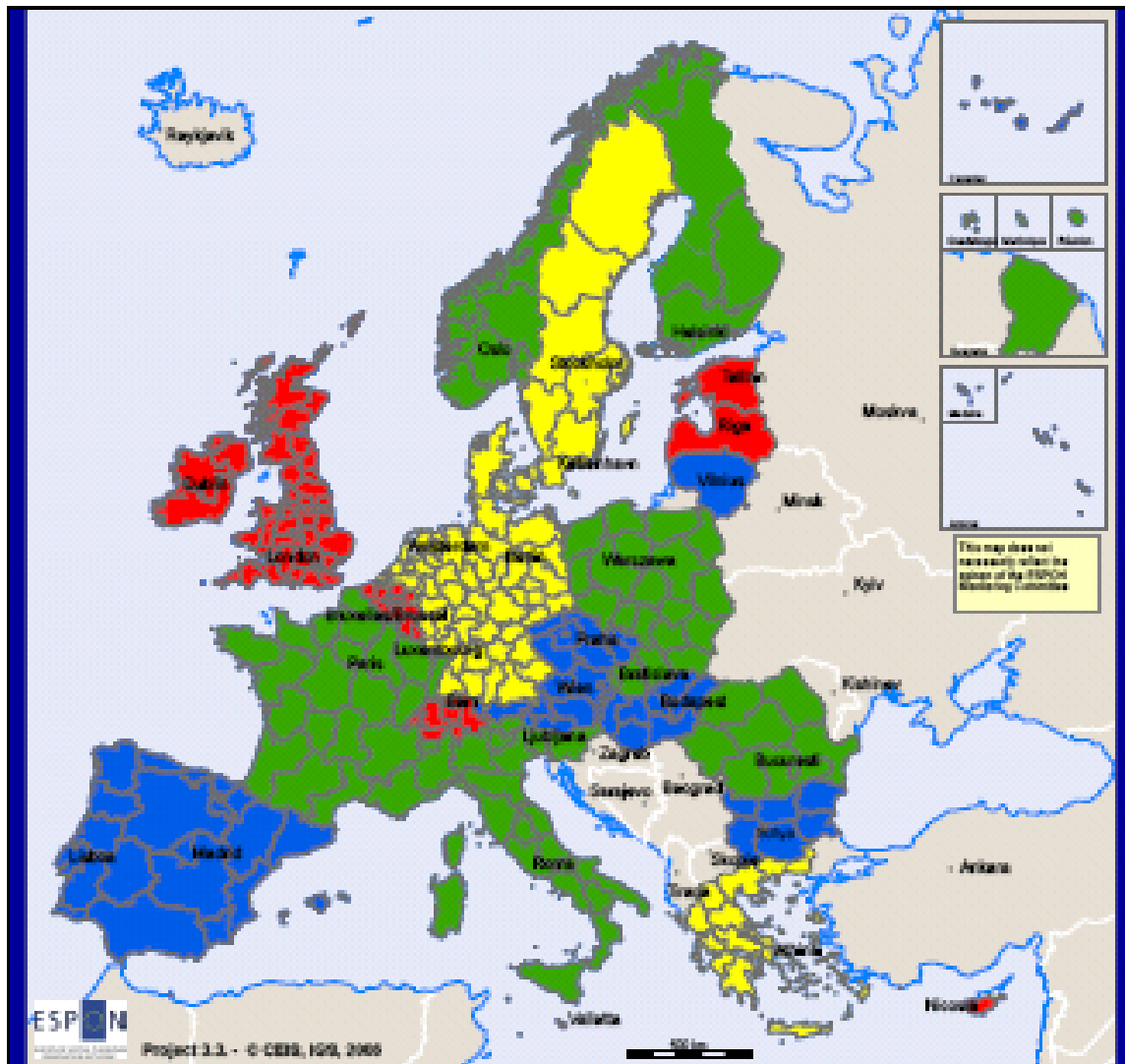
MAP GL 25 - Trade Integration



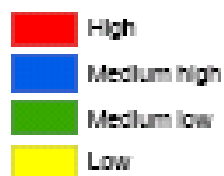
Values obtained combining trade integrations of goods and trade integrations of services

- High
- Medium high
- Medium low
- Low

MAP GL 26 - Internationalisation

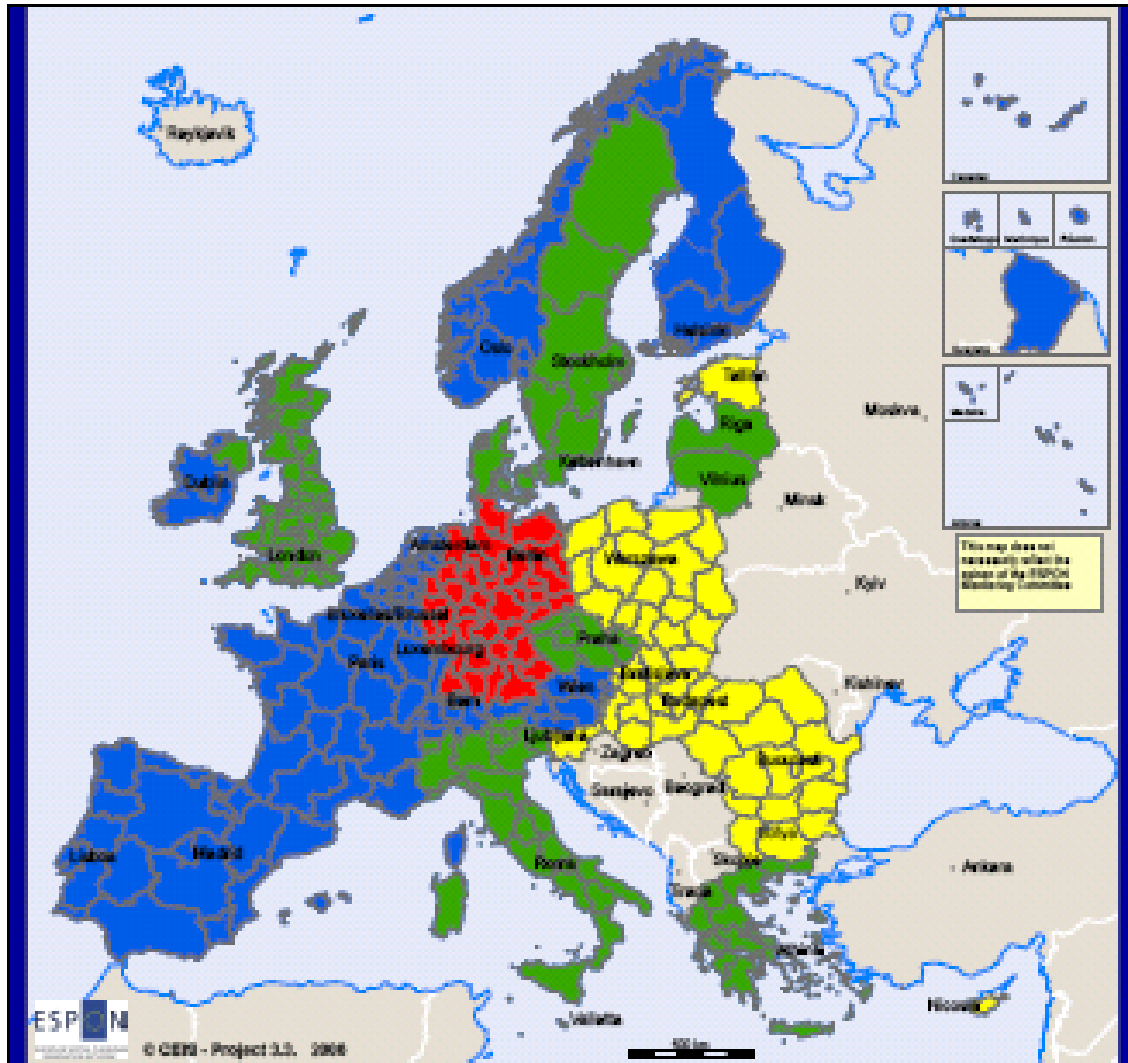


values obtained combining foreign direct investment intensity and trade integration

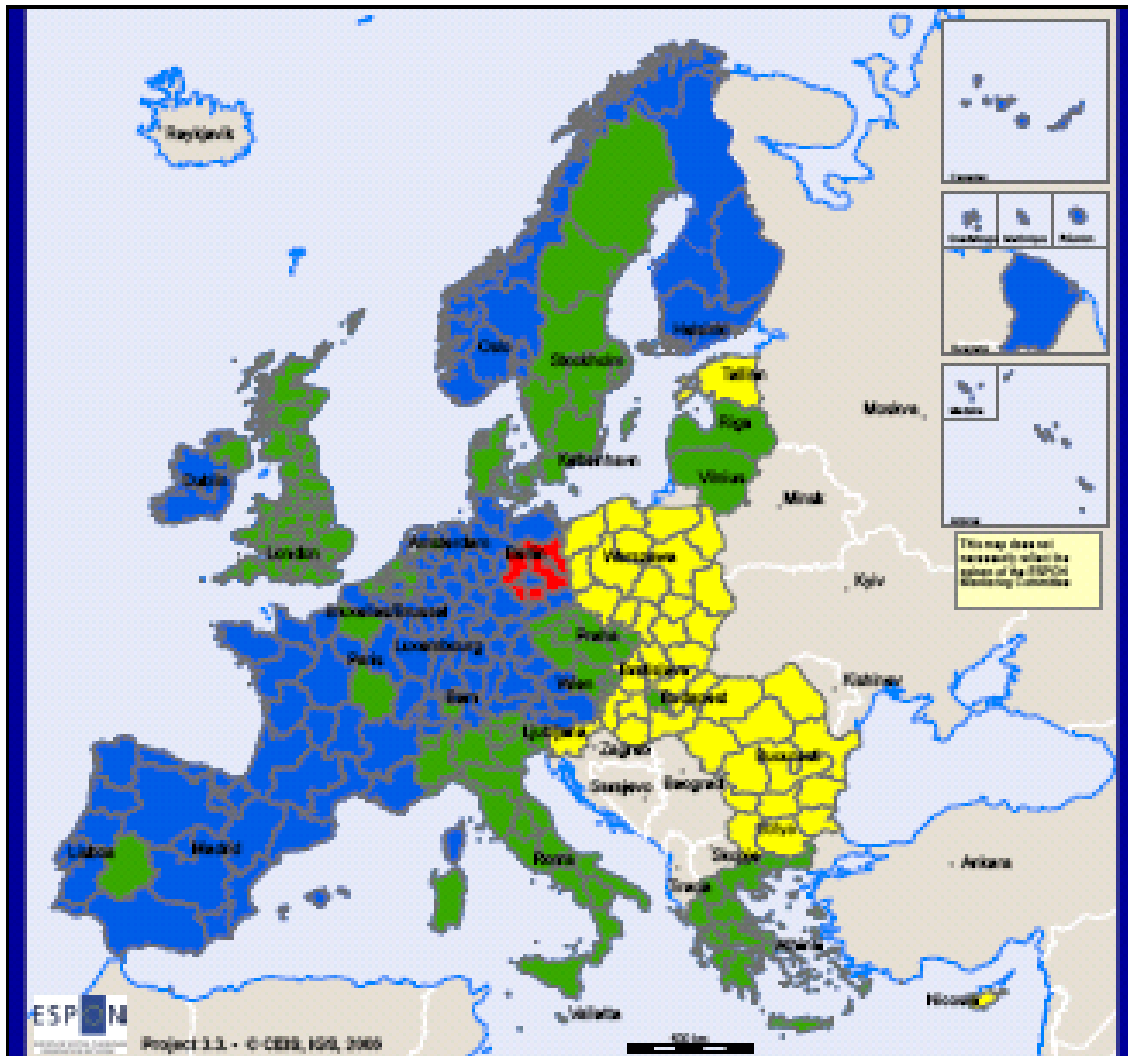


© The geographic description for the geographic location for England reference: OSG, 2008  
Scale of map: CEIS, 2008

MAP GL 32 - Costs



MAP GL 33 - Strategic Localisation

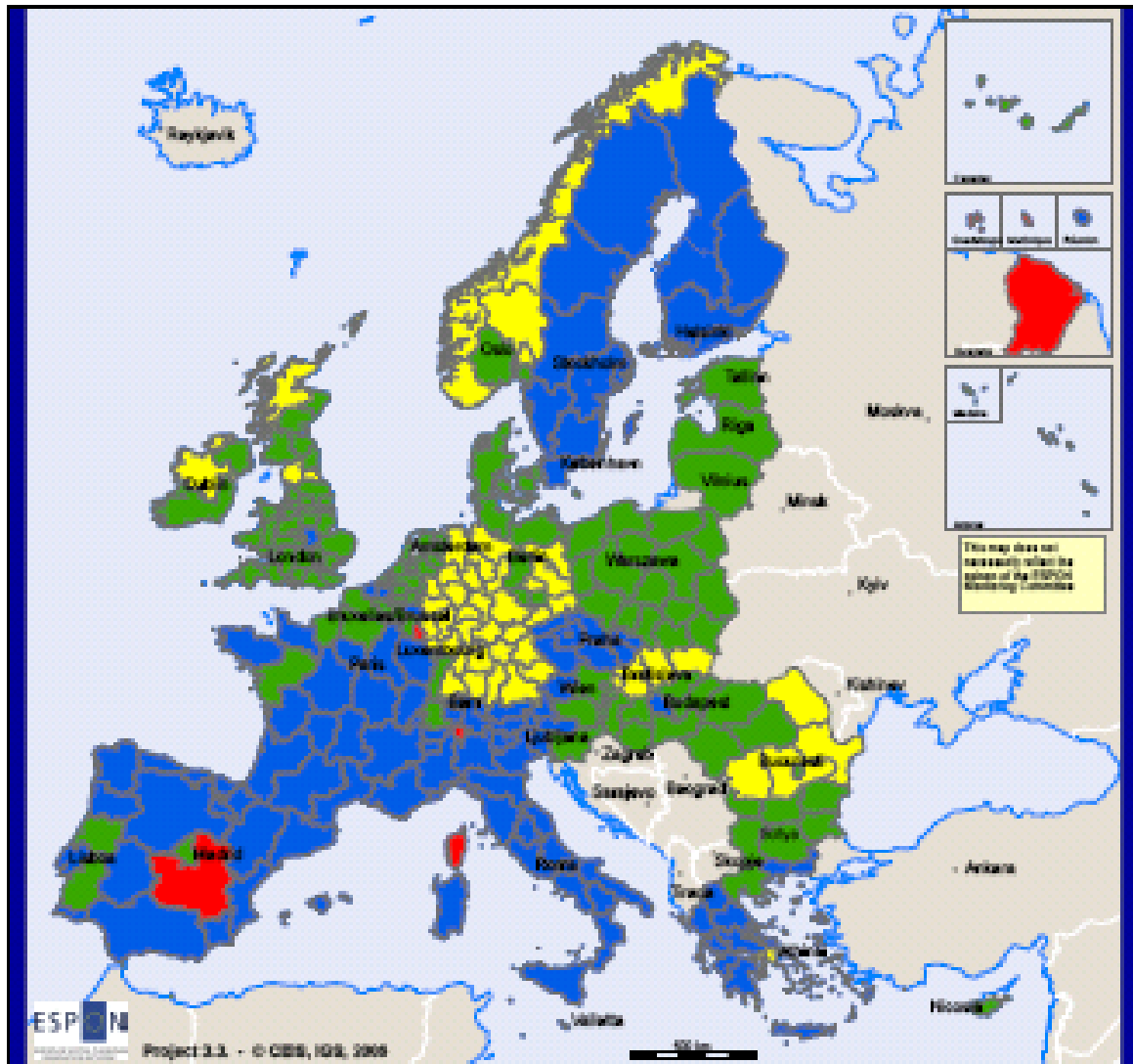


values obtained combining degree of vulnerability in europe + typology multimodal accessibility potential + oocis and R&D centres

