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Innovative Visualisation of the European Territory

Mapping Exploratory Scenarios and Visions

Purpose: Draft for the report on Innovative Visualisation

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Purpose

The aim of this note is introducing design criteria for visualizing territorial scenarios and visions, as well as advancing the report on Innovative Visualisation by Ersilia Foundation.

The criteria applied for visualising future scenarios and visions is inspired by the review of the State-of-the-Art on the field, carried out by Ersilia Foundation (see www.et2050.eu) as well as by the more theoretical research and pilot experimentation carried out previously, in the Infographics Group of SPESP Program, coordinated by MCRIT and Nordregio, as a following up the ESDP process.

On the other hand Ersilia Foundation has designed and maintained the website of the project, a channel in Youtube and a library of movies focused on the visualization of scenarios and visions. Once maps and other graphic material for scenarios and visions be ready, dynamic animations will be developed.

Partners are invited to react to this Note, and to produce their own design proposals.

Our Understanding of Spatial Visualisation

The overall questions to be discussed, according to André Muller (ESPON workshop on Innovative Visualisation and Cartographic Language, Luxembourg, 2 April 2009), are the following:

- Which content can be visualised best in an innovative manner?
- Towards which target groups can innovative visualisation and cartography be a promising option?
- What tools for visualisation and cartographic language could be developed in an innovative manner?
- Which media should be considered for the communication and dissemination?

According Edward Tufte, in one of the most influential studies on the topic¹, excellence in statistical graphics and mapping consists of complex ideas being communicated with clarity, precision and efficiency.

Graphical and cartographic displays must induce the viewer and the reader to think on the substance (a given scientific result or political message) rather than about something else, encouraging the eye to compare different pieces of data, revealing the data at different levels of detail, from a broad overview to a fine structure, serving a reasonably clear purpose and being closely integrated with statistical and verbal descriptions of the dataset. After all, informative graphics and maps *reveal data*.

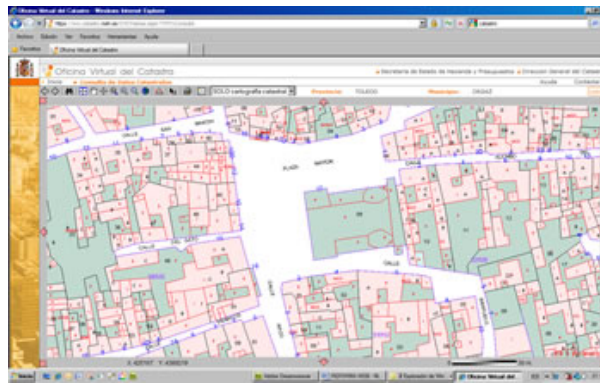
Even if cartography is relatively old, and the first maps of the known world come from the *Hecateus Mapamundi* (500 a.c), the use of pictures, abstract representations, thematic maps, and images to visualise data are a surprisingly recent invention. From early statistical graphics in 1750, William Playfair (1750-1823) developed and improved all fundamental graphic designs, seeking to replace conventional tables of numbers with a systematic representation of his “linear arithmetic”. In the early 1980s, just before personal computers and computerised design emerged, Edward Tufte presented an updated and complete reference to all methods and design criteria used to represent data up to then, covering all the range from scientific to advertisement, which is still useful. In his approach there is no difference between cartography and infography, both being integrated for the purpose of a more effective communication.

Cartographic Language

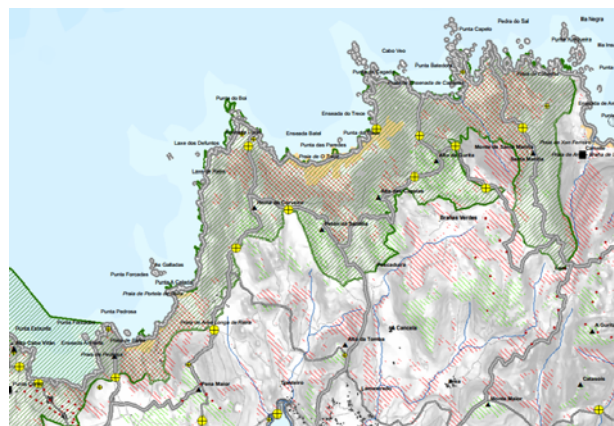
To avoid confusion in relation to both cartography and infography, it is helpful to clarify the difference between both.

In synthesis, cartography aims at providing an *objective representation of reality* (in the form of maps based on data). Cartography involves an objective scientific process, it is an indispensable tool when investigating spatial patterns, designing spatial plans and development projects. Among many other aspects, to begin with, any line has legal consequences since it defines limits for rights and duties to land properties and institutional jurisdictions.

¹ The Visual Display of Quantitative Information, by Edward Tufte, Second Edition from 2001



Graphic 1 Land properties and urban classification (Cadastral Spanish Office)



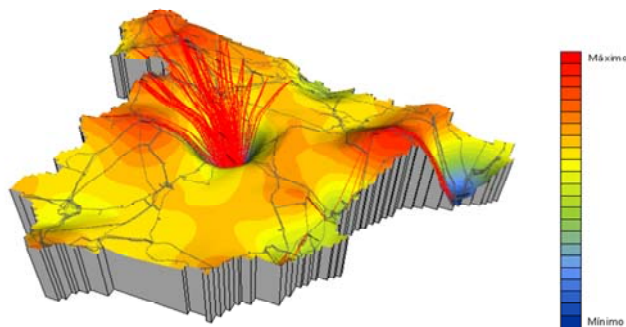
Graphic 2 Landscape cartography in Costa da Morte designed by MCRIT for the Coastal Landscape Plan of the Government of Galicia (2011)



Graphic 3 Light from cities at night by NASA

Infographic Languages

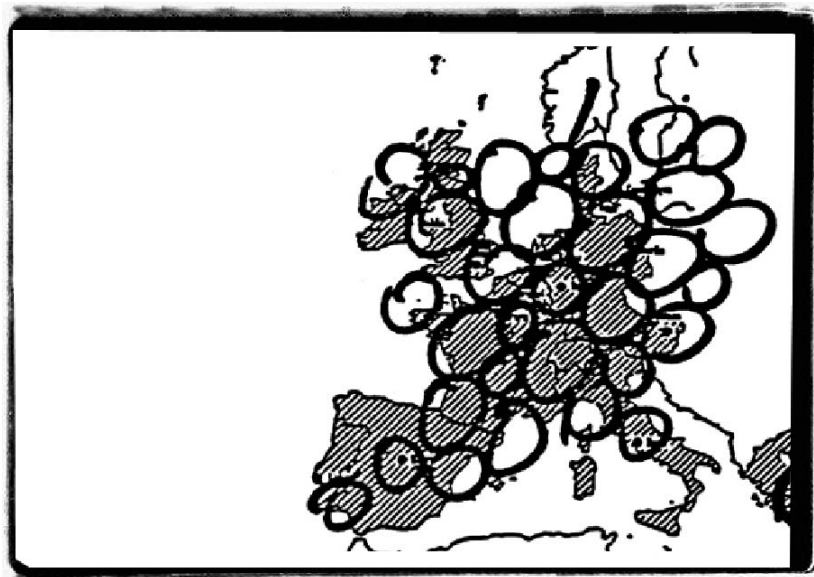
Infography aims at producing *meaningful representation of actual data*, or at visualising perceptions or wishes created by human imagination. Infographics is thus a wider concept, since this may involve cartographic inputs and processes as input. Infographics places communication as the paramount goal, and the reader or viewer most likely understanding is its major concern since most of them will not be experts. Infography can be applied as a post processing cartographic activity (see graphic 2 and graphic 3) or just be an independent iconographic activity without any cartographic support (see graphic 3).



Graphic 4 Relation between energy generation and supply in Spain (2008)



Graphic 5 Vision of ideal urban development (marketing illustration)



Graphic 6 “Europe of Grapes” Vision of Europe by Klaus R. Kunzmann

Emerging interactive multimedia visualisation

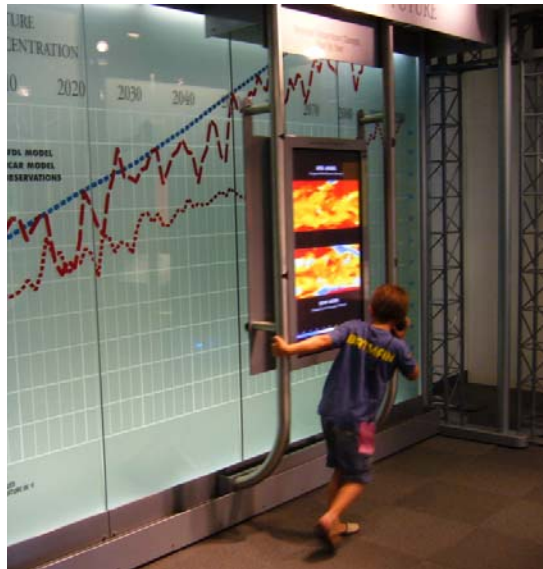
New ICT facilitates a large number of opportunities to design effective communication materials and resources targeted to different audiences, totally customised. The key advantage is the possibility to combine different languages and media to create powerful images, as well as giving to the reader the possibility to modify and further adjust the image, or use the image or the animation as a platform for interaction and discussion, if linked to social networks.

GoogleEarth, and other non-proprietary interactive cartographic systems, as well as GPS and Smart Phones, have changed to a large extent the perception we have on cartography, the way we use geographic referenced data not just for spatial planning purposes but in our daily life, as well as our understanding of complex cartographic and infographic languages embedded into multimedia systems.



Graphic 7 Scenario for the Baltic Business Forum represented on GoogleEarth by MCRIT and Tetraplan, DK.

New visualisation strategies try to somehow interact with the viewer so he or she customises the information being displayed. In order to communicate emotion to readers, advanced resources try to make a real experience, virtual and even physical, like the one developed in a Museum in Boston.



Graphic 8 MIT Science Museum in Boston (2006).

The mobile screens display temperatures across the World, while the panel represents de CO2 evolution overtime. The boy is listening by an smartphone an explanation of the Global Warming consequences.

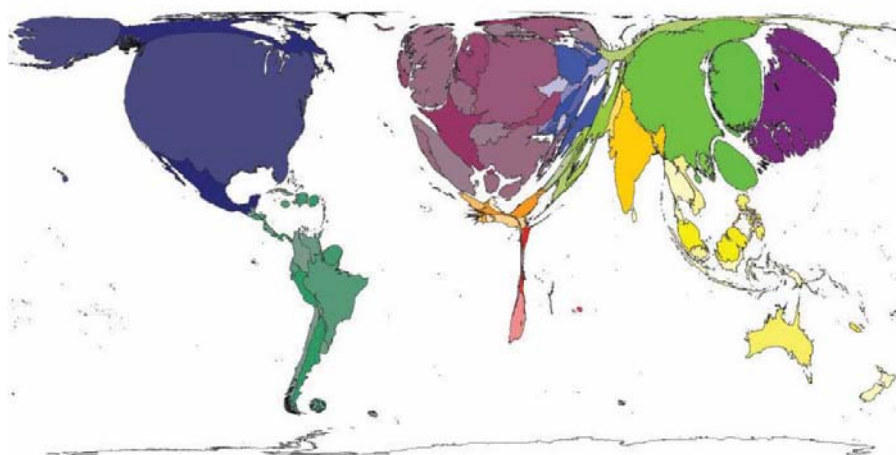
The maps and graphics can be enriched by sound and video multimedia resources; they may even enjoy some interactivity level with viewers.

Future maps will use techniques related with Cartography 2.0. In comparison with applications such Google Earth and Google Maps, we will here embrace the adoption of the Web 2.0 philosophy. Internet 2.0 will allow users to incorporate information and multimedia resources in the selected maps, as well as changing their features, all aimed at favouring a creative stage for stakeholder participation on-line.