- A
- B
- C
- D

© European Commission for the geographic coordinates (regional strategy, 1997, 2000) (Map of data: 1998, 2000)

MAP GL 34 - Economy interaction

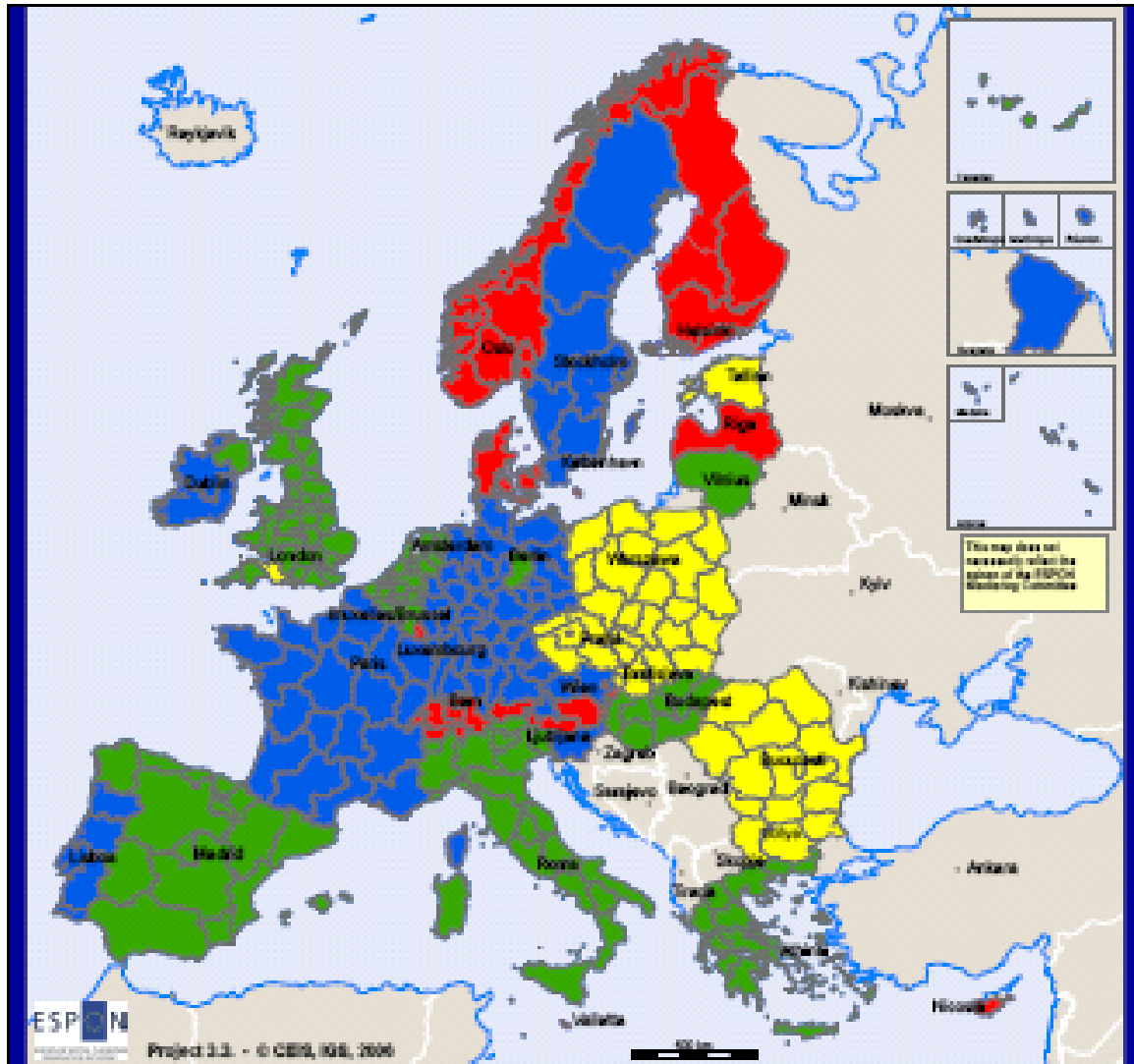


values obtained combining productive local system  
identity + energy self - sufficiency index +  
internationalization and strategic localization

© The geographic distribution for the geographic localities  
(original version: 1973, 1991)  
(scale of year 1976, 1991)

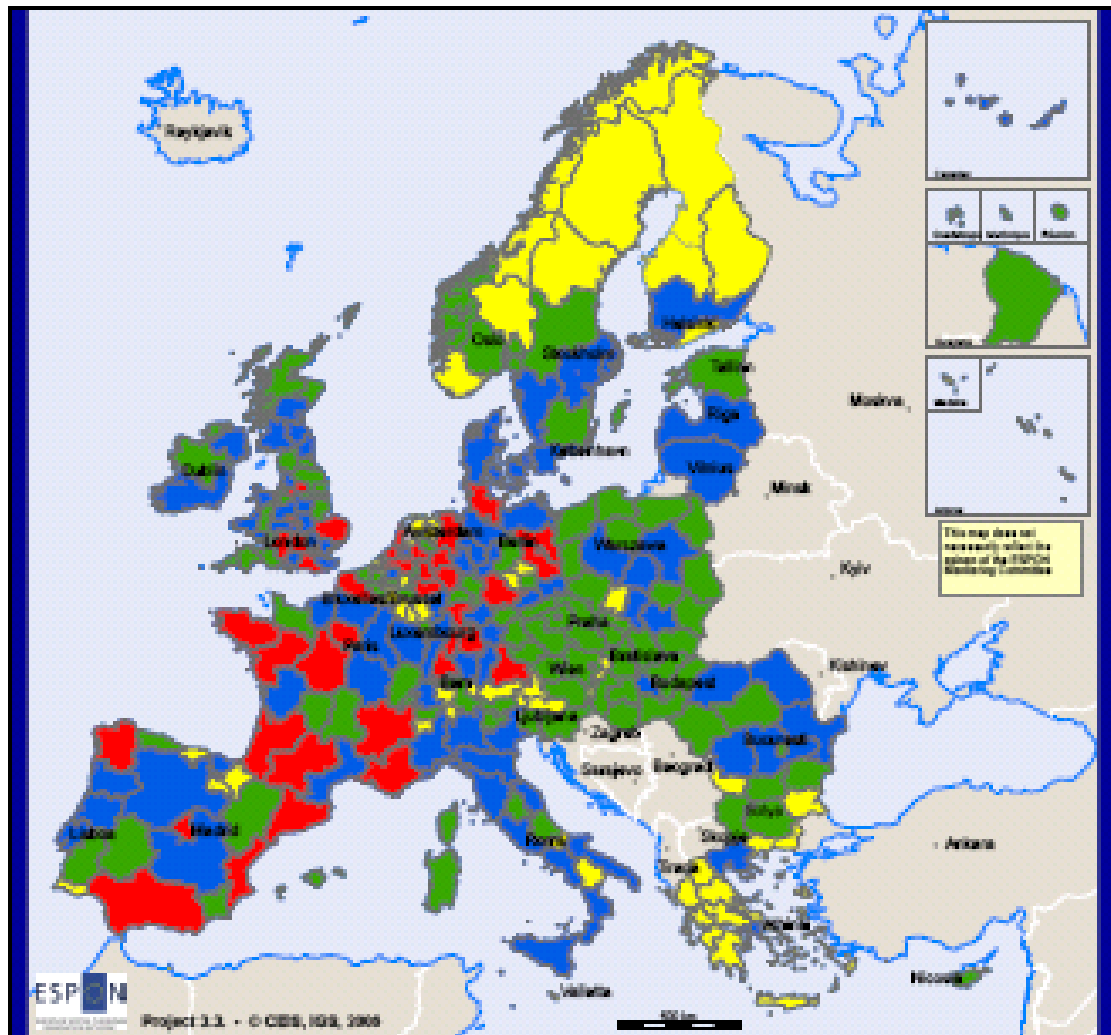
- High
- Medium high
- Medium low
- Low

MAP GL 37 - Credit and Insurance attitude





MAP GL 40 - Management attitude

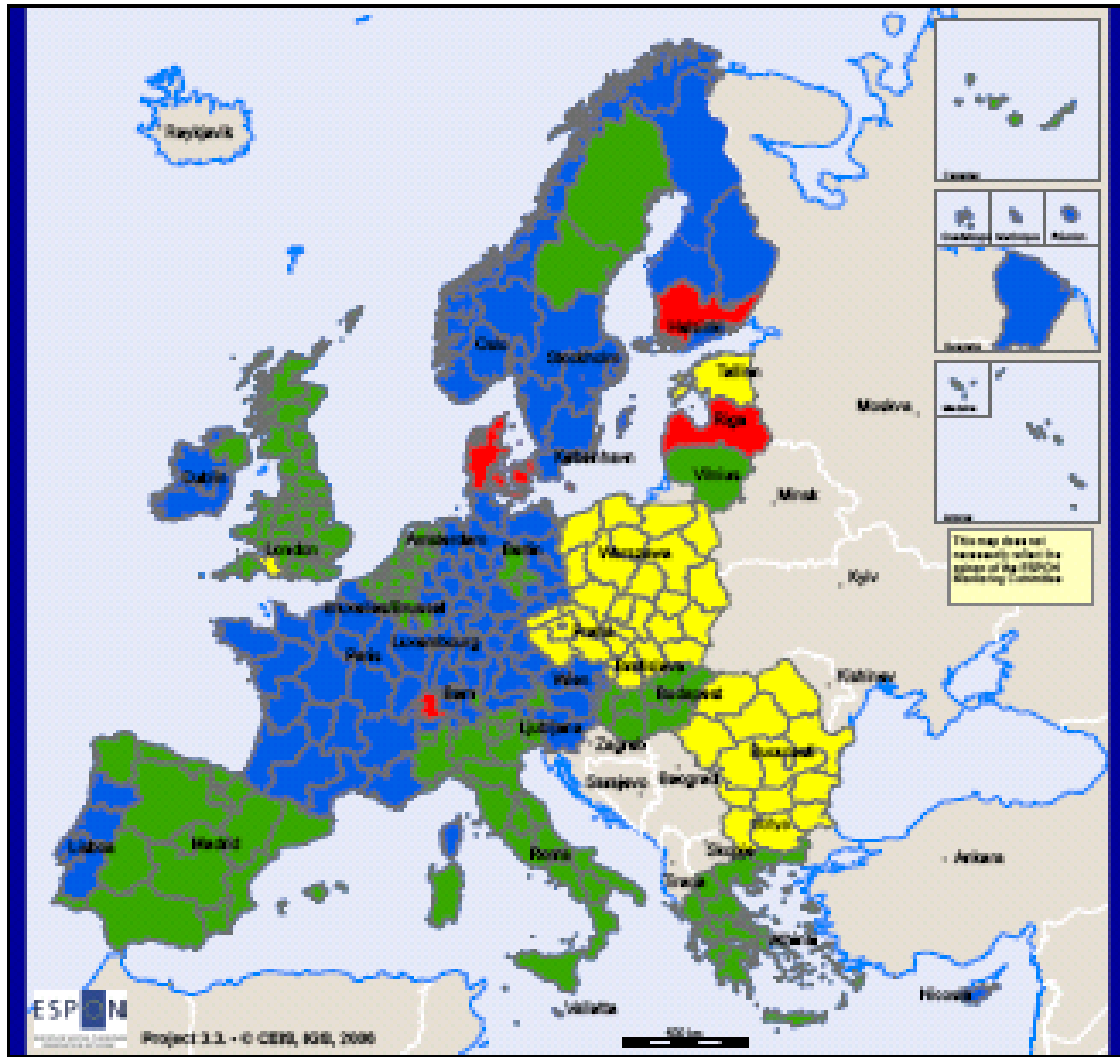


values obtained combining stock markets capitalization and companies

- High
- Medium high
- Medium low
- Low

Map management attitude data for the geographic coordinates  
European Union: 1994-2000  
Map: © 2000 ISG, 2000

MAP GL 41 - Financial Interaction



values obtained combining management attitude and credit and insurance attitude

- High
- Medium high
- Medium low
- Low

© European Geographic Association for the geographic observation (Regional planning, 1997) - 2000  
Map of data 1-10, 2000

### MAP GL 43 - TERRITORIAL Global Local Interaction

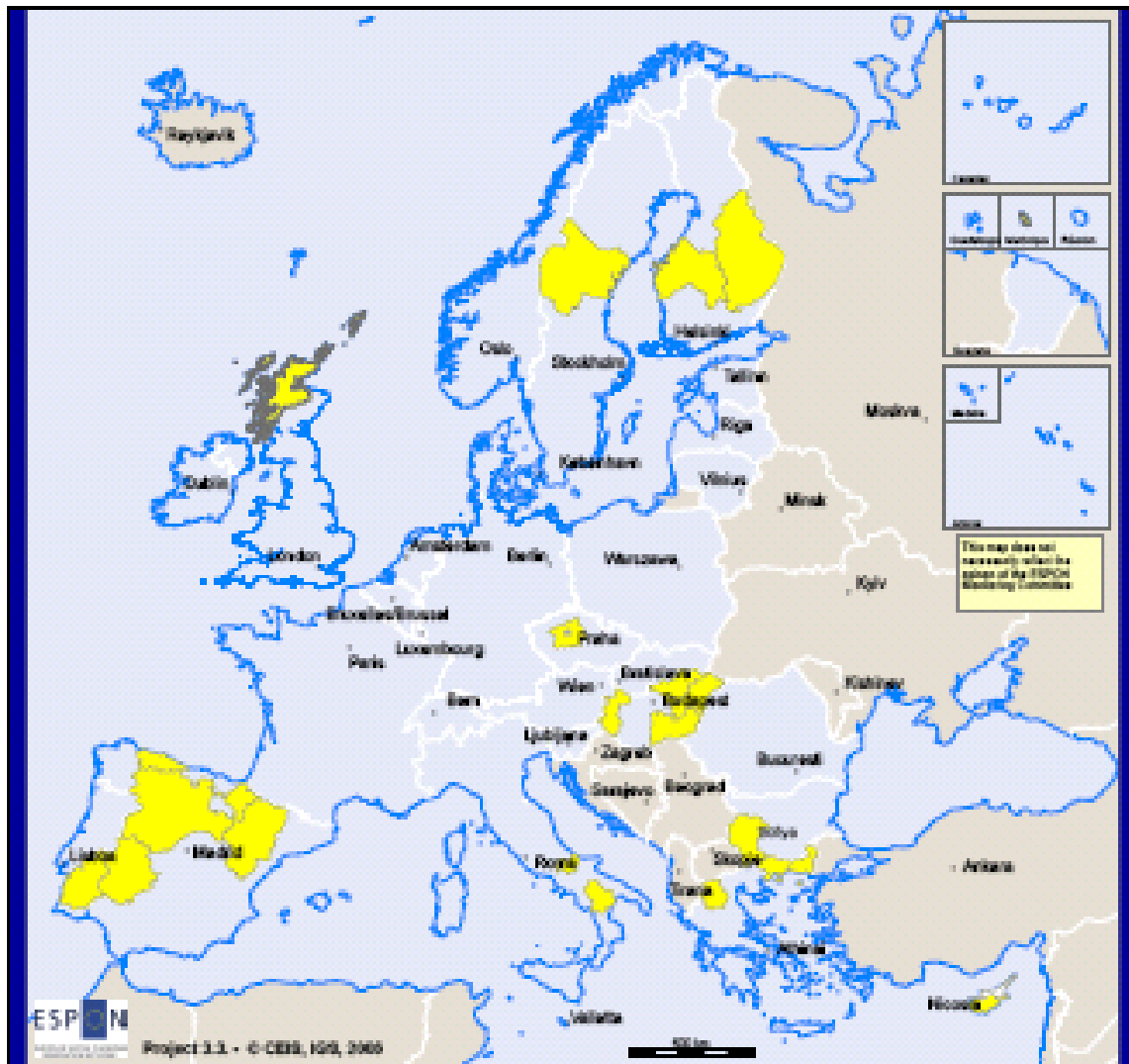


Values obtained combining Global Local: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

MEDIUM

© Eurogeographic Association for the geographic knowledge (geographical reference: NUTS, 2000) (map of date: 2010, 2010, 2010)

### MAP GL 43 - TERRITORIAL Global Local Interaction



Values obtained combining Global Local: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

LOW

© Geographisches Institut für die geographische Universität  
Bayern München (GIS), 2008  
Mapa od autor GIS, GIS, 2008

### MAP GL 43 - TERRITORIAL Global Local Interaction



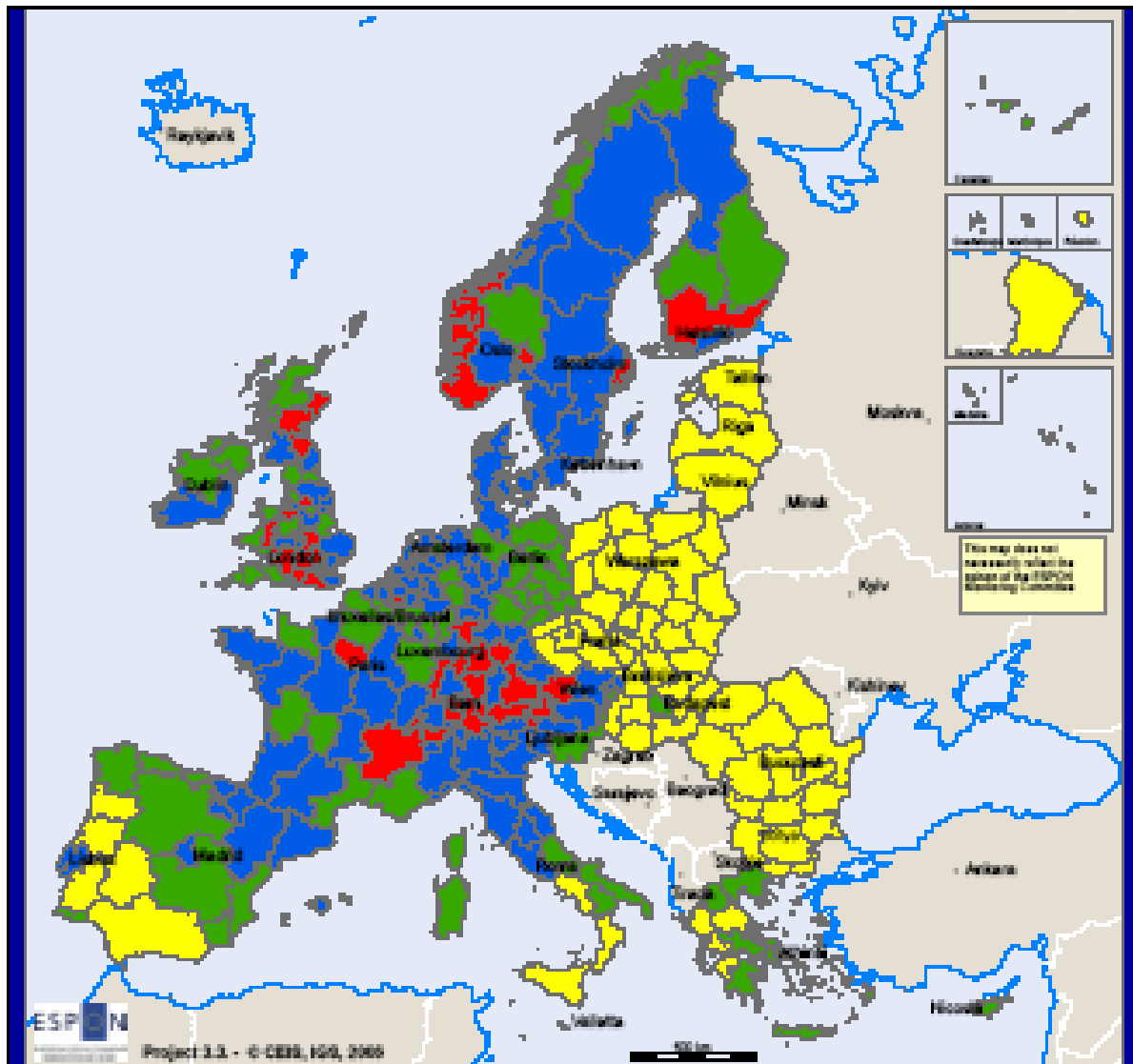
Values obtained combining Global Local: Synthetic Spatial Composite Index and TT2 - Territorial typologies at NUTS2

VERY LOW

© Free geographic distribution for the geographic knowledge (Regional Information, NUTS, 2000) (Scale of year 2000, 2000, 2000)

### 8.3 Quality

MAP Q 05 - Economic variables

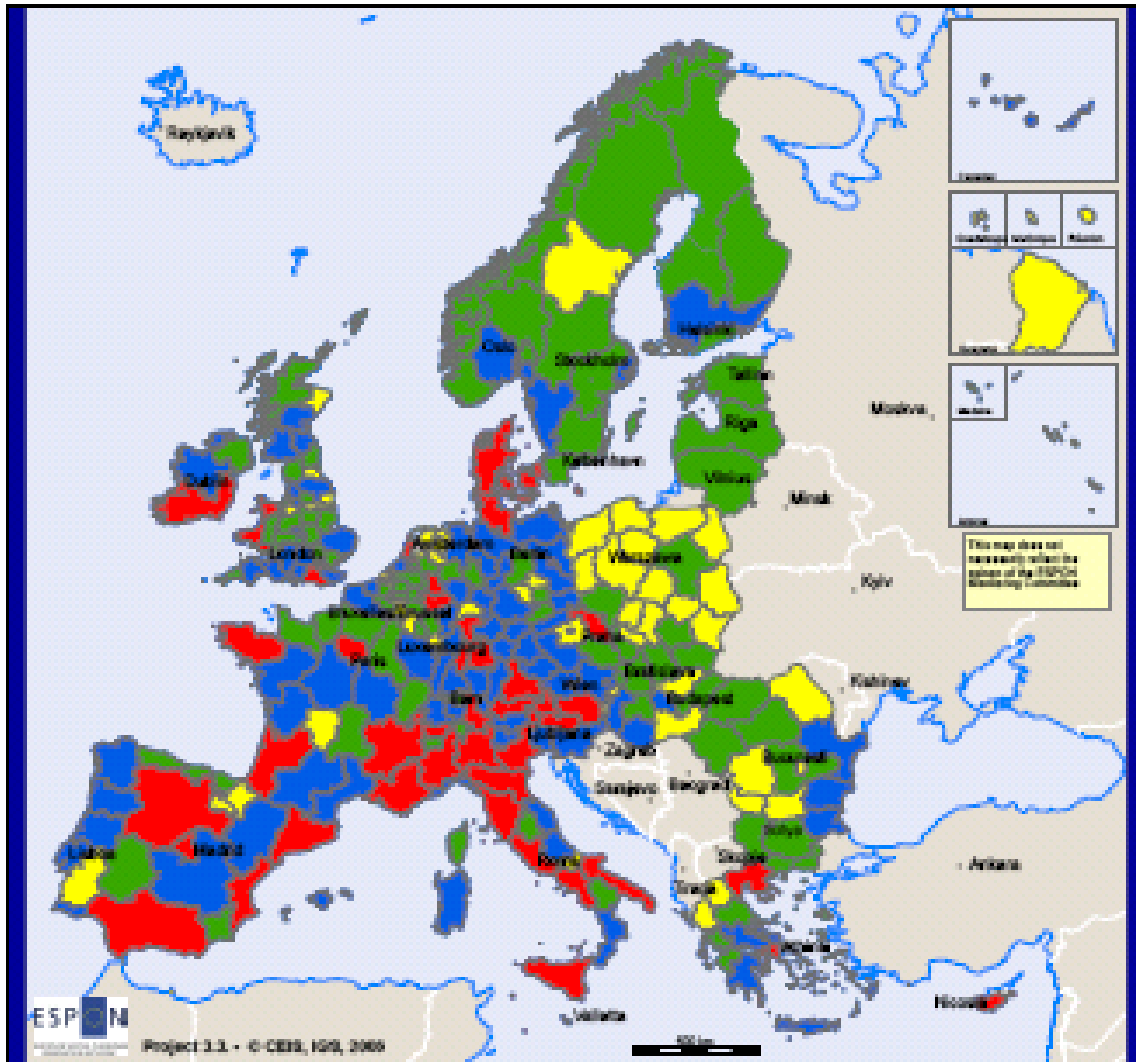


Status of the Economic variables useful to contribute to the life quality

- High
- Medium high
- Medium low
- Low

ESPA/Geographic Association of Geographers Association  
Española de Estadística (AEE) / Associação  
Española de Geógrafos (AEGE) / 2008