Innovative elements will be added to the Cartographic Language, such as 3D cartography and animated cartographic presentations which can become part of ESPON slide shows and ESPON video clips. At this respect, all possibilities currently offered by Flash will be explored, but also other open source tools which construct interactive maps without Flash, since Adobe is abandoning Flash to develop Edge, a Javascript generation platform compatible with Apple tablets and iPhone. Even though many educational and communicational resources are developed nowadays in Flash, the market tendency clearly moves towards the use of html5, CSS3 and javascript languages compatible with all browsers in tablets and smartphones, and this option needs also to be explored. Javascript libraries allowing 3D visualisation (e.g. Tree.js) will be applied.

Recent computer technologies and software development offers new options for displaying results as maps or as cartographic illustrations, e.g. using 3D images, animations on GoogleEarth, interactive simulation, etc. To some extend, cartographic and infographic concepts become closer to one another. Advanced GIS and Desktop mapping, and graphic software tools, the integration of multiple media, facilitates amazing design opportunities that can be easily cus-

tomised and targeted to different audiences and communicated through Internet world-wide. See for instance:



Graphic 9 Carbon Infography

<http://www.guardian.co.uk/news/datablog/interactive/2012/mar/29/>

The World Bank e-Atlas of Global Development offers more than 175 thematically organized indicators for over 200 countries, letting the user to visualize and compare progress on the most important development challenges facing our world. This eAtlas, allows to visualize and analyze a wider variety of data in greater depth, over a longer time period. More than 175 World Bank indicators worldwide are mapped, allowing the possibility of compare and view two maps simultaneously, animate maps to show change over time, view all data in ranking tables and charts alongside maps, export maps and data for use in presentations, and import your own data.

The Worldmapper Project is a collaborative work between researchers at the University of Sheffield and the University of Michigan. This website contains 696 maps, each one relating to a particular subject. The maps and data files cover 200 territories, mainly United Nations Member States plus a few others to include at least 99.95% of the world's population. The maps presented on this website are equal area cartograms, otherwise known as density-equalising maps. The cartogram resizes each territory according to the variable being mapped. Worldmapper is a collection of world maps, using equal area cartograms where territories are re-sized on each map according to a particular variable. In order to make it easier see what these cartograms are showing, they try to preserve the shapes of individual territories, and keep them adjacent to adjacent territories and seas. The sea is always the same proportion of the map and gives shape to the cartogram. In a sense the maps are all to the same scale, and every map is comparable with any other however the data was measured. Every map shows the worldwide distribution of something, called a variable. If a particular country is larger on one map than another, it follows that it has a higher proportion of the world total of the first variable.

Gapminder is a non-profit venture promoting sustainable global development and achievement of the United Nations Millennium Development Goals. Gapminder was founded in 2005 and is registered as a Foundation at Stockholm County Administration Board. Gapminder does not award any grants. It is an operating foundation that provides services as defined by the board, sometimes as collaborative projects with universities, UN organisations, public agencies and non-governmental organisations. Gapminder is free and comes with built in data. You can use it online or download it, but you cannot change the data or add your own. If you like to create your own animating bubble charts have a look at Google's free Motion Chart Gadget and Public Data Explorer, where you can visualize your own data. In Gapminder they have collected over 400 indicators on global development. They have limited resources to upload new indicators,

but if you have data that you think would fit Gapminder, you can contact with Gapminder team for uploading.

Even if many tools and media are new, still visualising data is a craft activity, somehow in between science and art, must be culturally and politically sensitive, and all considered not much different from the one described by Edward Tufte.

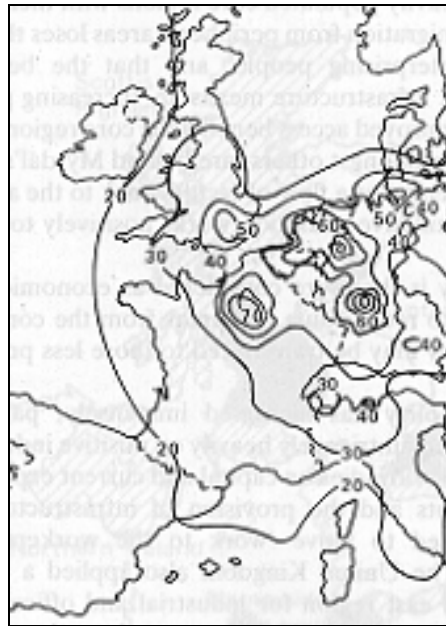
Mapping the European Territory

Clever images (and human communication, in general) are embedded into metaphors (something referring to something else) and metonymies (taking the part as the whole). In the case of communicating spatial policies, images and maps, there will always be this tension. We can consider as a reasonable goal knowing (and even controlling) the fundamental tension in any image, or map, and helping readers to realise that scientific knowledge generates as much new political questions than the ones they may answer (science can never be both complete and consistent). On the other hand, art provides subjective answers to actually unknown questions and may be both a source of inspiration or create a major confusion. There is a need to recognise that total communication is impossible, because there is no visual language free from metaphors (the confusion of one thing for another) and metonymies (the confusion of one part for the whole), and the message never gets clean to the receiver.

From this conceptual background, this section presents our approach concerning challenges and opportunities for policy-meaningful data visualisation applied to European spatial trends and policies.

Revealing Europe (1980-1999)

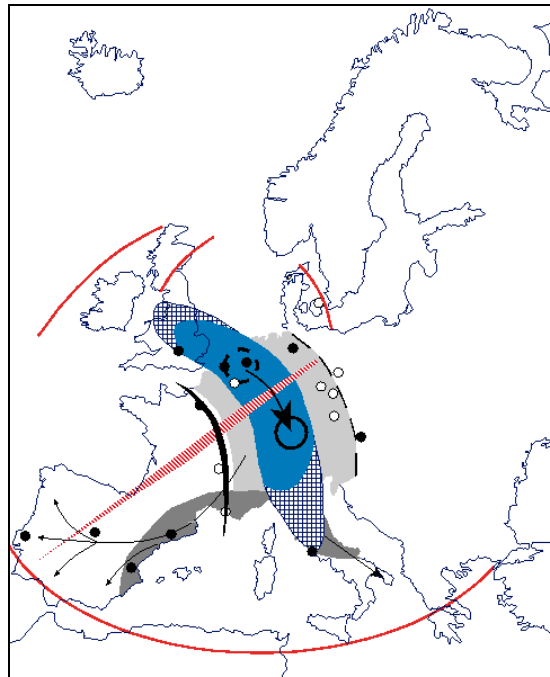
One of the first and more influential images of modern Europe, probably the better known, is the map produced by David Keeble (1982) visualising the so-called “Centre and periphery” development paradigm, following early studies by C. Clark (1969). Keeble maps represented the level of economic integration of Europe at that time, calculated in terms of potential accessibility: distance to other national markets, and relative trade. Once a map produced by applying a scientifically sound methodology (e.g. regional economics, and potential accessibility indicators) is able to provide the kind of visualisation required by the dominant political paradigm (“peripheral less developed countries need support because their costs to access central markers are higher”) it may easily become a political icon. Over the years, even after the accession of Scandinavian countries, Structural Funds and Cohesion Funds investments on transport infrastructure have often been justified often by this argument.



Graphic 10 Potential Accessibility by David Keeble (1982)

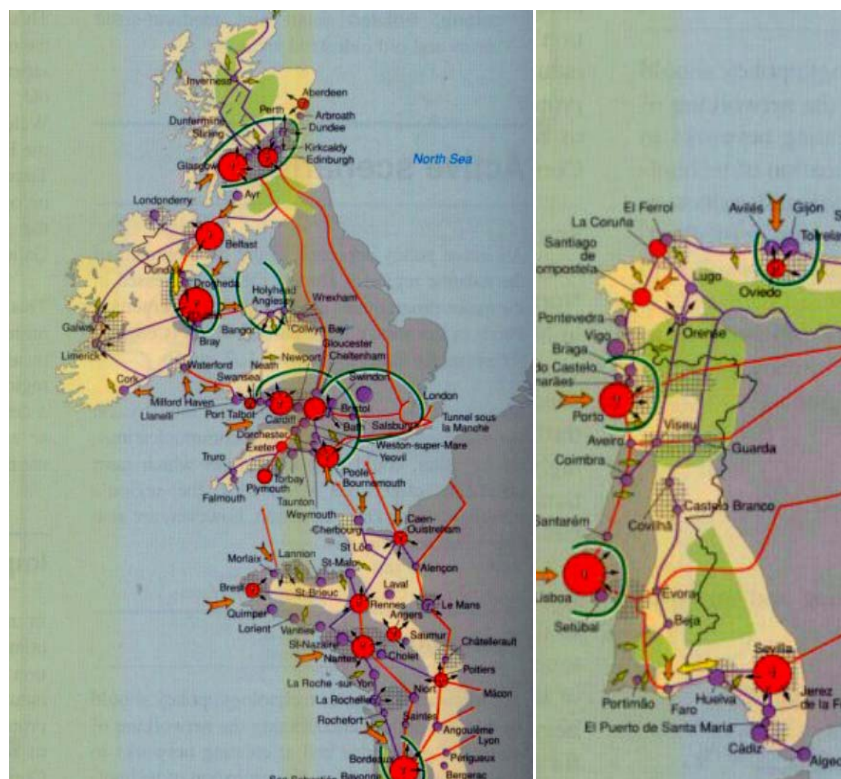
Studies made in line with Europe 2000 and Europe 2000+ initiatives by DGREGIO, then DG XVI, (as well as other programs, such as all interregional co-operation initiatives) gave deeper understanding of European development patterns and emphasized both a more prospective and more territorial focus. These studies took advantage of the fact that more data and cartography was available, helping to better display the diversity and complexity of Europe development patterns. In this moment the firsts road traffic maps of Europe (published by CEDRE), the NASA satellite maps of Europe at night, and later on EUROSTAT/GISCO maps provided for new impressive images of the European geography, opening people minds to consider the European territory as an object not just of study but also of integrated planning, and not just for cross-border areas, also as a whole. Statistical databases at NUTSIII and even down to NUTSV allowed for more detailed territorial analysis, but data scarcity was as a fundamental problem for regional sciences in Europe.

In the early nineties a number of influential maps were produced, and probably the most influential was the so-called *Blue Banana*, designed by RECLUS group, a political map, since it represented in a symbolic language a given view of European development patterns and, therefore, the strategic problems and opportunities related to it. The reader of the map is engaged in discussions that implicitly consider the European territory and object of territorial planning.

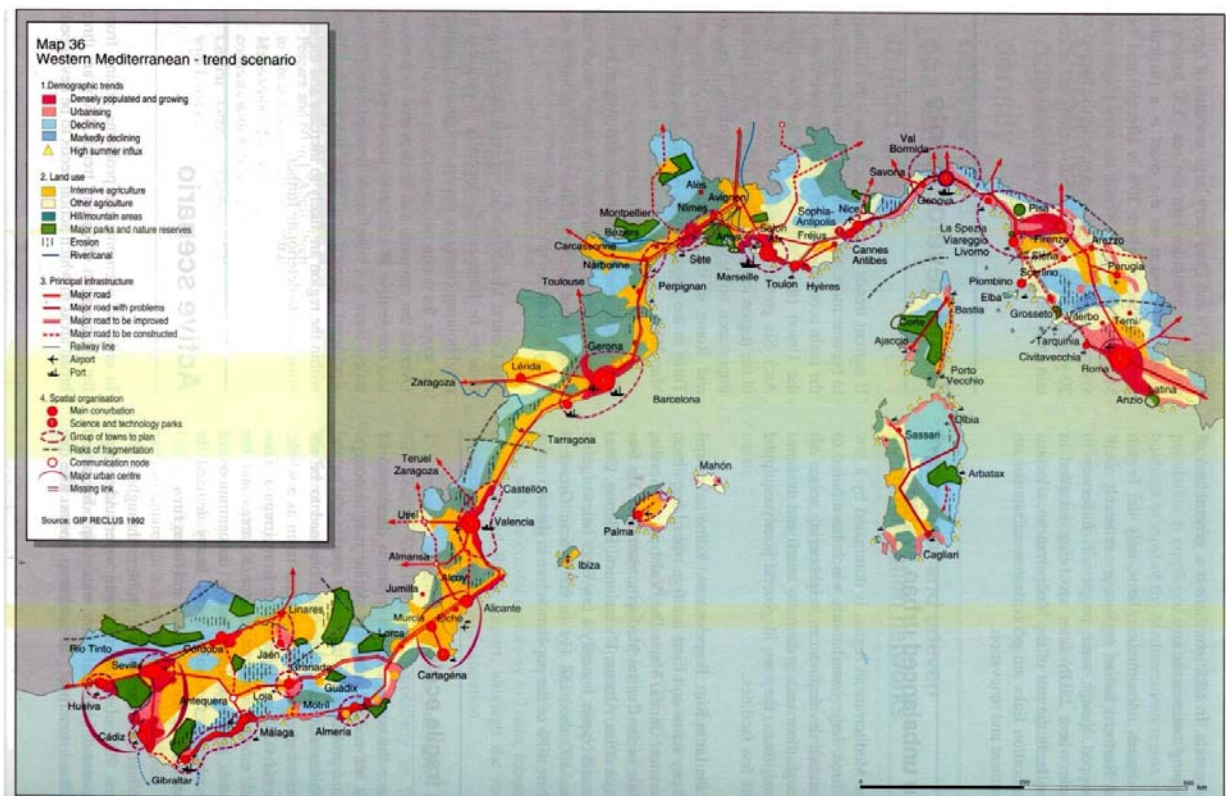


Graphic 11 *Blue Banane* by R. Brunet (1990)

In the Europe 2000 and 2000+ programmes, the abstract territorial strategies implicit in the Blue Banana representation were made explicit for the first time.

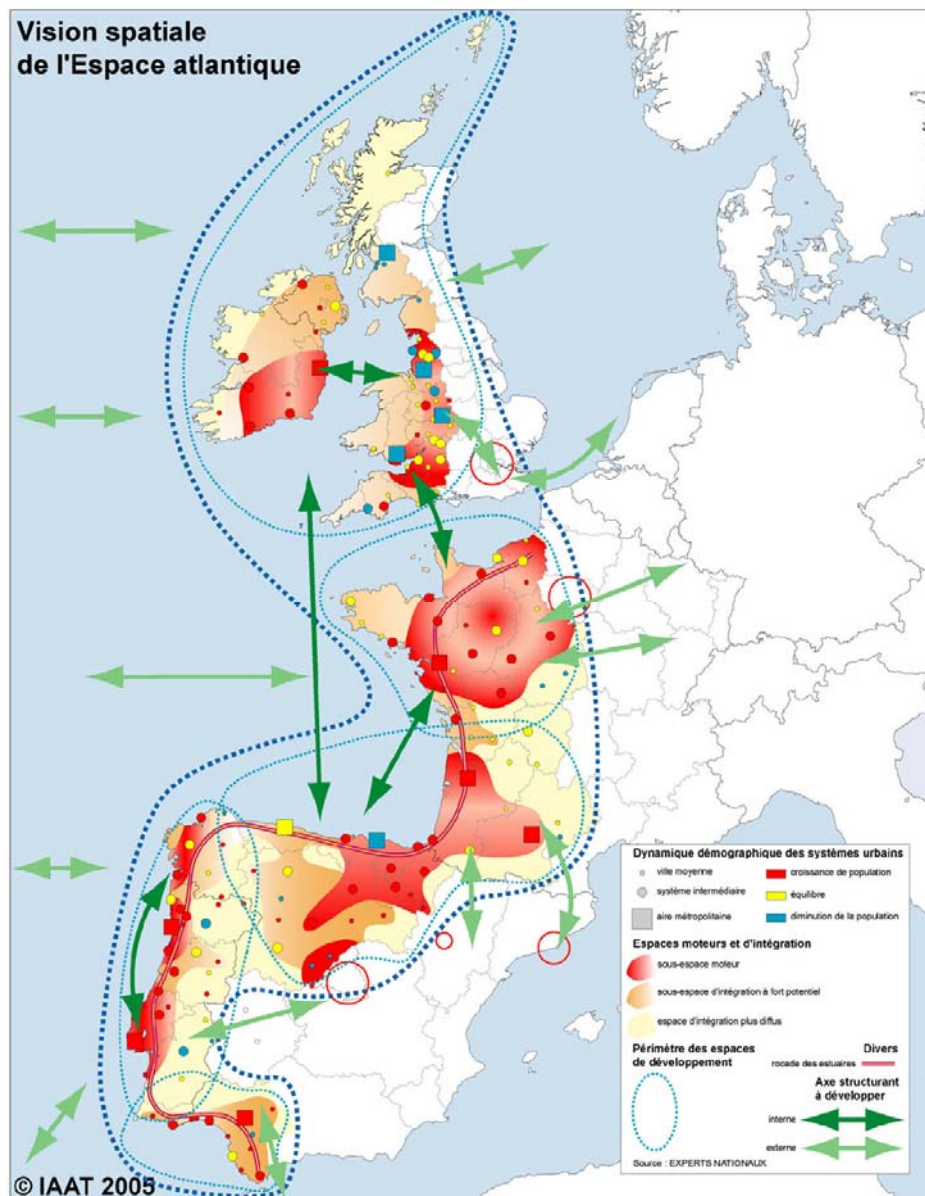


**Graphic 12 Atlantic Arc Strategies by CEDRE (1994)
in the European 2000 + Program of DGXVI**



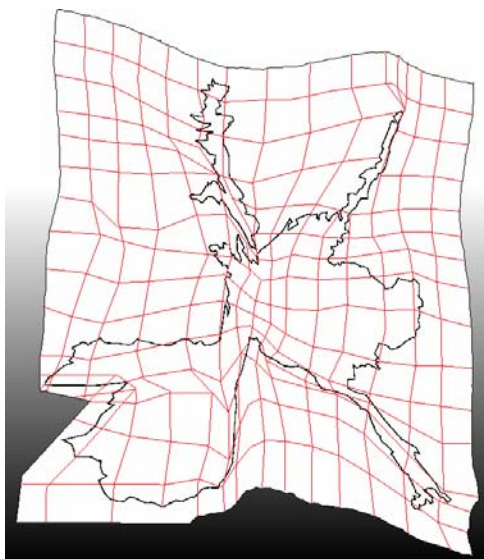
Graphic 13 Western Mediterranean Trend Scenario (Europe 2000+)

A symbolic cartography, based on the first cartographic language developed to be applied at European level, was designed to represent the three main policy recommendations of the studies: “Transport infrastructure improvements” (antecedent of the Transeuropean Networks), the “Urban areas to be improved” and the “Development potential to be realised” (from forest, rural areas, industrial, inland tourist, areas for technologic diffusion and cross-border cooperation on planning).

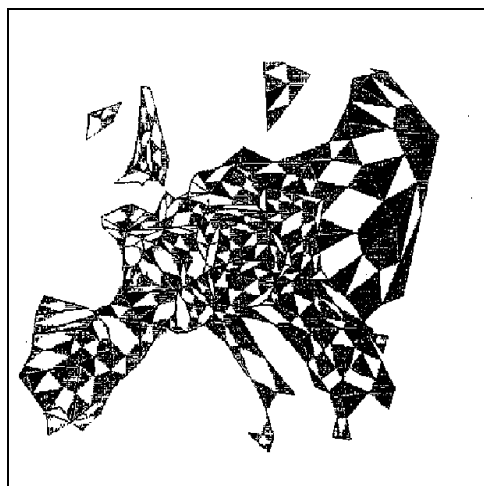


Graphic 14 Spatial Vision Atlantic Arc (IAAT, 2005)

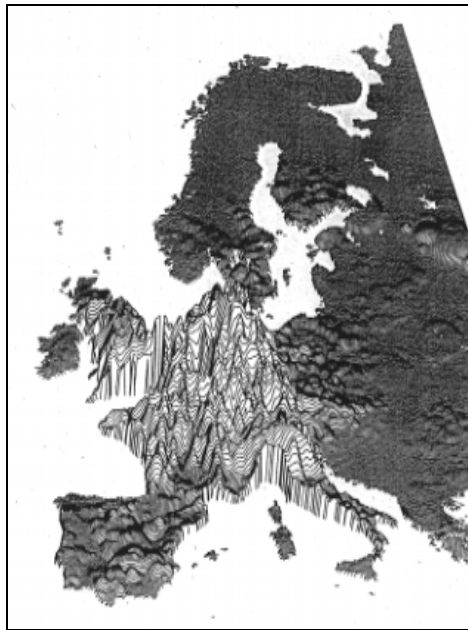
Using new software technologies, many interesting maps and images of Europe were designed by geographers and planners during the nineties. Next, just a selection of three interesting cases is provided.



Graphic 15 Europe 2015 by TGV perspective C. Cattan (1992)



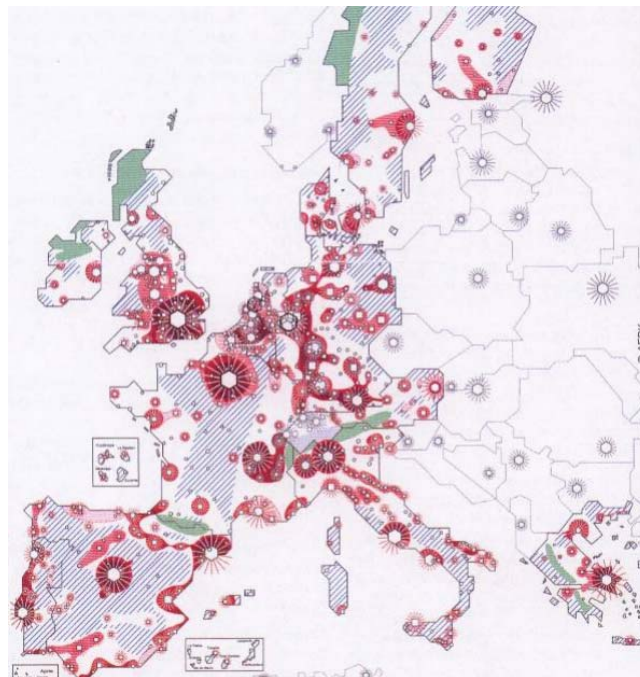
Graphic 16 Chronocarte ("Shadow effects") by LAD-CESA (1991)



Graphic 17 Daily accessibility to GDP by Klaus Spiekermann (1996)

ESDP mapping experience (1999)

ESDP was to a large extent a consequence of the European macro-regional spatial studies carried out during the nineties (as well as other European policy initiatives with direct territorial impact, like the European Transport Networks, or the Nature 2000). A new cartographic language was designed by aebk (Paris) to integrate the contributions made by all different countries for the three subjects previously mentioned concerning Europe 2000+.



**Graphic 18 Image of the “Urban scenario” developed by aebk (1995)
from the inputs received from 15 EU countries.**

Despite the tradition of graphic and cartographic studies at European level, it is important to note that no prospective or strategic map was finally included to display policy-aims, or potential territorial impacts, in the ESDP official document, given the high sensitivity of Member-States at that time. Instead, vignettes to illustrate ESDP policy-aims were included, as presented in the next image. They were the third graphic language, in this case purely infographic, developed in the field.