MAP Q 09 - Level of leisure

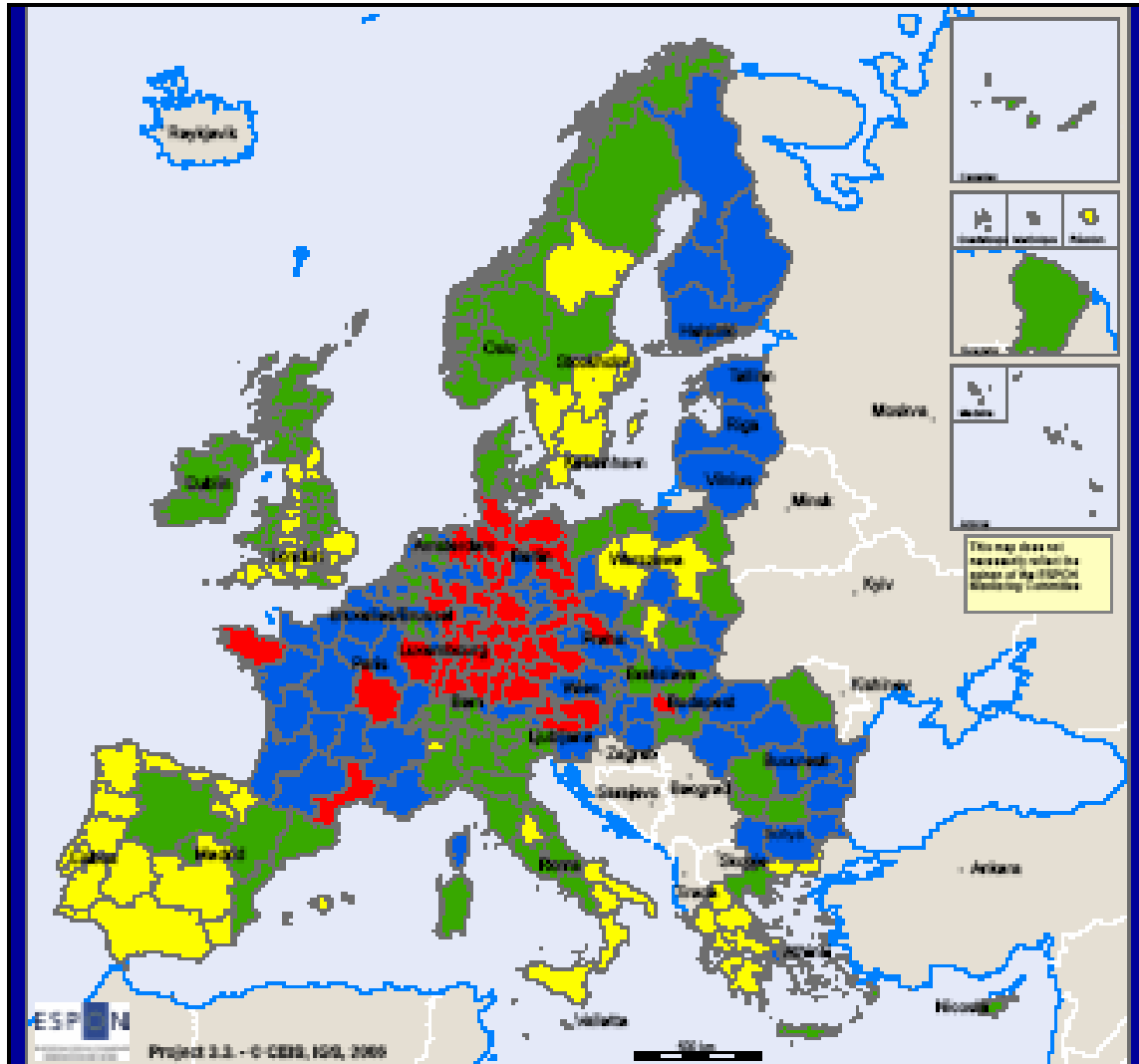


Values obtained combining Tourism opportunities and Cultural opportunities

- High
- Medium high
- Medium low
- Low

© 2004 geographic information for the geographic Institute of Regional Information GIS (G.I.)  
© 2004 GIS (G.I.)

MAP Q 11 - Infrastructural Variables of Cohesion

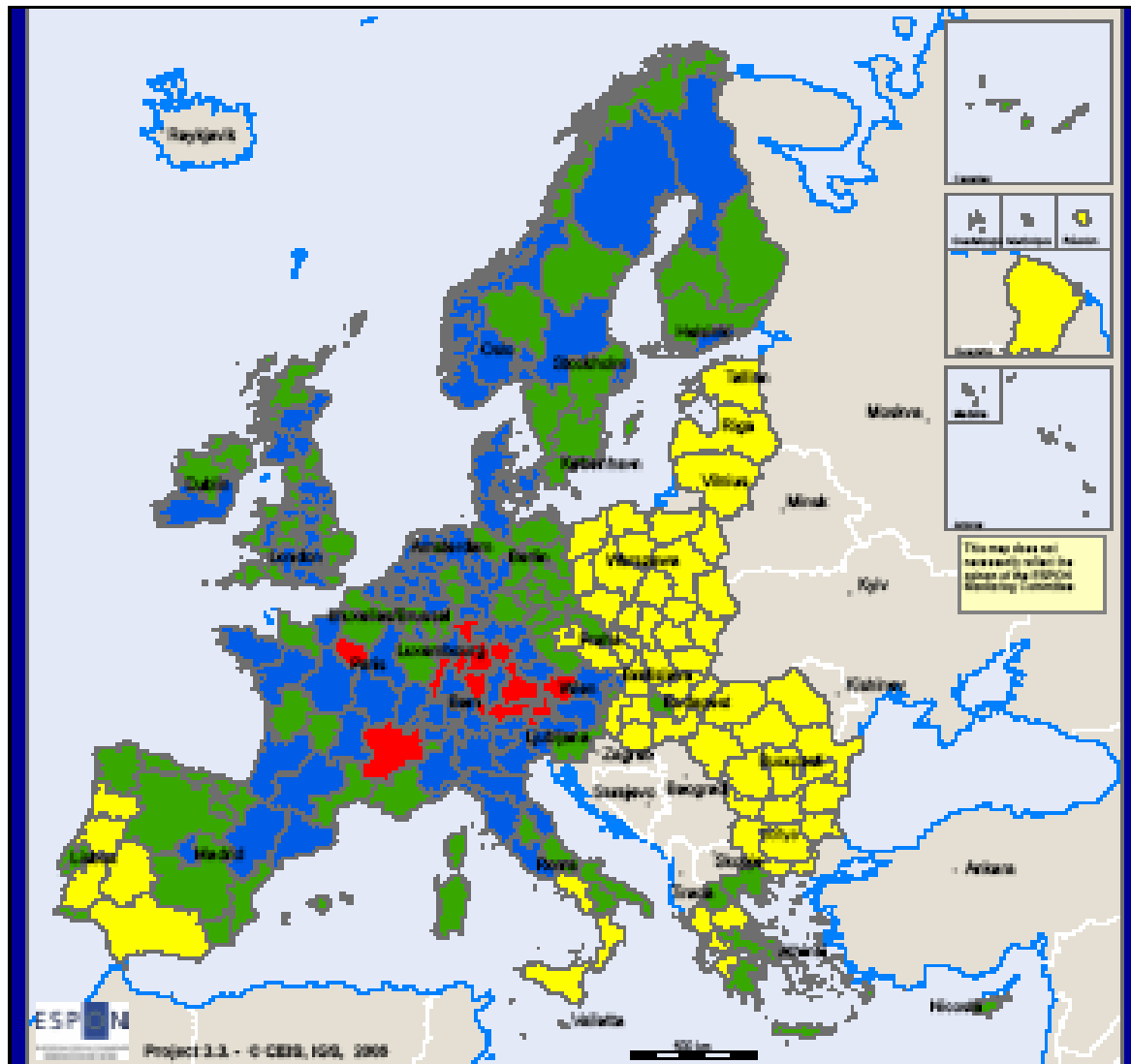


Values obtained combining hospital beds + hotel beds + cultural opportunities + tipology multimodal accessibility potential and old e new technologies

- High
- Medium high
- Medium low
- Low



MAP Q 12 - Life Quality

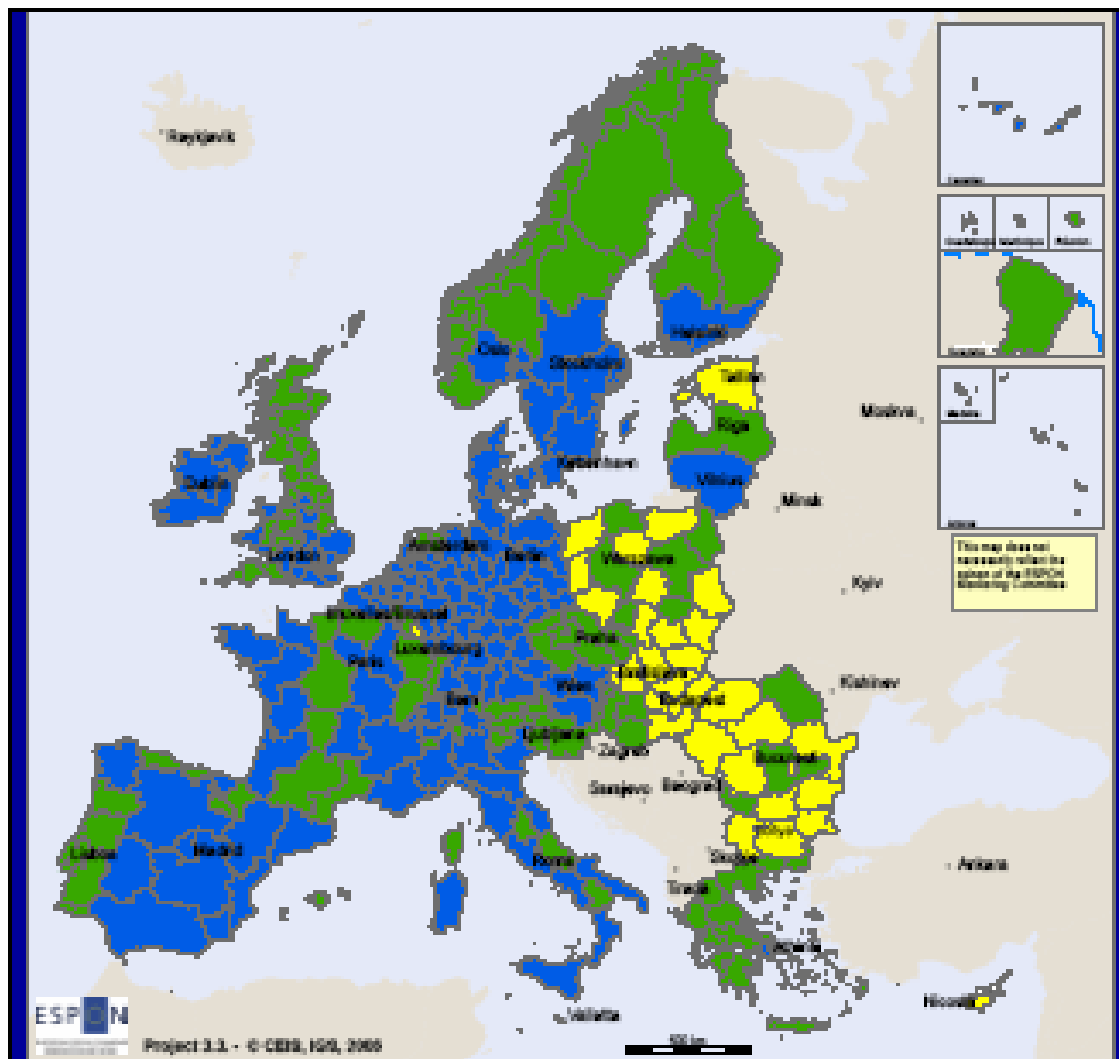


Values obtained combining Economic Variables and Infrastructural Variables of Cohesion

- High
- Medium high
- Medium low
- Low

© Geographische Anstalt der Universität Wien  
Regionalentwicklung WIFO, 2003  
http://www.wifo.ac.at

MAP Q 16 - Waste

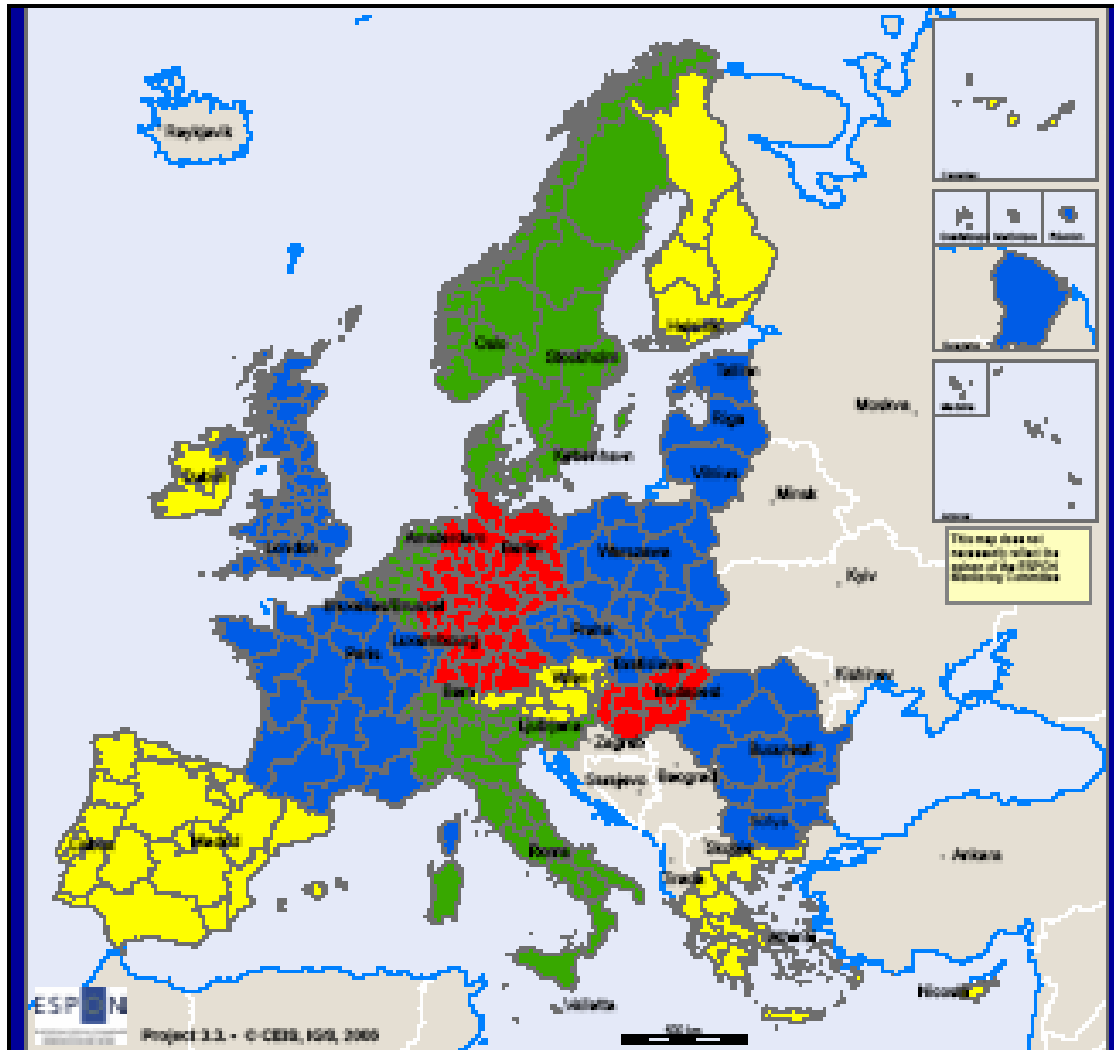


Values obtained combining municipal waste generation + hazardous waste generation and municipal waste recycled