Graphic 19 Four main ESDP key policy-aims represented

SPSP Infographic Group

One of most interesting experiences investigating ways to visualise spatial policies at European level was the SPESP Infographic group, composed by a number of experts from many EU countries. The exercise aimed to explore alternative cartographic and infographic languages, rather than reaching an agreement among them.

Two alternative radical approaches were explored in SPSP to produce not just maps representing data, but images (and maps) to communicate spatial development policies and strategies:

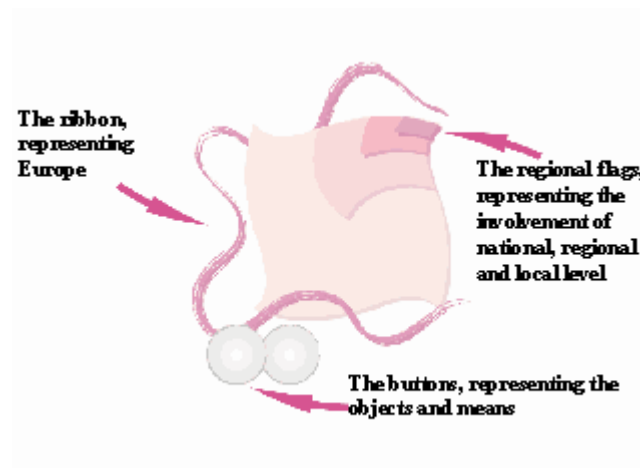
- Scientific-oriented methods which propose to follow strict systematic methods to develop "policy-oriented" maps (e.g. thematic maps, as well as the Dutch and German cases just displayed) starting from cartography produced by GIS software tools.
- Creative methods which produce images based on arbitrary symbolic languages, invented for instance from the tradition of spatial planning studies, but not necessarily (like the vignettes included in ESDP).

From more strict rational methods (scientific-oriented, involving an objective searching process which can be reproduced) to more creative methods (artistic-oriented, involving a subjective imagination process), in between approaches were developed as well. In fact, the purely scientific methods involve an implicit process of translating "scientific languages" (in this case cartographic conventions) into a "policy-oriented" languages, and the purely creative methods follow the opposite direction. Therefore, none of the methods can be labelled as "pure".

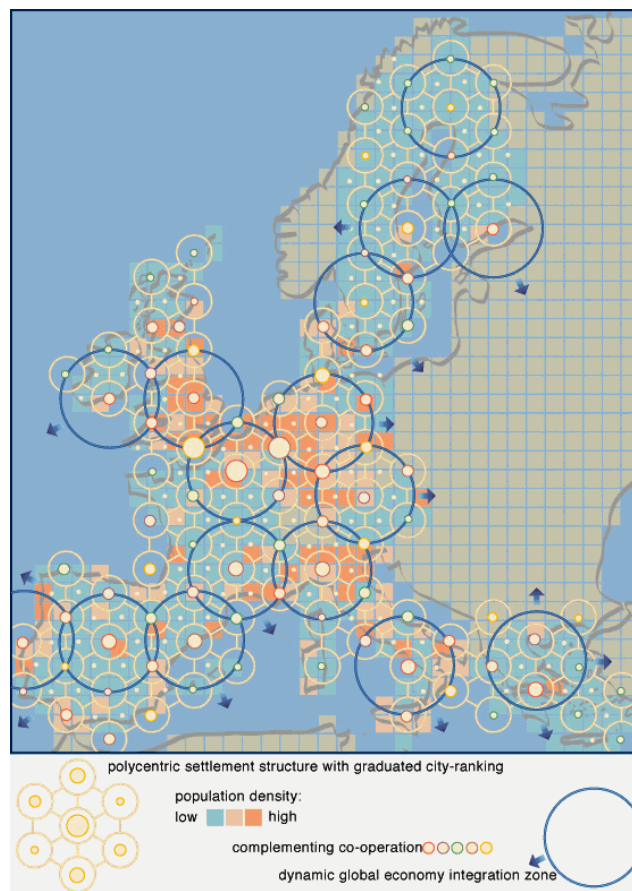
While scientific methods have advantages providing objective visualisation of real spatial problems and opportunities, as well as mapping future trends (the "real context" for policies, so to speak), creative methods are required to represent abstract policy-aims and possible futures.

An explicit "in between" approach may consist just the over imposition of politically-meaningful symbols into a cartography of spatial problems and trends. This "in between" approach would suggest to readers that policies are "created" (as arbitrary as the symbols representing them) to solve real spatial problems (so objective that they can be mapped by using scientific cartographic methods). The unavoidable gap between policies and problems (policies never emerge "only" from scientific knowledge, but requires purposes and goals) becomes in this "in between" approach explicit.

Next, two radically different and nevertheless interesting proposals are presented:

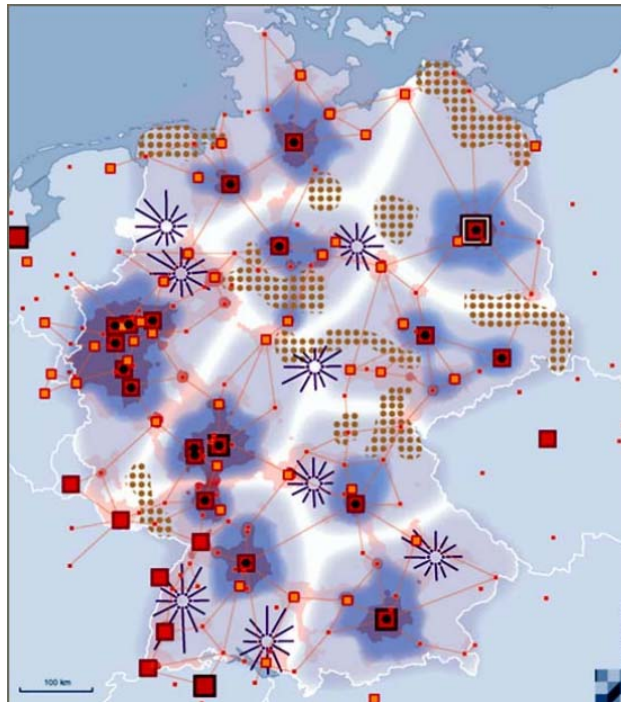


Graphic 20 Iconographic language proposed in the SPSP Infographic Group.
Designed by Volker Schmidt Seiwert taking as starting point ESDP vignettes



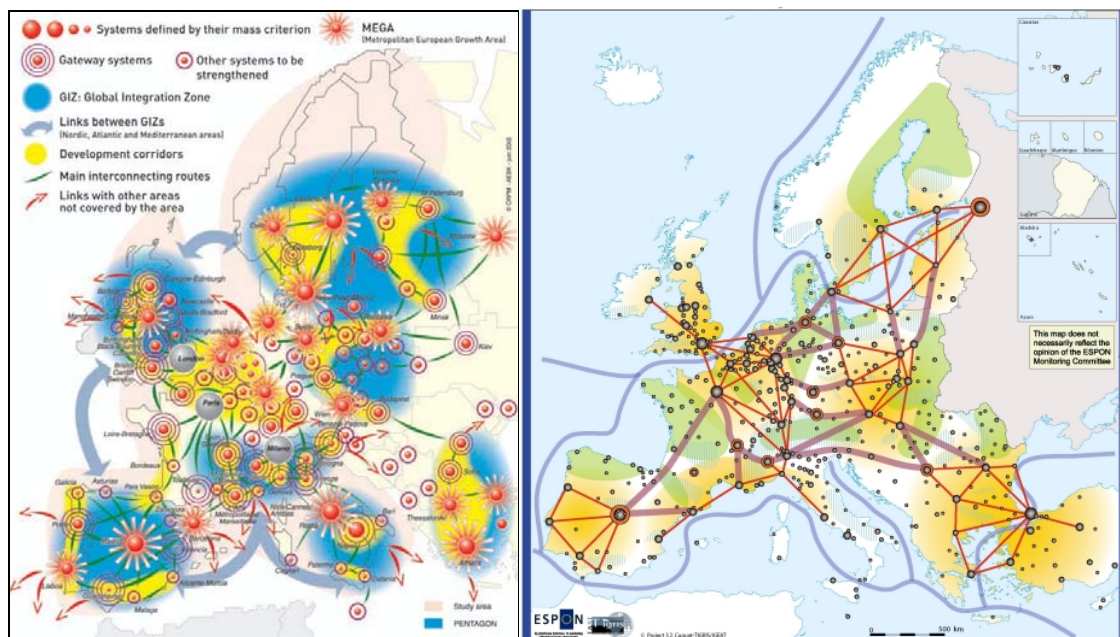
Graphic 21 Design by Paul van Hemert, applying a reproducible design process from a GIS map (generalisation and abstraction).

A similar same method was successfully applied to generate the map of growth an innovation in the Spatial Planning Concept for Germany (2006) by BBR

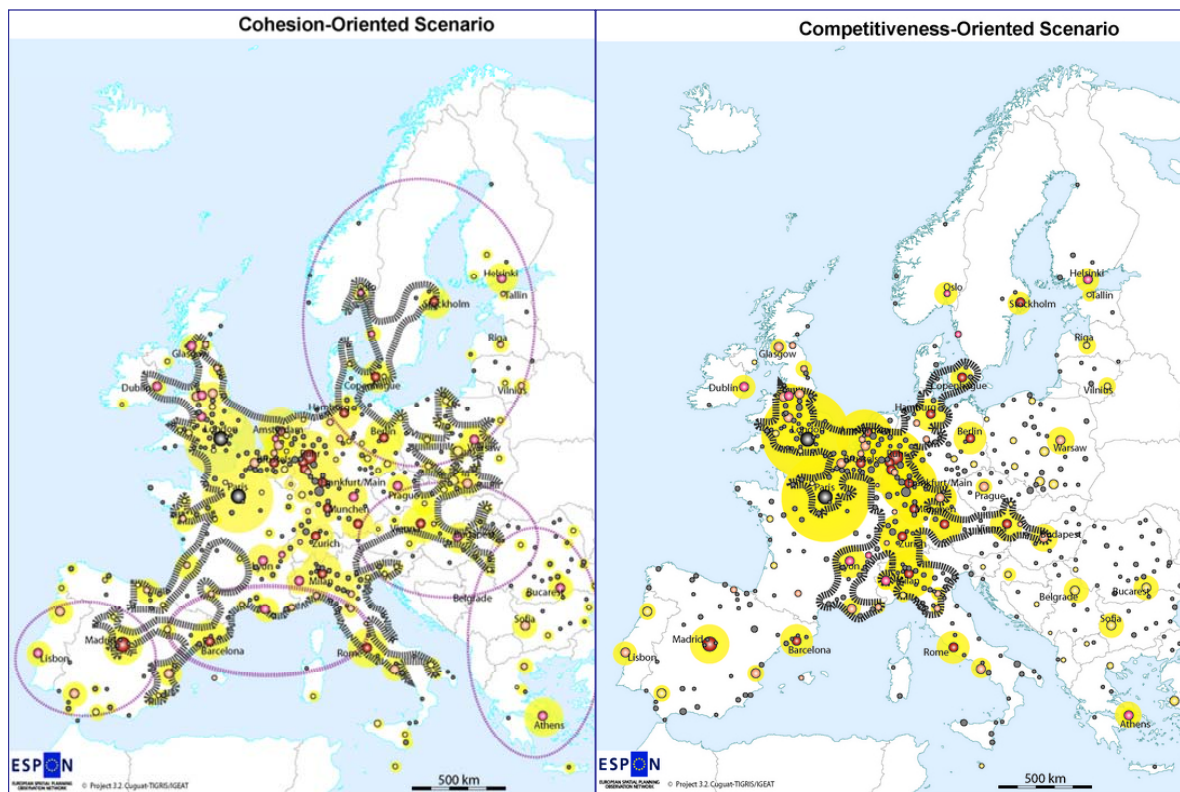


Graphic 22 Growth an innovation in the Spatial Planning Concept by BBR (2006)

In the next two maps, METREX and ESPON3.2 followed also the same hybrid approach (with more emphasis on the visualisation of policies and strategies than on actual problems and opportunities).