- Medium high
- Medium low
- Low

© Geographische Anstalten der Universität Wien  
Regionalentwicklung RIVS, 1999  
Kopie of year 12/01, 2000

MAP Q 20 - Natural reElaborations state

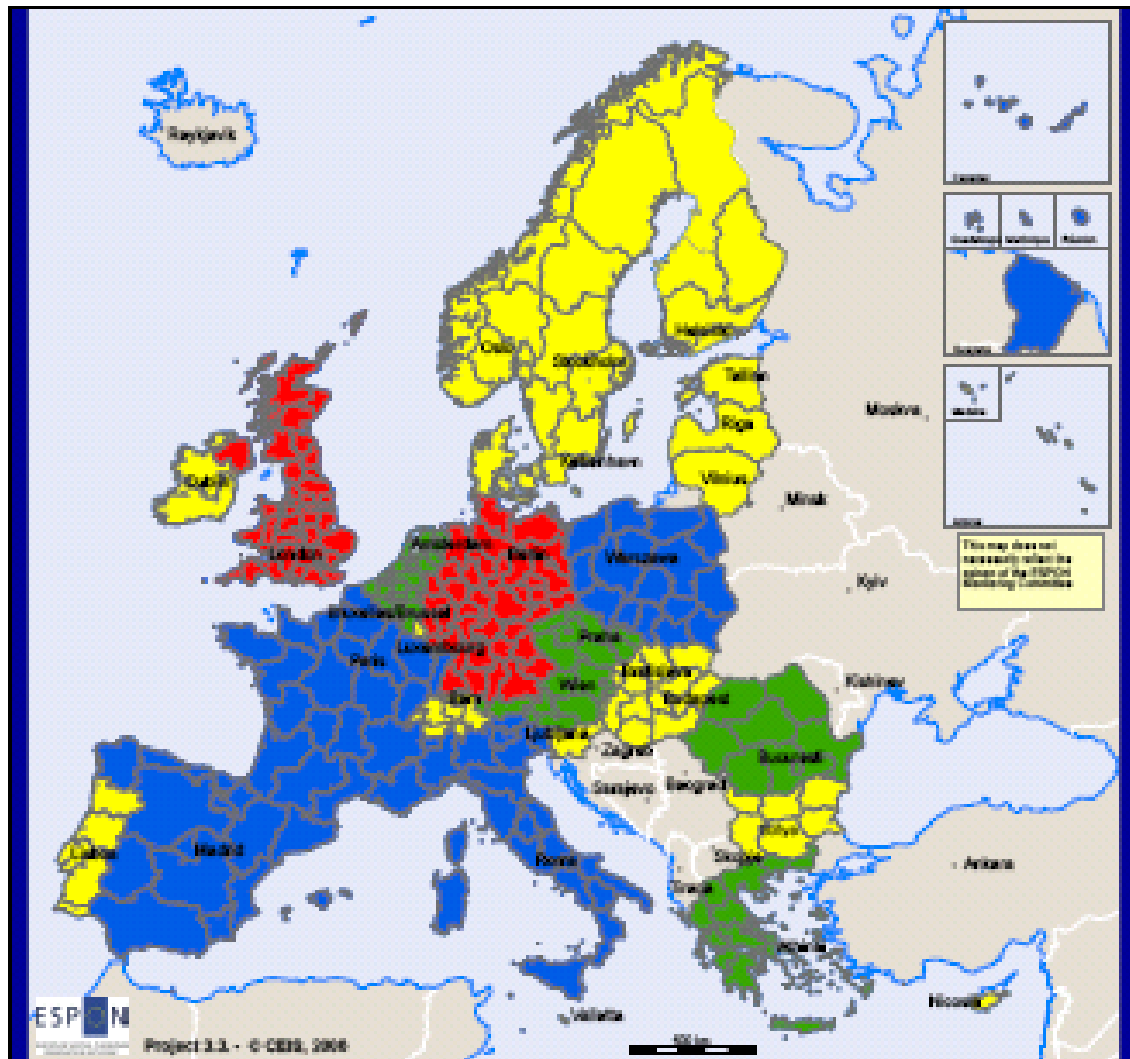


Values obtained combining total greenhouse emission and total gross abstraction of freshwater

- High
- Medium high
- Medium low
- Low

© 2009 geographic Association for the geographic observation  
Regional observation ESPON 3.3  
Scale of year 2000, 2000

MAP Q 21 - CO2 emissions

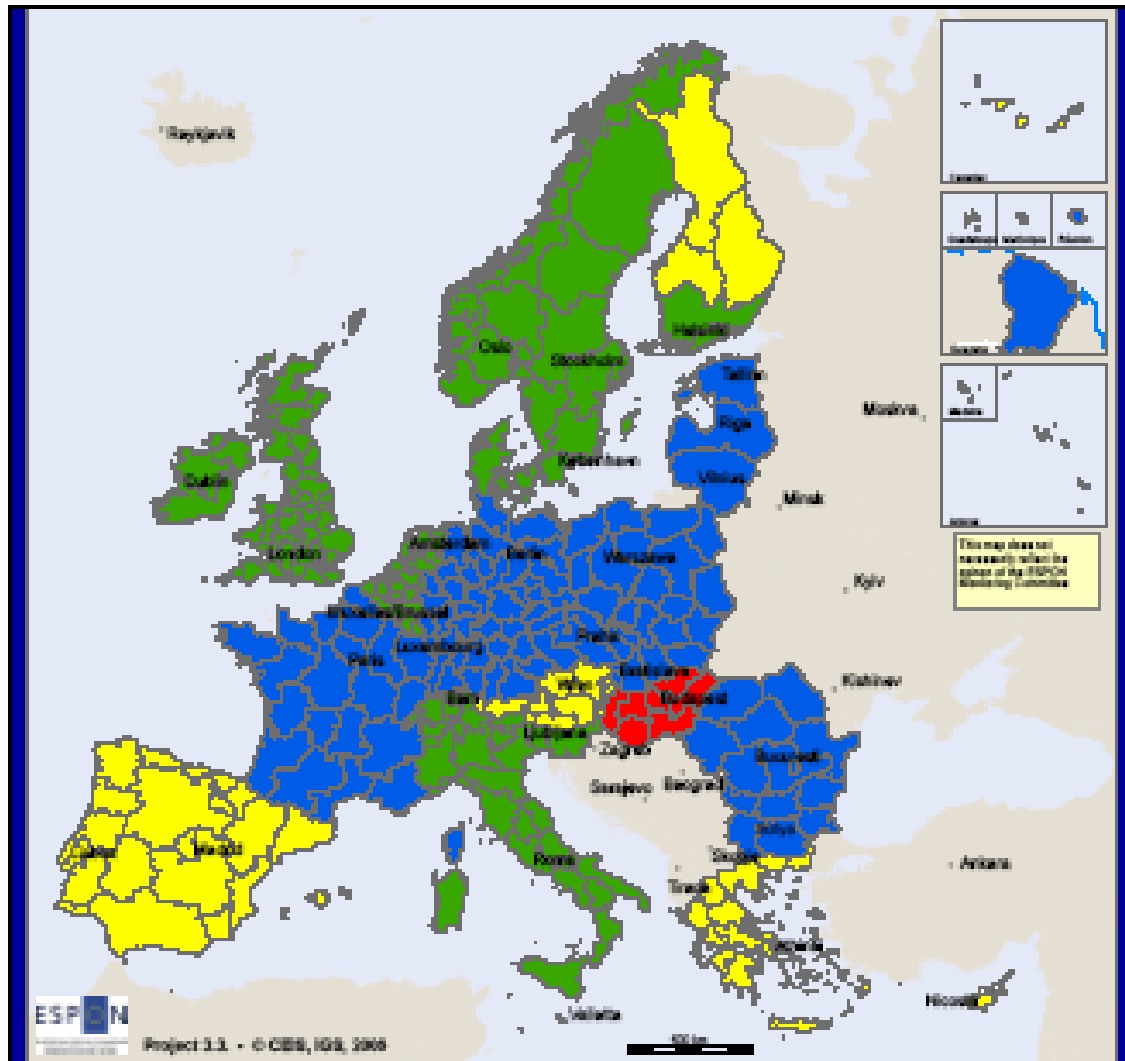


CO2 emission calculated as of CO2 emission (thousand tonnes) (CC) = ozone layer = climate change

<span style="color: red;">■</span>	High	>487281,90
<span style="color: blue;">■</span>	Medium high	321304,30 - 487281,90
<span style="color: green;">■</span>	Medium low	76213,30 - 321304,30
<span style="color: yellow;">■</span>	Low	<76213,30

© European Geographical Association for the geographic boundaries  
Regional information: ESPON 3.3, 2006  
Origin of data: Eurostat, 2003

MAP Q 22 - Environmental Quality

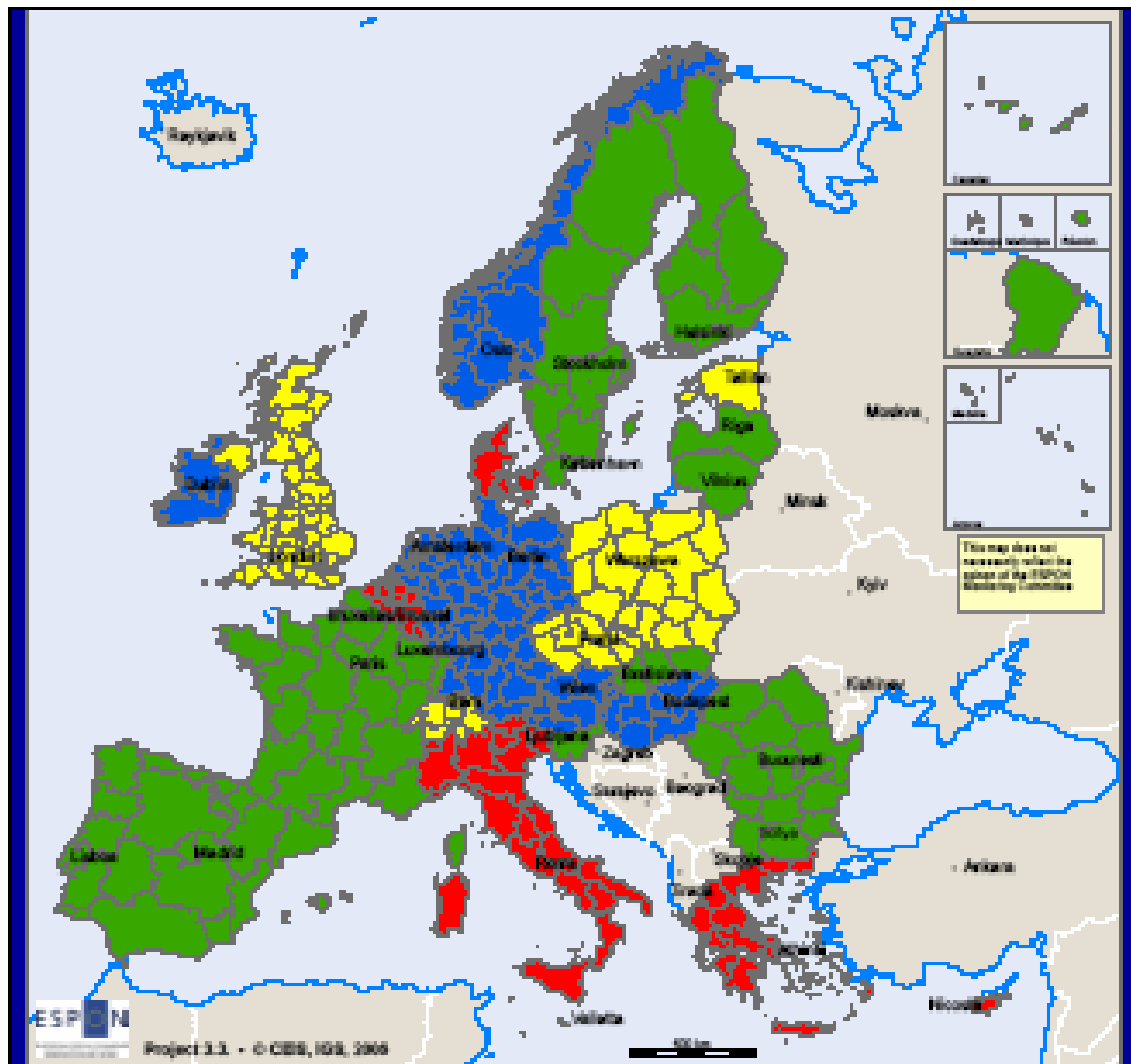


Values obtained combining natural re-elaborations state and Y

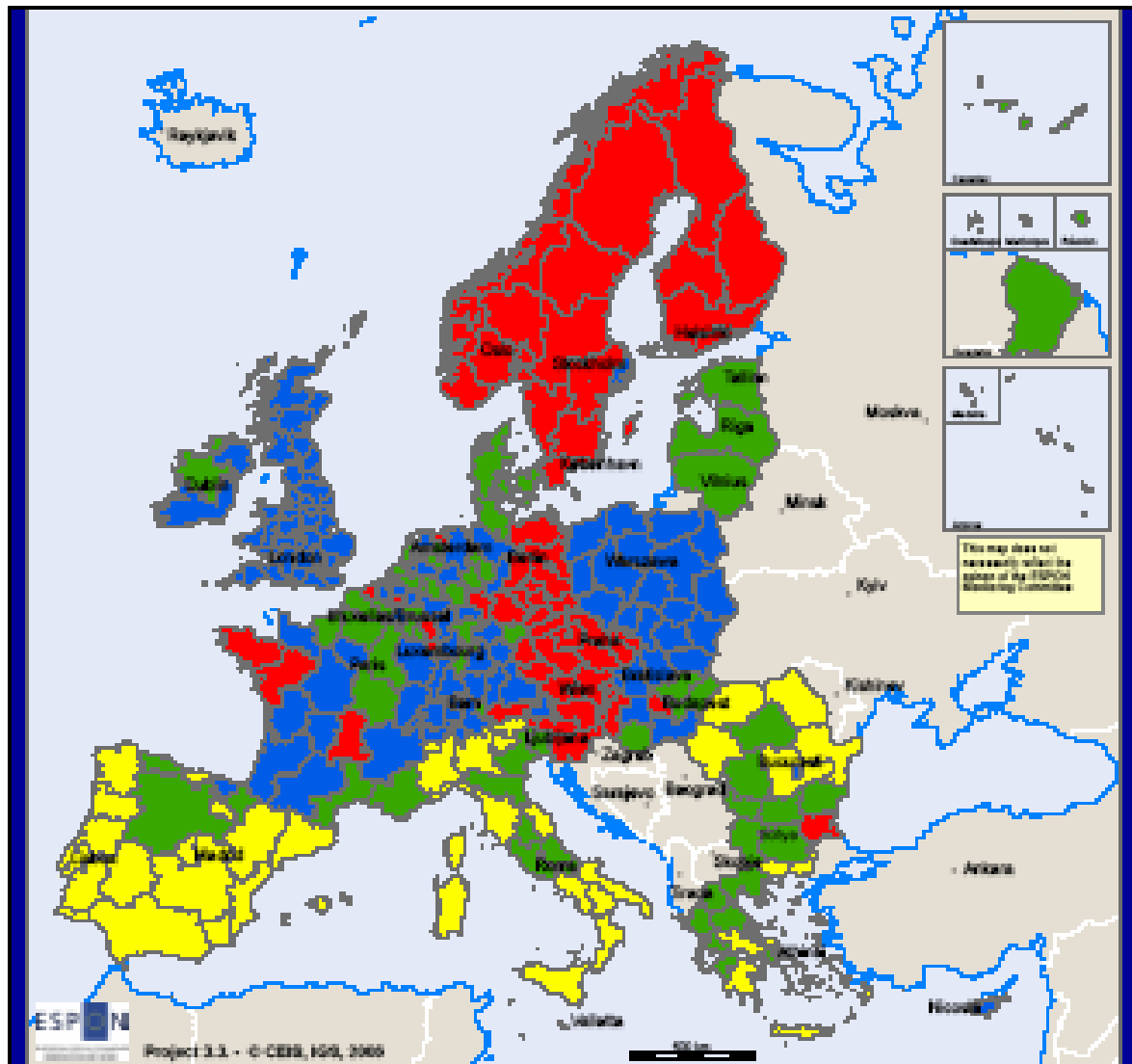
- High
- Medium high
- Medium low
- Low

© The geographic Association for the geographic Institute Regional collection GISG, 2003  
Origin of data GISG, 2003

MAP Q 30 - Good Governance = Government Quality



MAP Q 33 - Social cohesion reElaborations

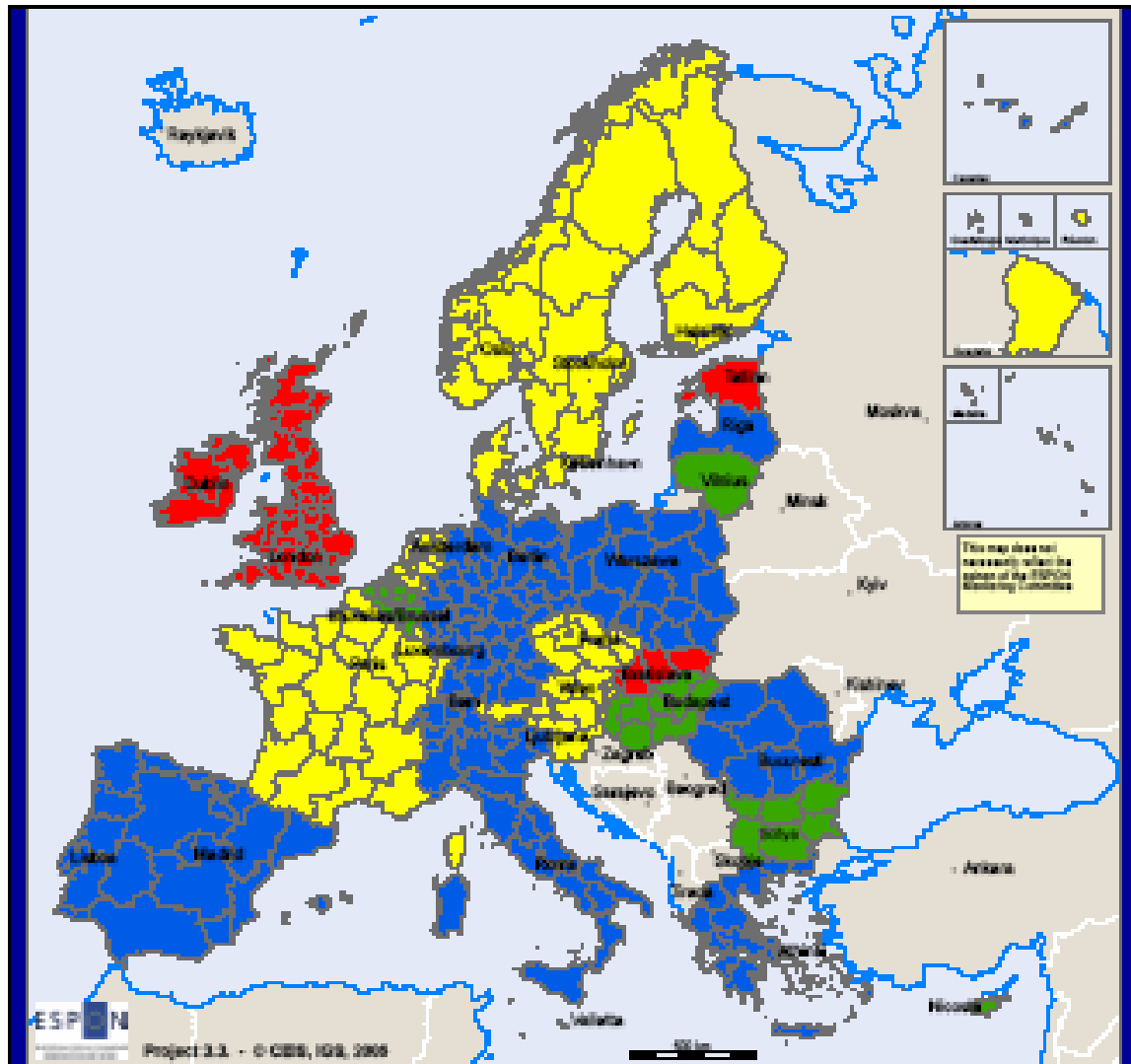


Values obtained combining early school leavers and  
inequality of regional income distribution

- High
- Medium high
- Medium low
- Low

© The Geographical Association for the geographic Association  
England reference 10111, 2001  
Scale of data 1:10,000

MAP Q 36 - Risk of social exclusion



Values obtained combining at risk of poverty rate before social transfers and person aged 0 - 17 who living in households where no-one works

- High
- Medium high
- Medium low
- Low

GIS Institute  
© GIS Institute, 2008  
All Rights Reserved. Association for the geographic Institute  
Regional reference: NUTS4, 2003  
Scale of data: 1:10,000,000



MAP Q 40 - Wellness



Values obtained combining healthy life years and fertility rate

- High
- Medium high
- Medium low
- Low

© The geographic data available for the geographic base data (Digital elevation model (DEM), 2001) origin of data: CIA, 2000

MAP Q 41 - Social wellness attitude

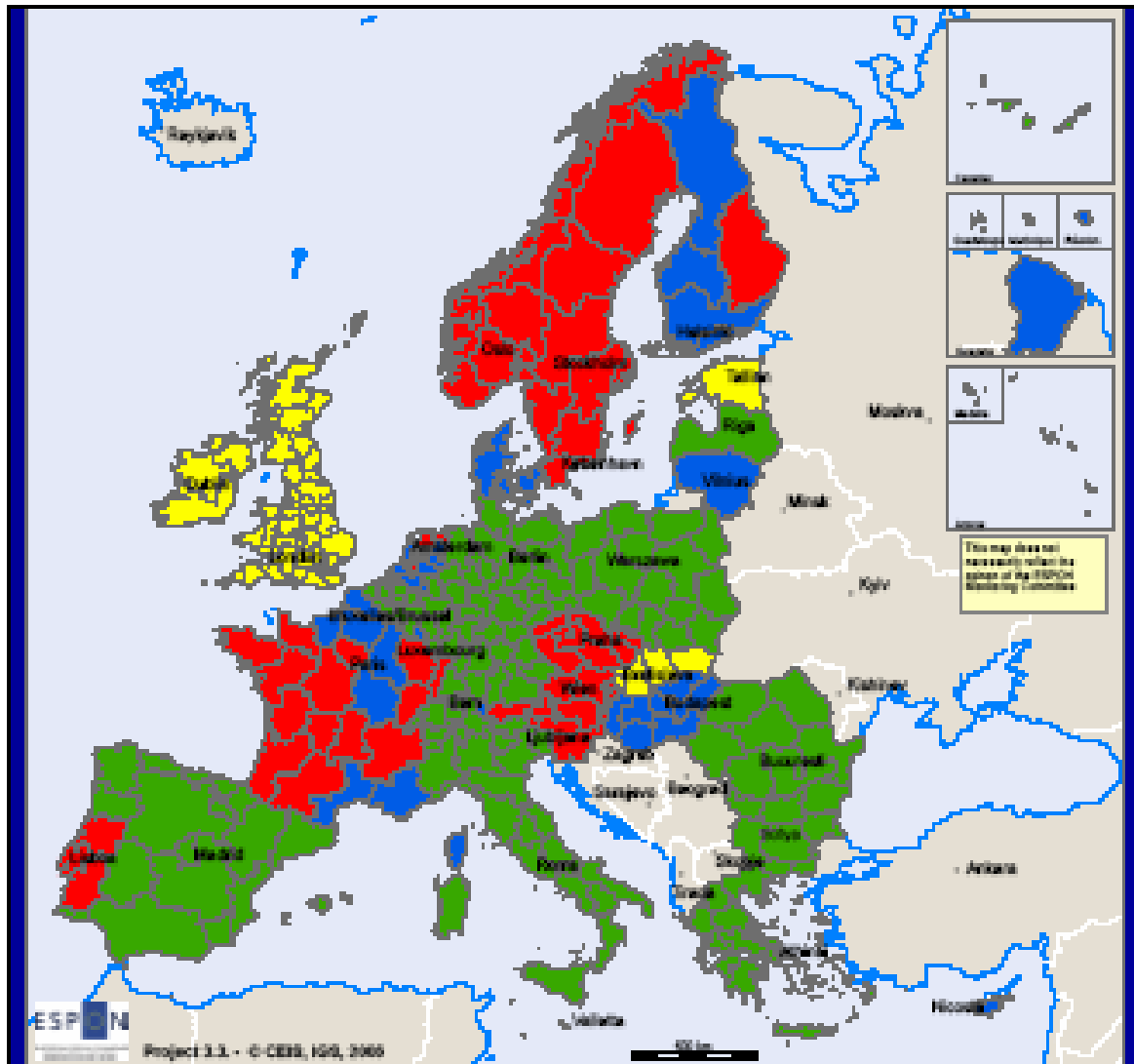


Values obtained combining wellness and female employment

- High
- Medium high
- Medium low
- Low

All geographical coordinates for the geographic information system reference: WGS 1984, datum: UTM, projection: UTM, scale: 1:100,000,000

MAP Q 42 - Social Quality and Cohesion



Values obtained combining social cohesion  
reElaborations + risk of social exclusion and  
social wellness attitude

- High
- Medium high
- Medium low
- Low

© 2005 geographic Association for the geographic Institute in  
Regional Science (IGG), 2005  
Original scale: 1:250,000

MAP Q 43 - Status Quo (quality)



Values obtained combining life quality + environmental quality and government quality

- Medium high
- Medium low
- Low

© The geographic databases for the geographic coordinates Regional reference: ESPON, 2002 Origin of data: CBS, 2004