Graphic 23 METREX Long-term voluntarism development image and ESPON 3.2 Scenario 2030 (note the level of abstraction in both samples, higher than the Europe 2000+)

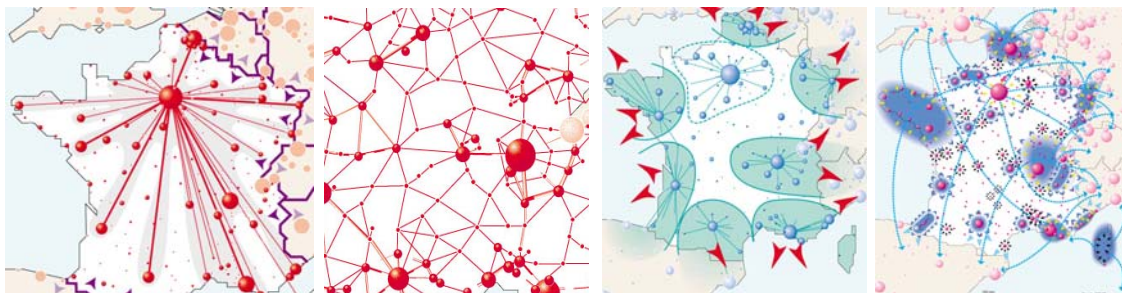


Graphic 24 ESPON 3.2 Visualisations of alternative scenarios

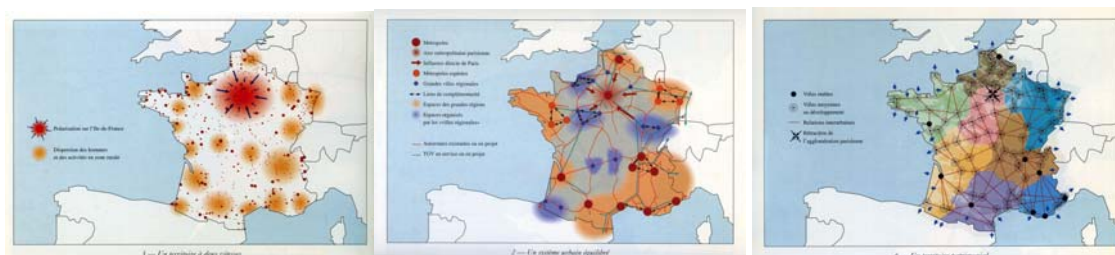
All considered, any representation of the reality involves a combination of both objective and subjective languages. Somehow, the "invented policies" and the "discovered problems and trends" are merged in the communication process. The merit of clever images is to evoke the tension of this unsolvable paradox, between reality and imagination, facts and visions and wishes.

Mapping Spatial Scenarios and Visions at National and Regional Level

Aménager la France 2020, one among many other extremely interesting experiences of symbolic cartographic representation of future scenarios developed in France by DATAR. Note that different exercises use similar type of scenarios and representations, from polarization on global metropolis to regional decentralization, and national urban networks in between.



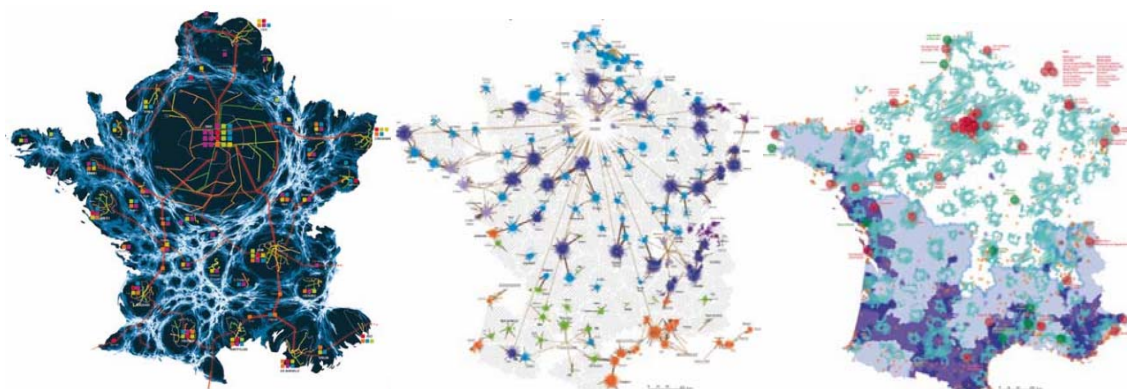
Graphic 25 Alternative images of the French territory in the future.
From *Aménager la France de 2020*.



Graphic 26 Les territoires du futur (Polarised, Balanced, Regionalised, DATAR)



Graphic 27 La France de 2040 (DATAR 2012)



Graphic 28 Images de la France 2040 (DATAR, 2012)

Design Criteria for Territorial Scenarios and Visions

The proposed criteria are based on Edward Tufte's advice concerning excellence in mapping, that consists of complex ideas being communicated with clarity, precision and efficiency. Therefore, graphical and cartographic displays must induce the viewer and the reader to think the substance (a given scientific result or political message) rather than about something else.

Criteria are also based on the tradition of cartographic and inforgraphic representation of the European territory.

First Criteria: Avoiding excessive abstraction

Since Europe 2000+ pioneering works in early eighties, representations of the European territorial scenarios and visions moved towards increasing abstraction; at the end, in late nineties ESDP was only able to overcome Member States over sensitivity on mapping issues by avoiding any map realism, by using including vignettes illustrating policy-aims. The ESPON 3.2 project, as well as METREX and other more recent exercises remained at high level of abstraction.

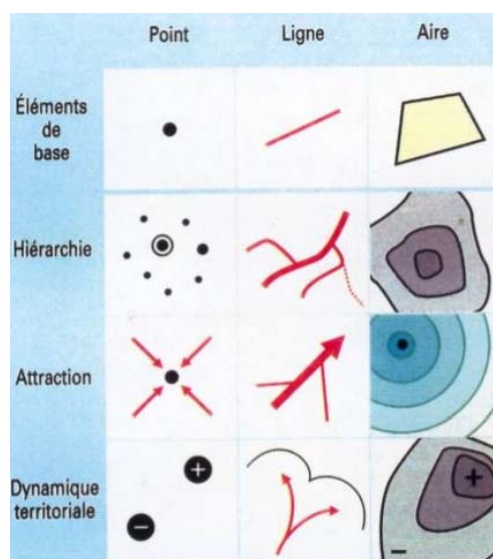
The first design criteria to represent scenarios and visions is getting back to the more territorially-based representations of Europe 2000+ as much as feasible, in line with the more recent German and Polish National Spatial Development Strategies and the Vision for the Baltic Sea Region 2010

Even if the purpose is avoiding as much as possible abstraction, for exploratory scenarios –ideal in nature, representations will be more schematic than for the baseline scenario. The vision should be in an in between situation, since it has to be geographically differentiated and dynamic, changing overtime.

Second Criteria: Using an standard spatial planning graphic language

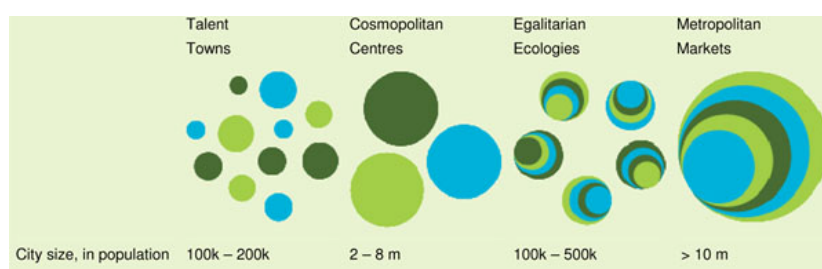
The graphic language most commonly applied in spatial planning exercises are based on combination of three main objects:

- *Nodes* representing “places”, e.g. city centers, infrastructure junctions, squares.
- *Links* representing “relations”, e.g. flows, traffics, infrastructure.
- *Boundaries* representing land-use zones, e.g. less urbanised areas, agricultural or naturally protected areas, or just representing political and administrative boundaries.



Graphic 29 Language for a territorial representation by Cheylan, J.P (1994)

Next sample is a particularly successful case, because just combining three elements (size, colour, patterns) is able to represent very different spatial patterns using only nodes.



Graphic 30 Four scenarios for the Netherlands of 2040

Third Criteria: Applying objective rules and reproducible methods

Achieving enough geographic accuracy to remove local sensitivity by readers is hardly feasible in any political map. Maps of future scenarios and visions have to be read as a whole, more than as a collection of parts or local fragments; overall trends and policy-aims have to be highlighted instead of a collection of details.

Most interesting experiences in the SPESP Infographic group were produced by designers able to avoid pure artistic and subjective methods in favor of methodologies combining objective criteria with clever graphic design.

In this respect, subjective representations risk to be misunderstood if there are no clear rules and criteria explaining all the choices. The more rule-based is the map representation, the more likely readers will discuss the rules applied and the overall policies, instead of criticizing the accuracy of a particular aspect.

Fourth Criteria: Making use of modelling results

The use of sound modeling results is critical to support map representations of either exploratory scenarios and Vision, making these representations less a personal choice and more the result of a rational and collective analysis. The more quantitative forecasts at NUTS3 and NUTS2 are used, the more informative maps will become and consistent as an end result of the whole project.

Fifth Criteria: Applying Graphic Guidelines for Thematic Maps

The criteria generally applied in the ESPON SIESTA project to develop the ESPON Atlas were adapted to the needs of the ESPON ET2050 project.

However, SIESTA mapping guidelines were never binding in ESPON and are not adopted as guidelines by the current ESPON ATLAS project nor by the project on New ESPON Cartographic Language. Informative maps need may often need 10 classes. This was confirmed by Prof. Christine Zanin, Lead Partner of the ESPON Cartographic Language project.

In the SIESTA guidelines, data represented are ranked in 4 to 6 classes and presented as choropleth, where areas of NUTS0, NUTS1, NUTS2 or NUTS3 are patterned in proportion to the measurement of the statistical variable being displayed on the map. Data are represented in two variations of colours, a colour to represent negative values and the other to represent positive values.

The formats of maps (colours and ramps or data classification) are summarized below.