MAP Qty 45 - Territorial QUALITY

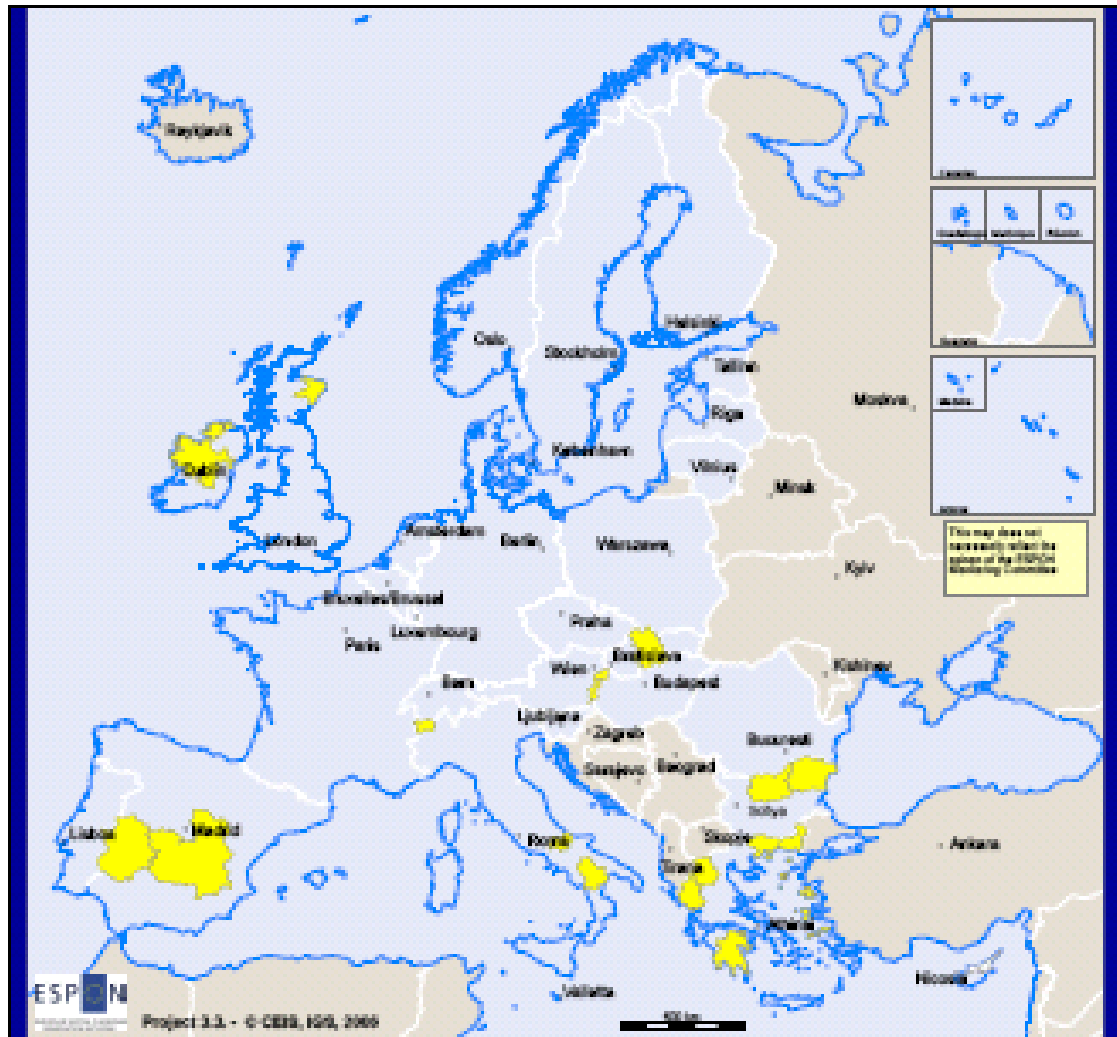


Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

MEDIUM

© Geographische Anstalt der Universität  
Bayern reference: 66/13, 2001  
Scale of map: 1:500,000

MAP Qty 45 - Territorial QUALITY



Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

LOW

© European Geographic Association for the geographic coordinate  
Regulation reference: 853/2004  
Date of issue: 07/06/2004

MAP Qty 45 - Territorial QUALITY



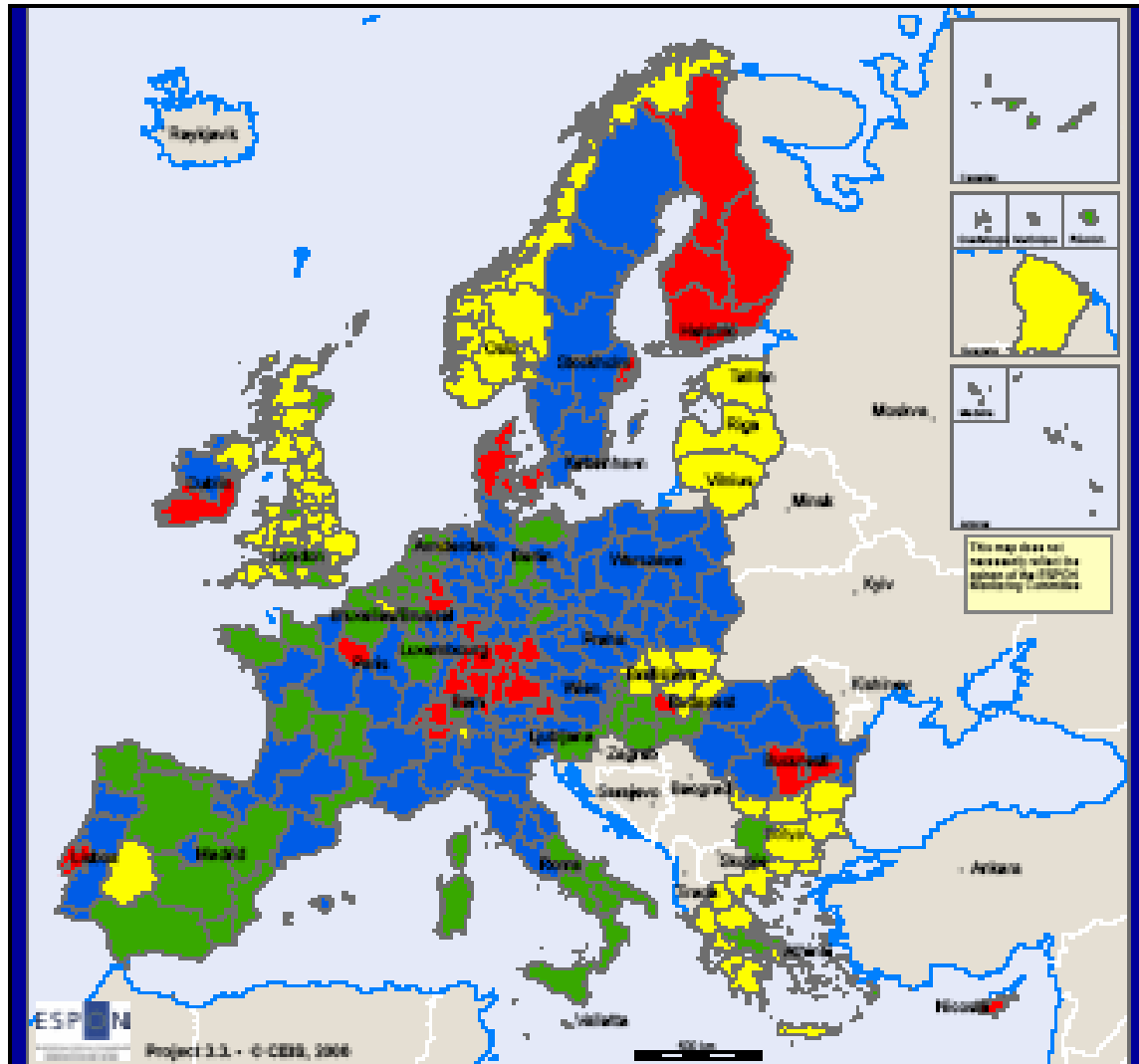
Values obtained combining Quality:  
Synthetic Spatial Composite Index and TT2 -  
Territorial typologies at NUTS2

VERY LOW

© Geographische Association für die geographische Information  
Regionalreferenzen: NUTS 2003, 2004  
Originalversion: GIB, 2003, 2004

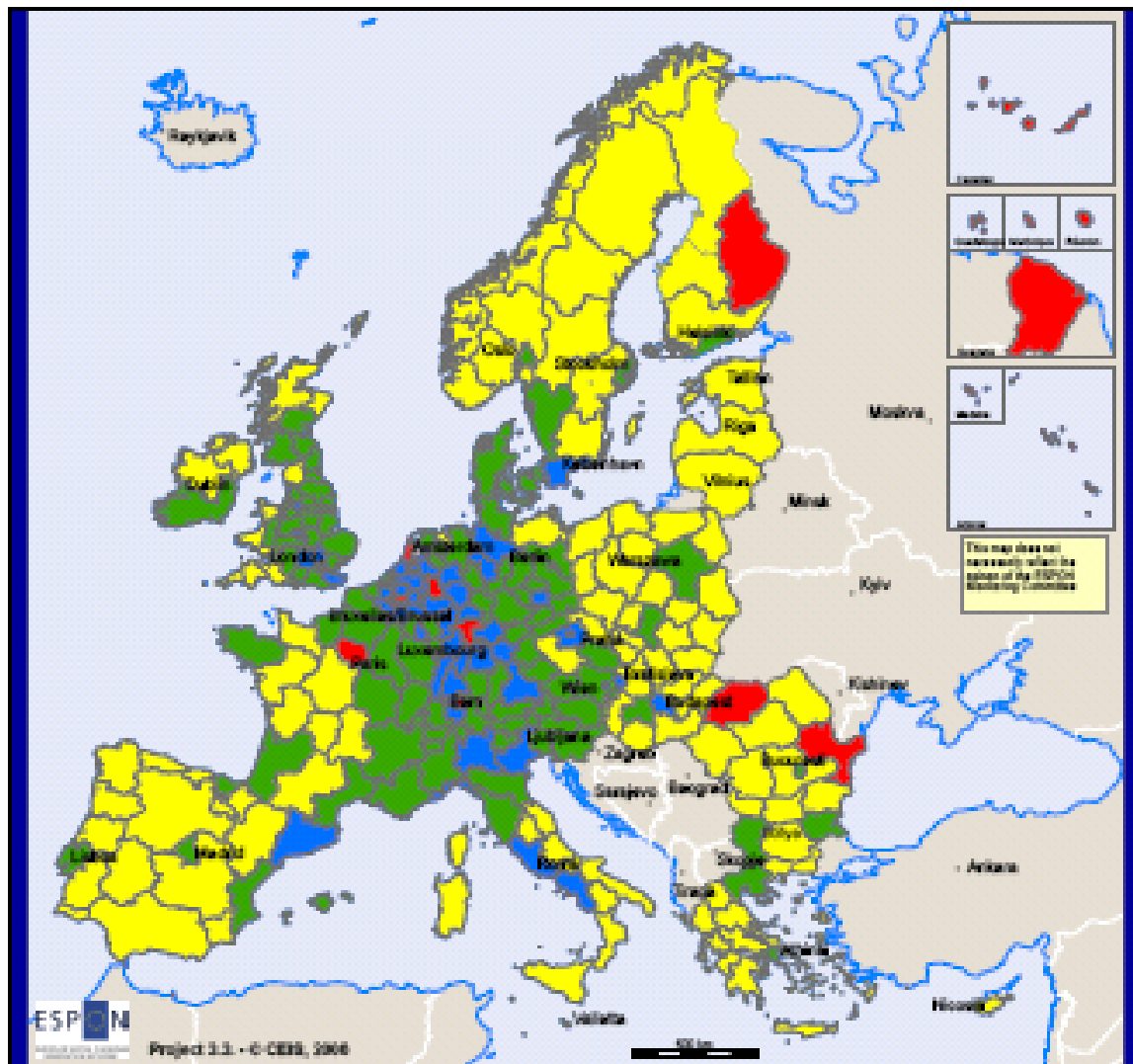
## 8.4 Resources and Funds

MAP RF 05 - Policies for the Lisbon Strategy  
(performance)





MAP RF 08 - Efficiency and accessibility

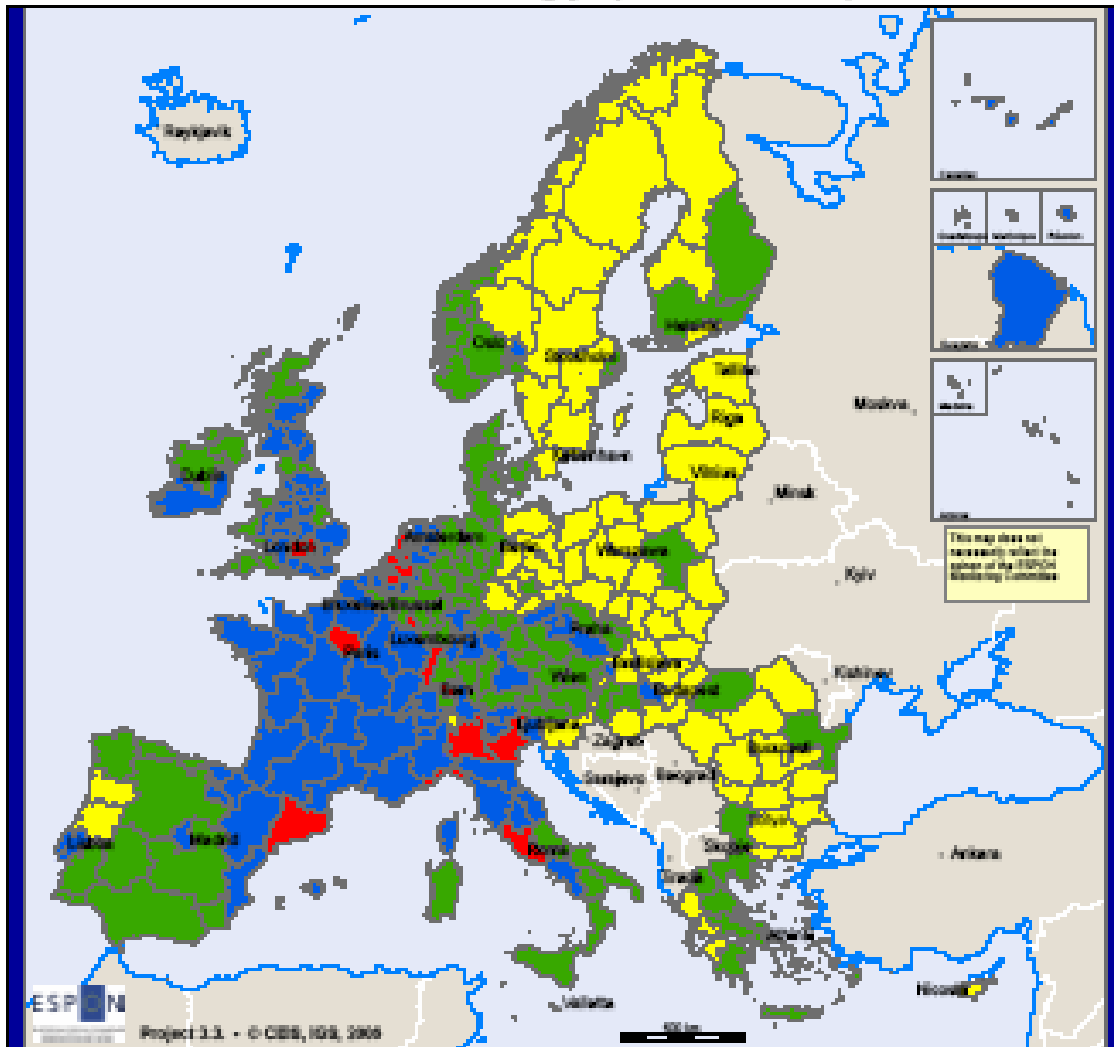


Structural Funds spending before 2000 in relation to accessible population calculated as structural funds spending (1984 - 1989) in relation to accessibility population in 3 hours by car (1989)

- central very central
- intermediate
- peripheral
- very peripheral

ESF programming period 2000-2006, for the geographical localisation of the map collection 2006, 2006  
Origin of data: ESPON 3.3, ESPON project 3.3.1, 1999 - 2000

MAP RF 09 - Policies for the Gothenburg Strategy (structure)

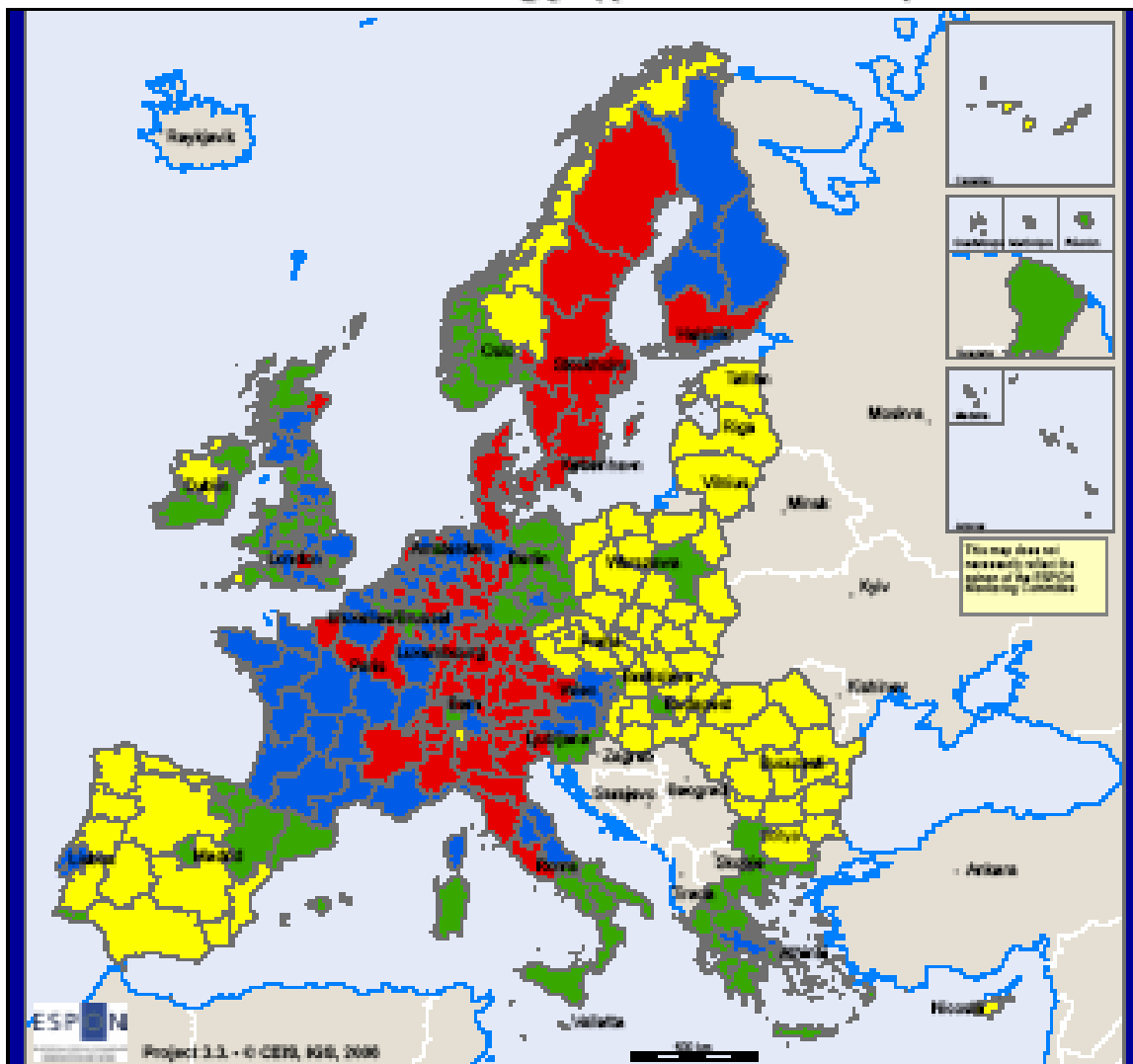


Values obtained combining Structural Funds spending and Climate and Natural Resources expenditure

- High
- Medium high
- Medium low
- Low

©1999 European Commission for the Propaganda Institute  
Regional Information (RIS), 1999  
Origin of data: CBS, 1998

MAP RF 12 - Policies for the Gothenburg Strategy (performance)

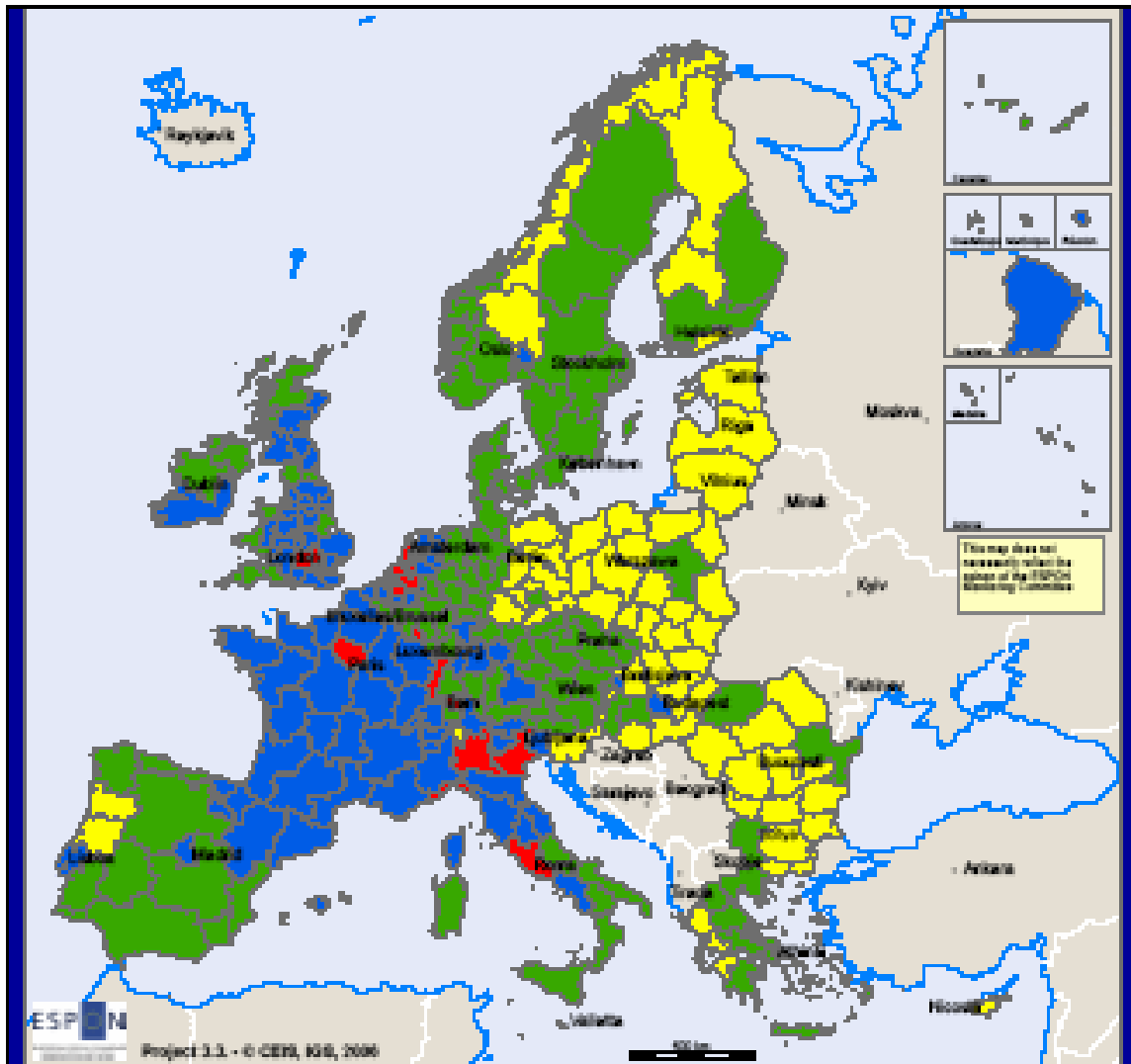


Values obtained combining Public Health and Poverty and Age expenditure

- High
- Medium high
- Medium low
- Low

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Regional information (REGIO, 2005)  
Scale of map: 1:100,000

### MAP RF 13 - Level of interventions towards the Gothenburg strategy

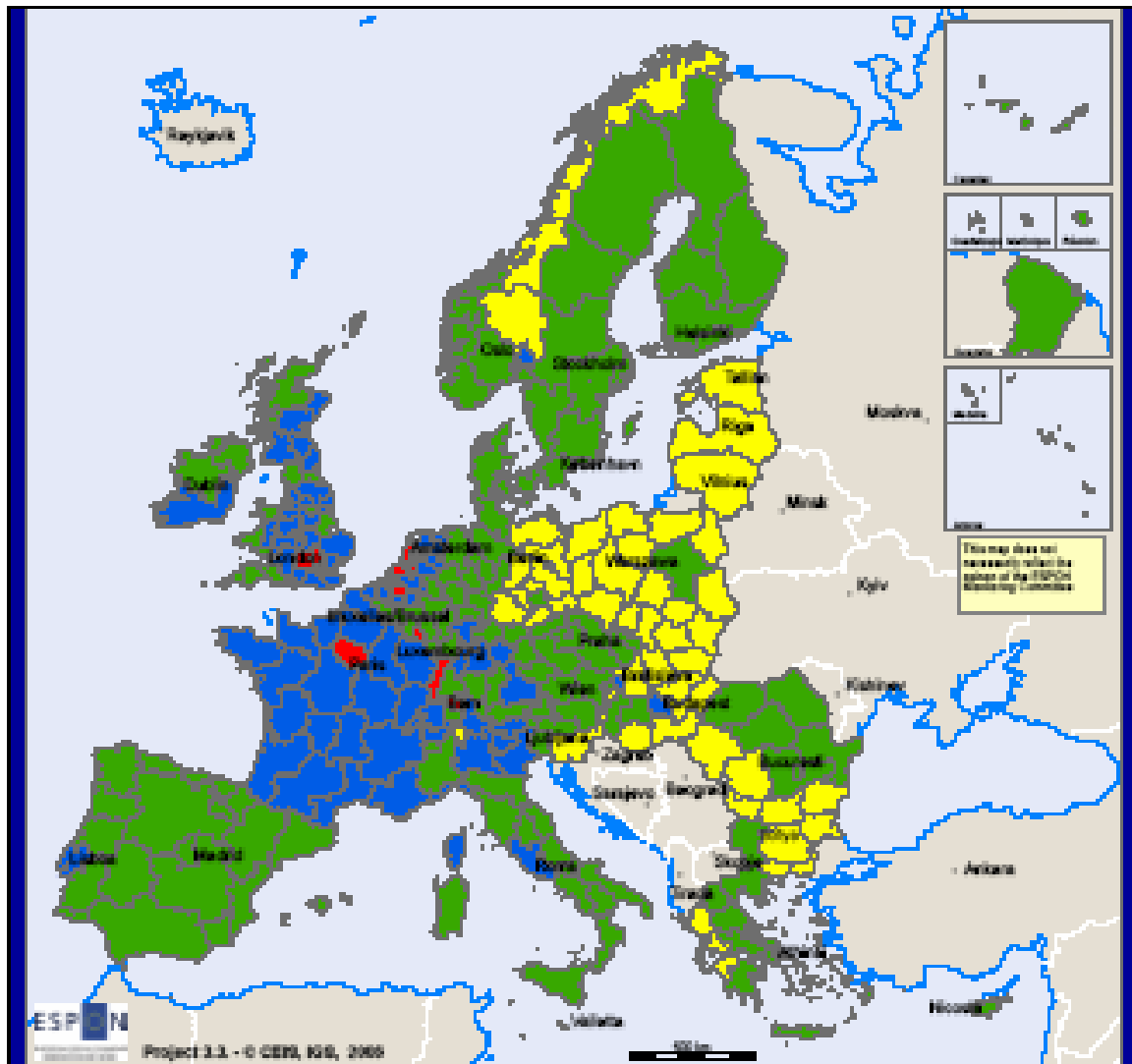


Values obtained combining Poitides Gothenburg Strategy (performance) and Poitides Gothenburg Strategy (structure)

- High
- Medium high
- Medium low
- Low

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Origin of data CEIS, 2006

### MAP RF 14 - Lisbon/Gothenburg Interventions



Values obtained combining Level of Interventions towards the Gothenburg Strategy and Level of Interventions towards the Lisbon Strategy

- High
- Medium high
- Medium low
- Low

© European Commission for the geographic coordinates  
England reference: OSNED, 2003  
Origin of data: ISG, 2002

MAP RF 17 - Use of Funds



Values obtained combining Funds spending and Economic resources

- High
- Medium high
- Medium low
- Low

### MAP RF 19 - Resources and Funds Interaction Territorial Dimension at NUTS 2



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

MEDIUM

With geographic coordinates for the geographic coordinates  
Regional outline: NUTS2, 2003  
Origin of data: CBS, CIA, 2002

**MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2**



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

LOW

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Regionaldatenbank RRD 2008  
Origin of data: CBS, CIA, 2002



**MAP RF 19 - Resources and Funds Interaction  
Territorial Dimension at NUTS 2**



Values obtained combining Resources and Funds:  
Synthetic Spatial Composite Index and TT2 - Territorial  
typologies at NUTS2

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Regionalentwicklung (GISF), 2009  
Kopie of data GISF, GISF, 2009

VERY LOW

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