- Title: Description of data represented, year, scenario name (Style: Arial Bold, Size 18)
- Subtitle: Units used (Style: Arial, Size 15)
- Map format: Standard ESPON layout format
- Legend: ramps and data classification

Indicators represented	Colours ramp	Data classification method
Population and migration	Orange – Green	Equal Interval in 5 classes
Ageing	Orange - Brown	Equal Interval in 5 classes
GDP	Orange – Blue	Equal Interval in 6 classes
Employment	Yellow – Purple	Equal Interval in 4 classes
Accessibility	Green - Purple	Equal Interval in 5 classes
CO2 Emissions	Green – Red	Equal Interval in 5 classes

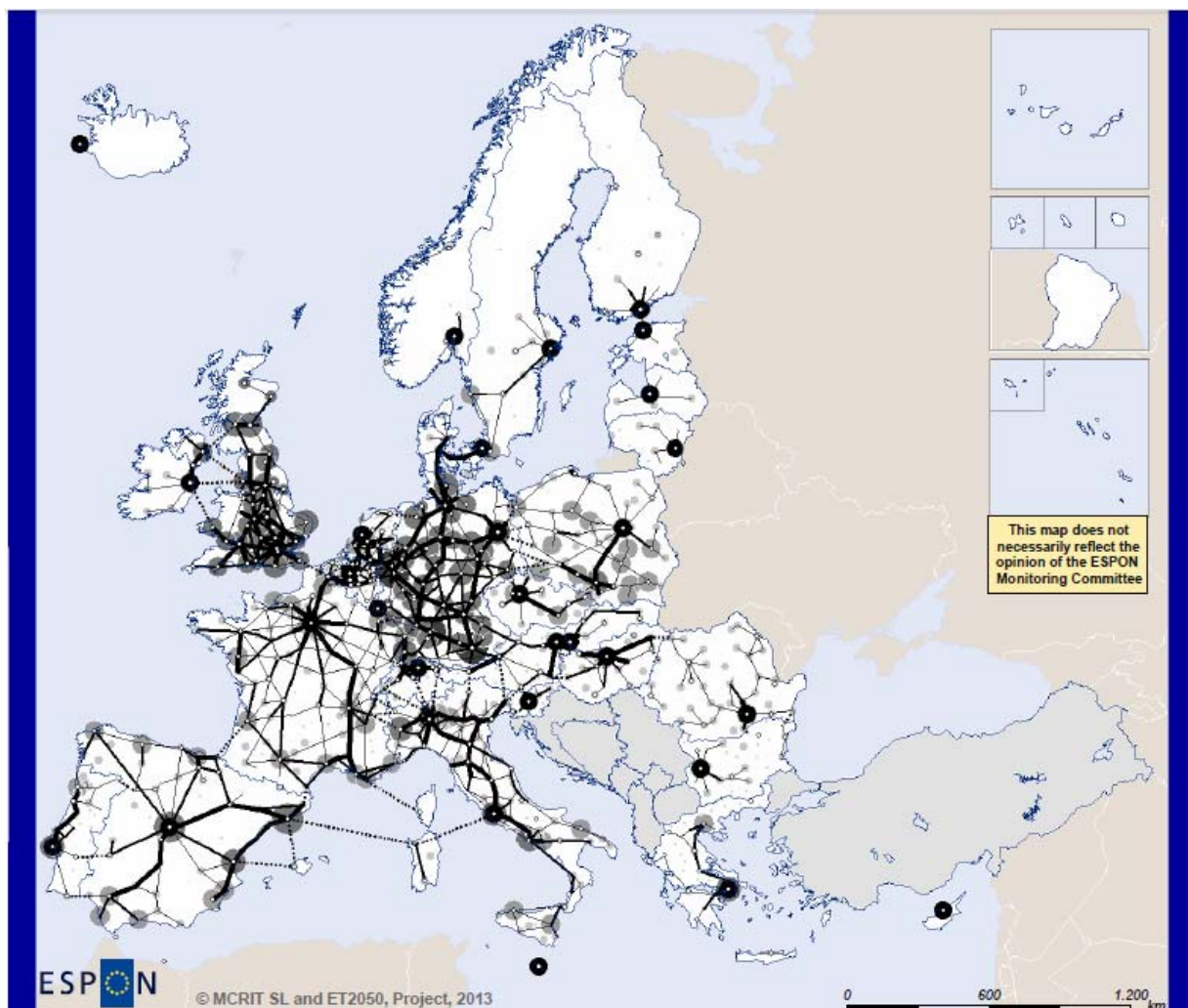
Mapping European Scenarios and Visions for 2050

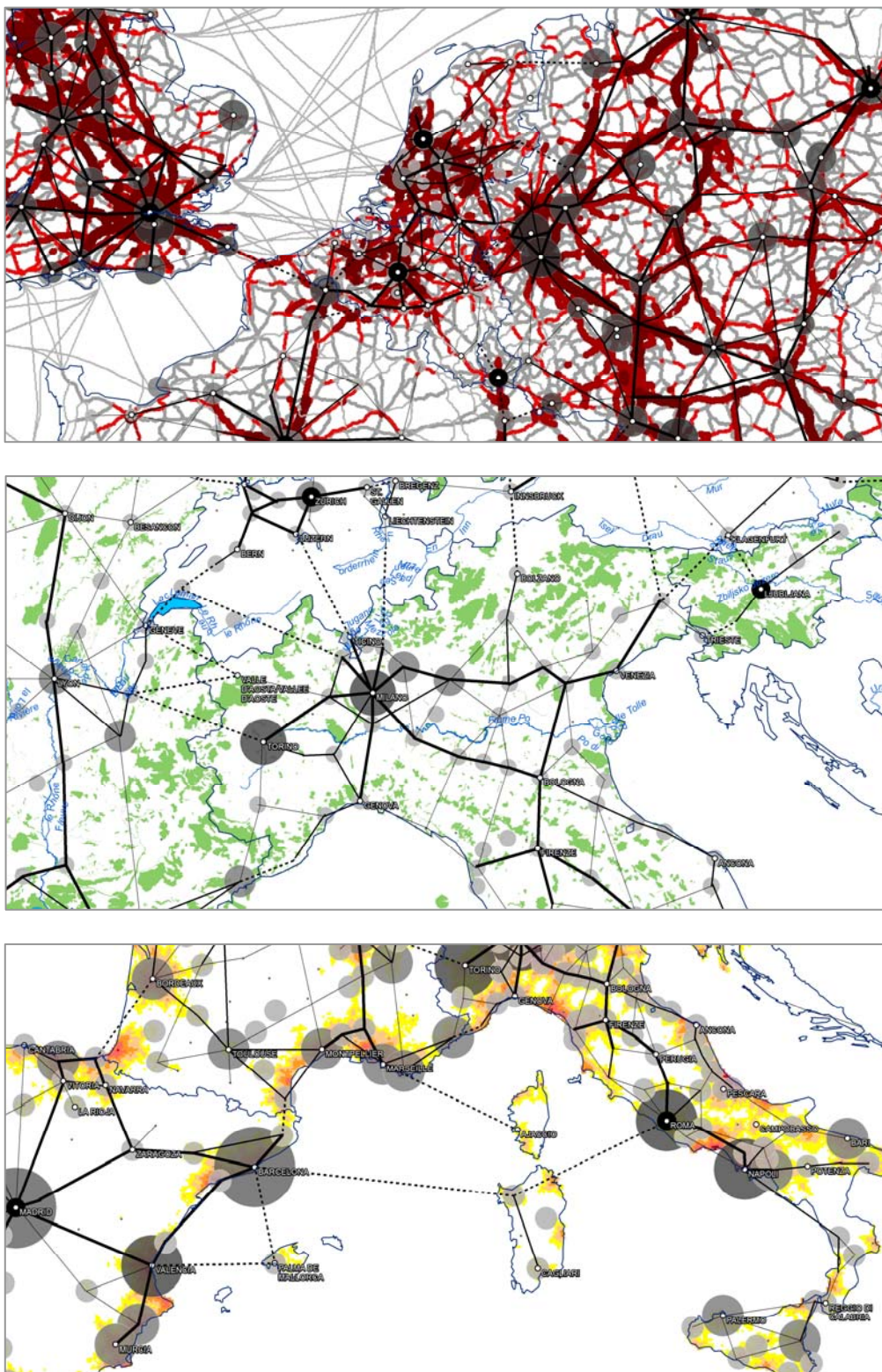
Baseline Scenario

The Baseline scenario is developed based on the following criteria:

- Nodes located in NUTS3, NUTS2, NUTS0 capitals (Germany and UK NUTS2). National capitals highlighted. Sizes in relation to NUTS3/2 population.
- Links between capitals created according to geographic proximity, road and rail traffic are also considered to classified them in three levels of intensity.

Results were cross-checked against: political boundaries, geographic features such as mountains/barriers and river basins/corridors and spatial Development Strategies when available. Next, the Baseline map and some fragments with alternative background images (road traffics, Nature 2000 and rivers, Transport connectivity) are presented as samples.





Graphic 31 Fragments of the Baseline with different background references

A Baseline combined scenario is designed as the over imposition of three maps:

- Baseline results for 2030 in terms of regional performance in relation to GDP and Population growth by MULTIPOLES and MASST3. Regions are classified in four typologies combining GDP and Population positive or negative evolution in relation to European average. Since many small regions –densely populated, have the highest GDP growth, they are represented in circles. European gateways to the world (ports and airports) are also included in the map.
- Baseline results for 2050 by SASI, highlighting in yellow NUTS3 regions having higher GDP growth than in the Baseline
- Urban structures developed based on the following criteria:
 - Nodes located in NUTS3, NUTS2, NUTS0 capitals
 - Links defined according to geographic proximity and road and rail traffic corridors

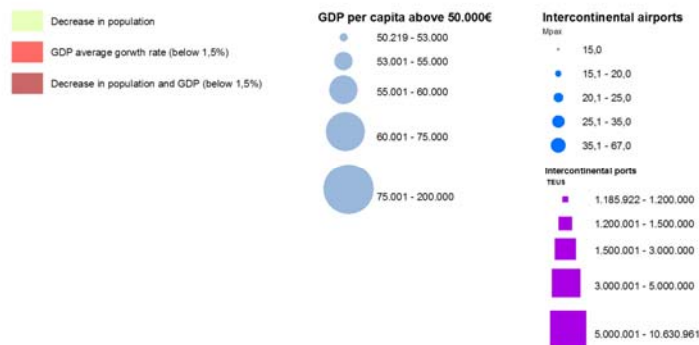
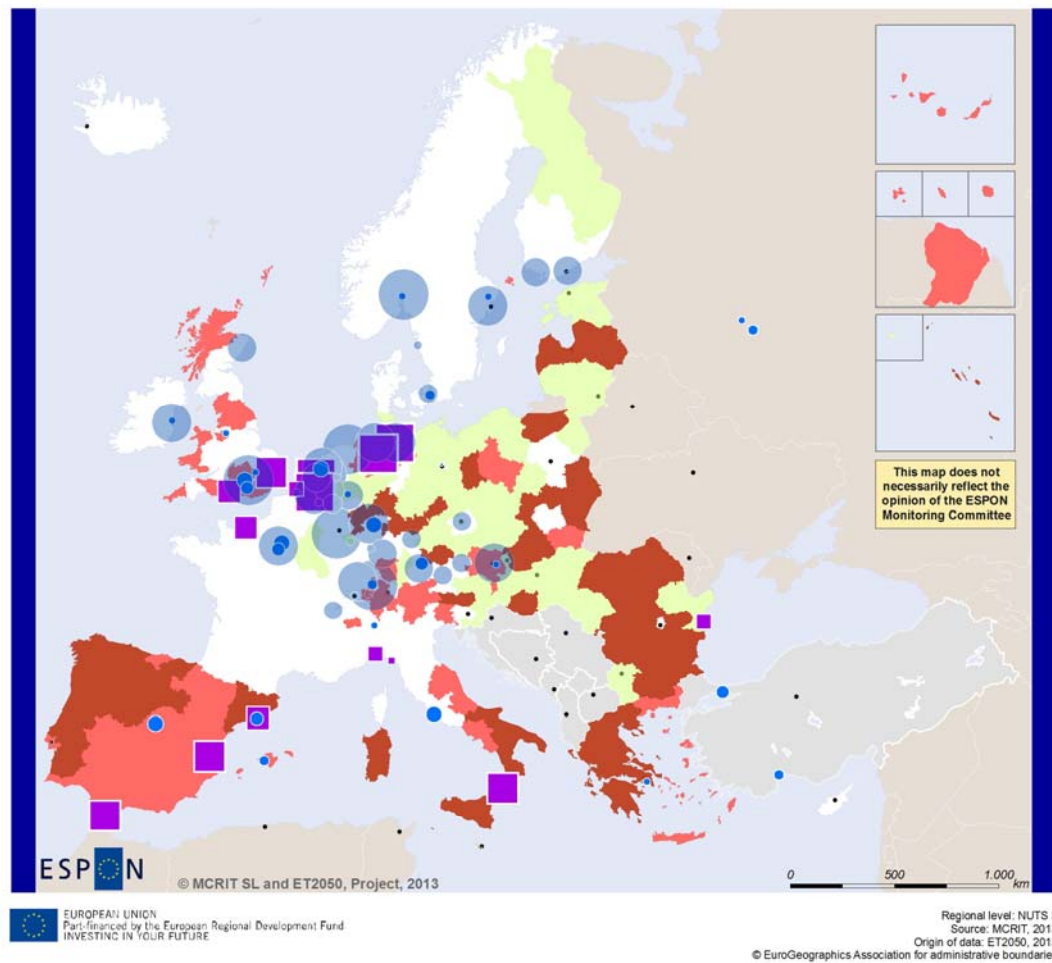
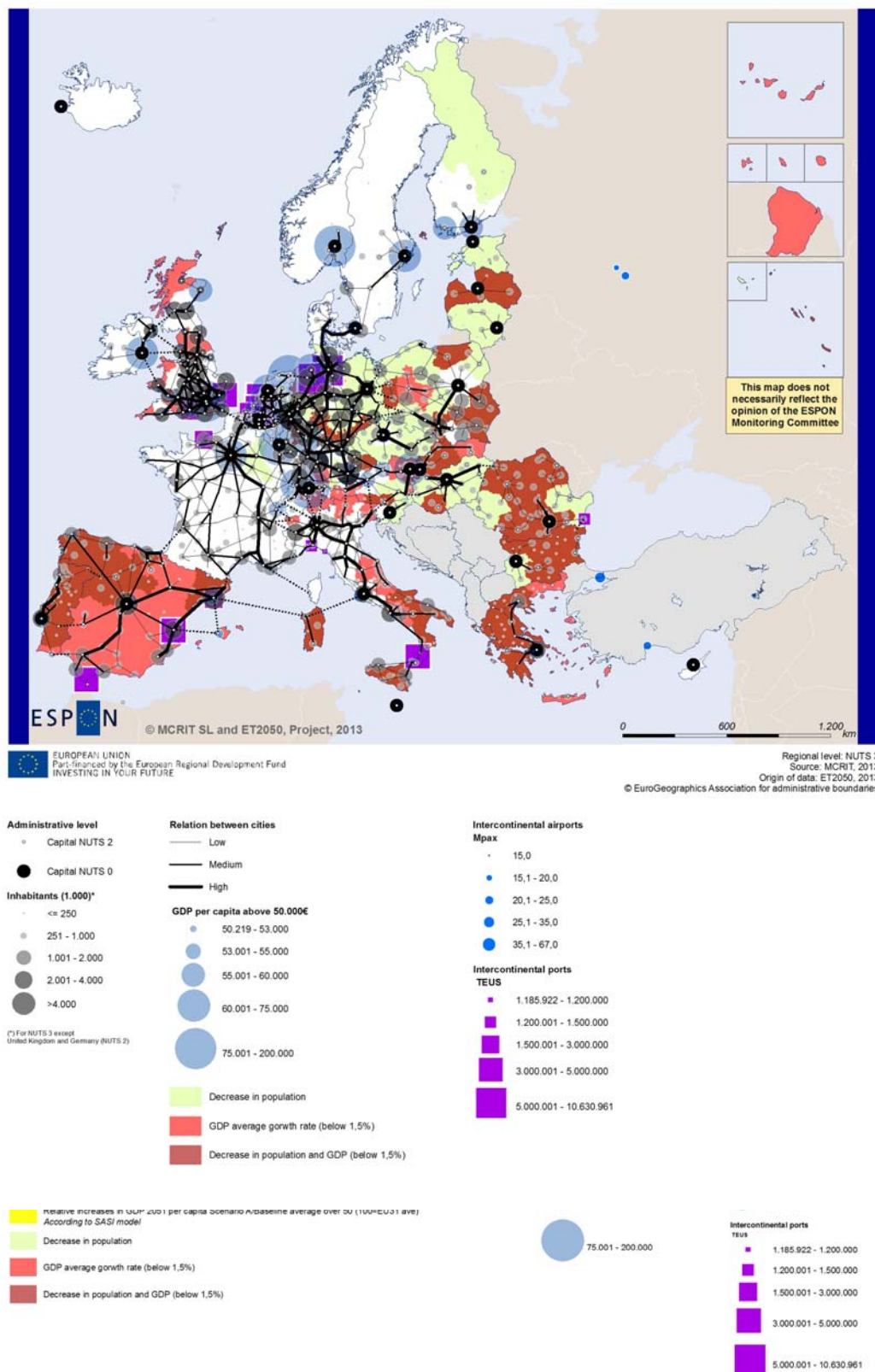


Illustration of the Baseline Scenario



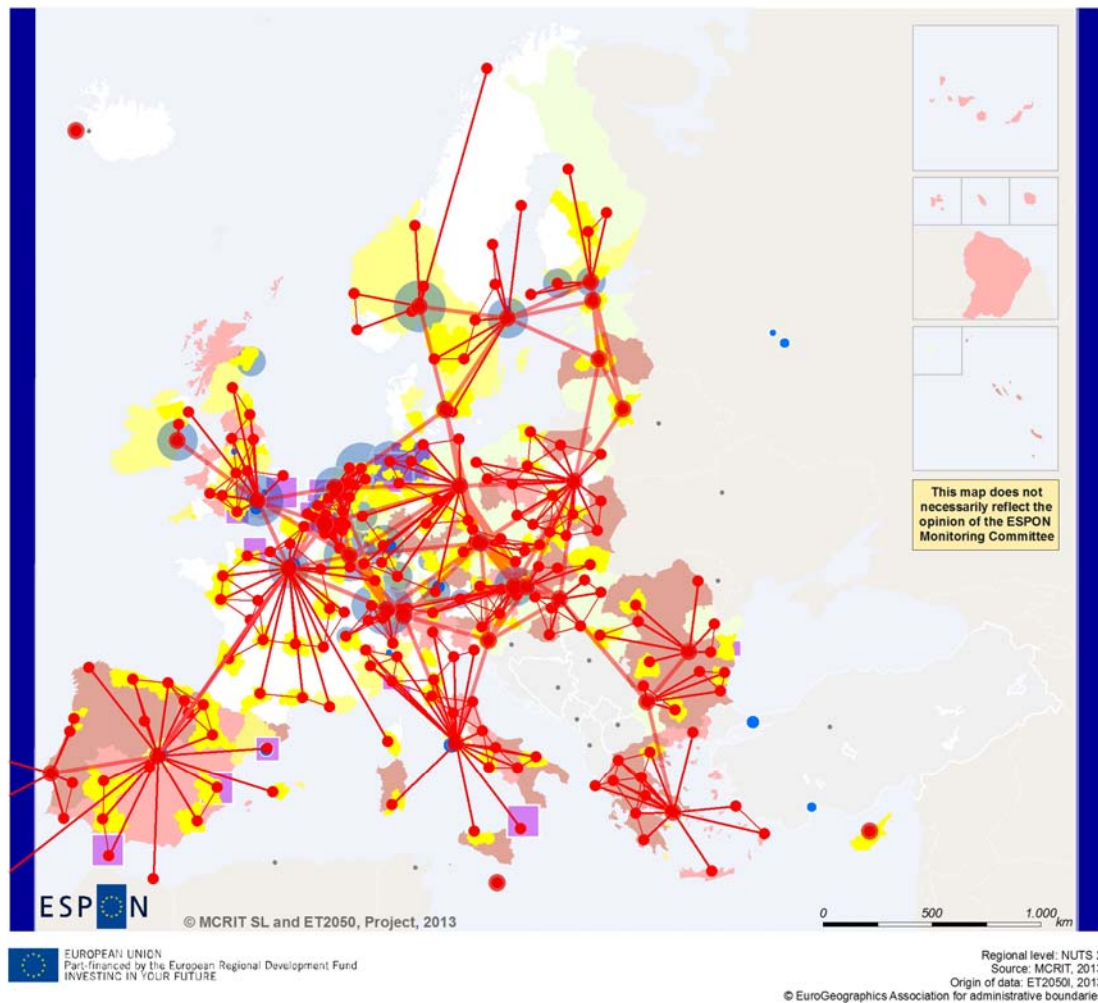
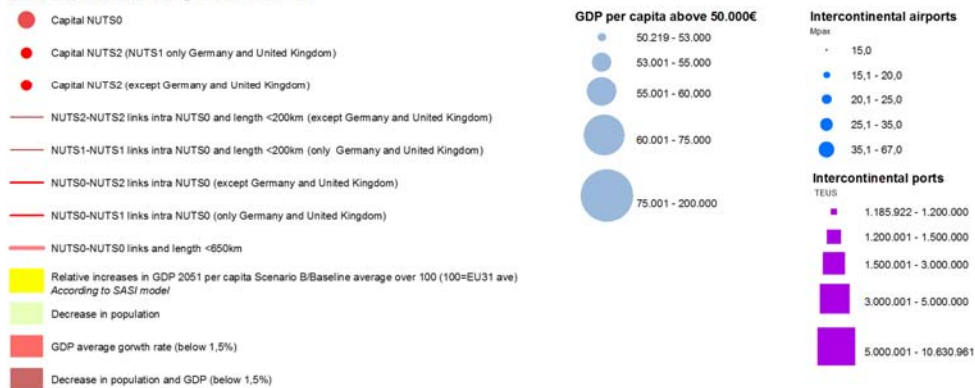


Illustration of Scenario B



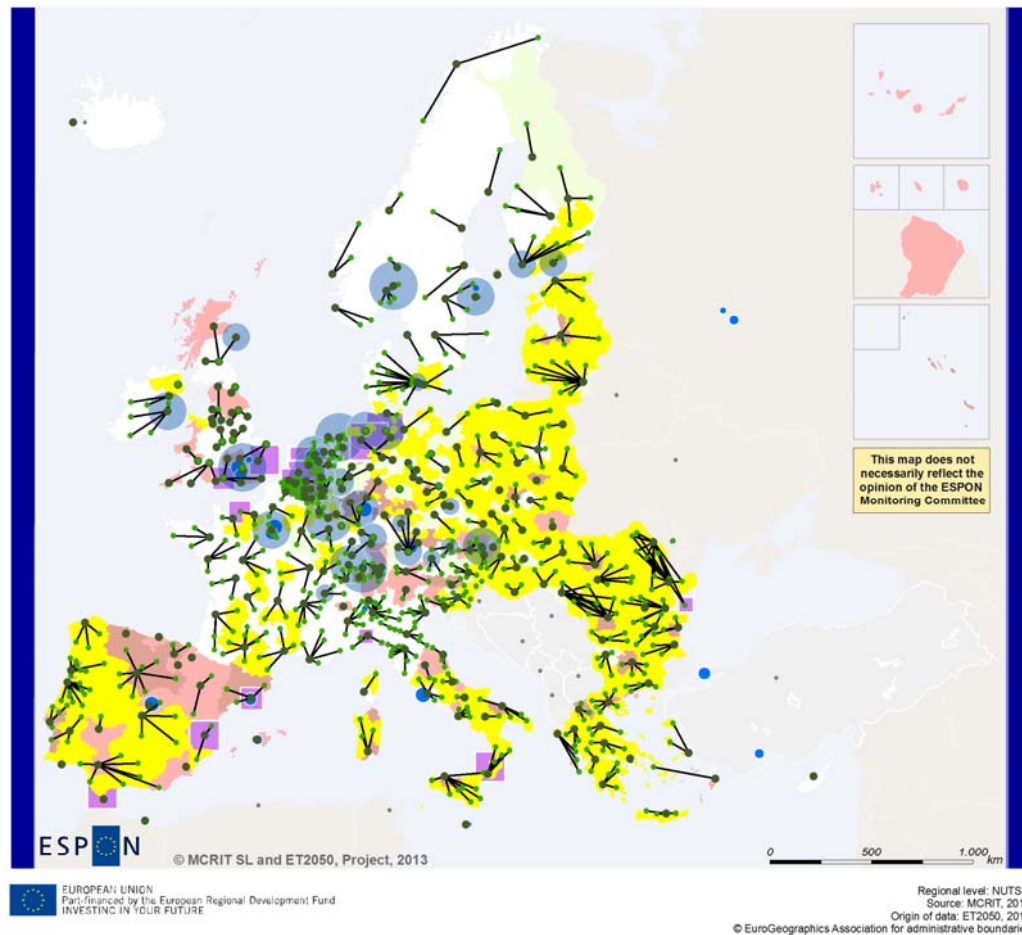
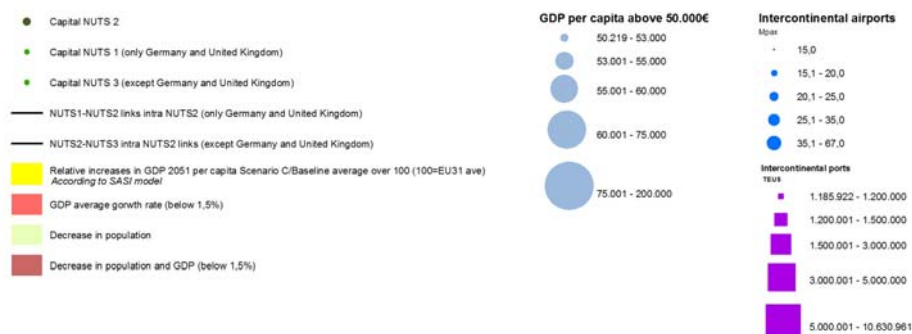


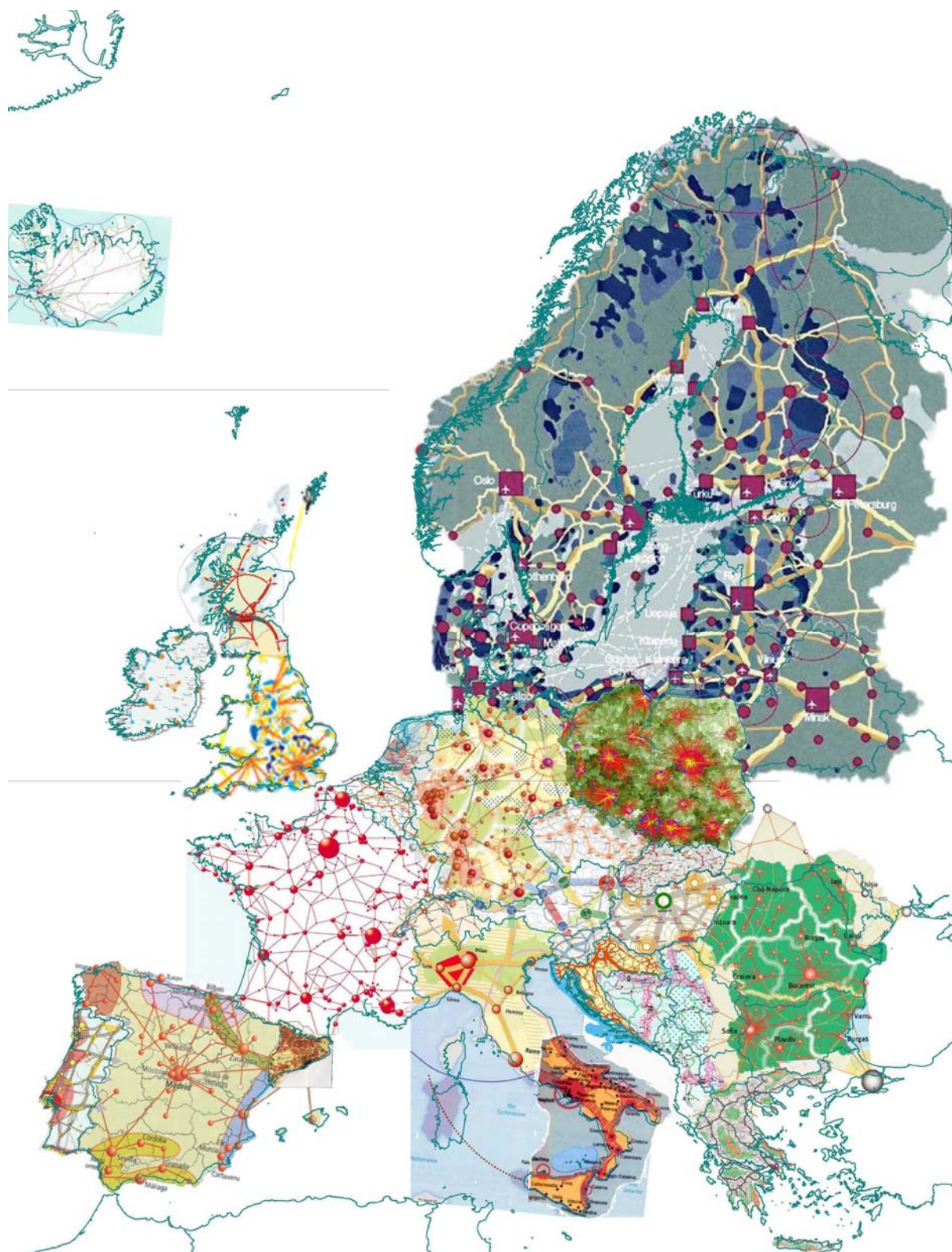
Illustration of Scenario C



Vision

Assembling National Spatial Development Visions

The first Vision to be constructed is the one coming from National Spatial Development Plans and Visions –a map which is unavoidable ambiguous since many countries do not have such a planning document, or it has very different legal status. Therefore, the map bellow is only one among many possible assembling plans and visions from different countries.



Graphic 32 Assembling Spatial National Development Strategies and Visions (ERSILIA, 2013)



Graphic 33 Comprehensive, integrated map. Vision for the Baltic Sea Region 2010

Criteria for the European Territorial Vision for 2050

By consistency, the criteria applied follows the same criteria applied for the Exploratory Scenarios. In order to get a geographically differentiated evolution of the territory over time, maps every decade were designed (2020, 2030, 2040 and 2050 taking the baseline as starting point and defining an evolution towards the Vision, which is considered close to B (overall) around 2030 and then to C in 2050 (at least for more developed regions of Europe).

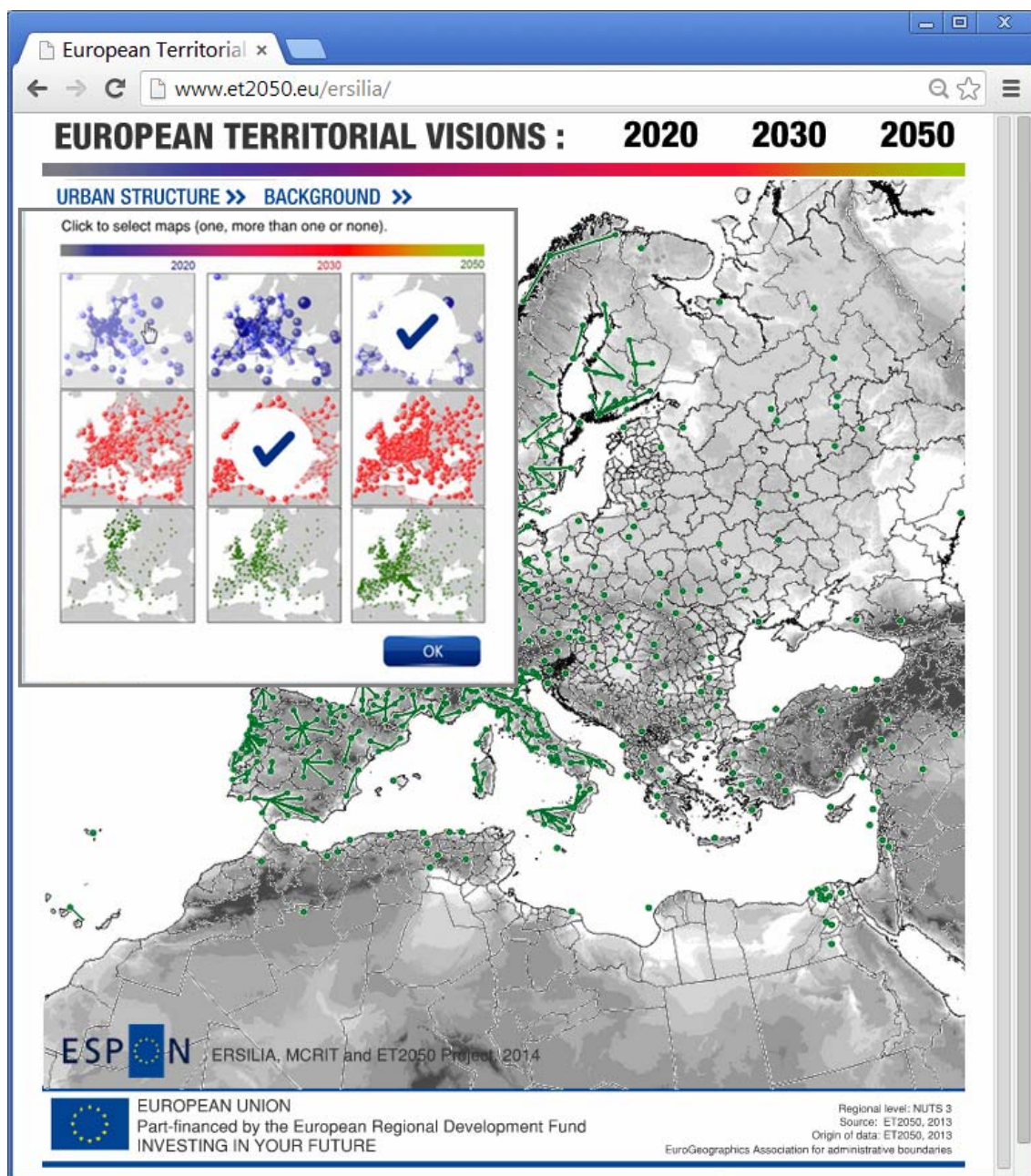
The Vision applies the rules defined for A, B and C to the macro-regions having evolutions along this pattern.

	A Scenario (Promoting MEGAS)	B Scenario (Promoting CITIES)	C Scenario (Promoting REGIONS)	BASELINE
Spatial distribution of population and economic growth, (and territorial governance)	Relative accessibility and connectivity to international transport networks and agglomeration economies attract growth, following spontaneous market tendencies. Global cities, mostly MEGAS grow bigger.	Large cities attract both more people and activities because effective public policies promoting them at National scale. Internal migrations from sparsely populated areas to urban centres.	Medium-size cities and towns attract people based on their cultural and environmental quality, and strong public policies and incentives. Change in consumer behaviour favouring proximity and self-sufficiency. Intense decentralisation at local and regional level. Limited external migrations.	No relevant modification on actual spatial patterns
Area of Europe	2010-2020	2020-2030	2030-2040	2040-2050
North	Promotion of small and medium cities	Promotion of small and medium cities	Promotion of small and medium cities	Promotion of small and medium cities
Centre	Promotion of large cities (FUAs)	Promotion of large cities (FUAs)	Promotion of small and medium cities	Promotion of small and medium cities
South				
East			Promotion of large cities (FUAs)	

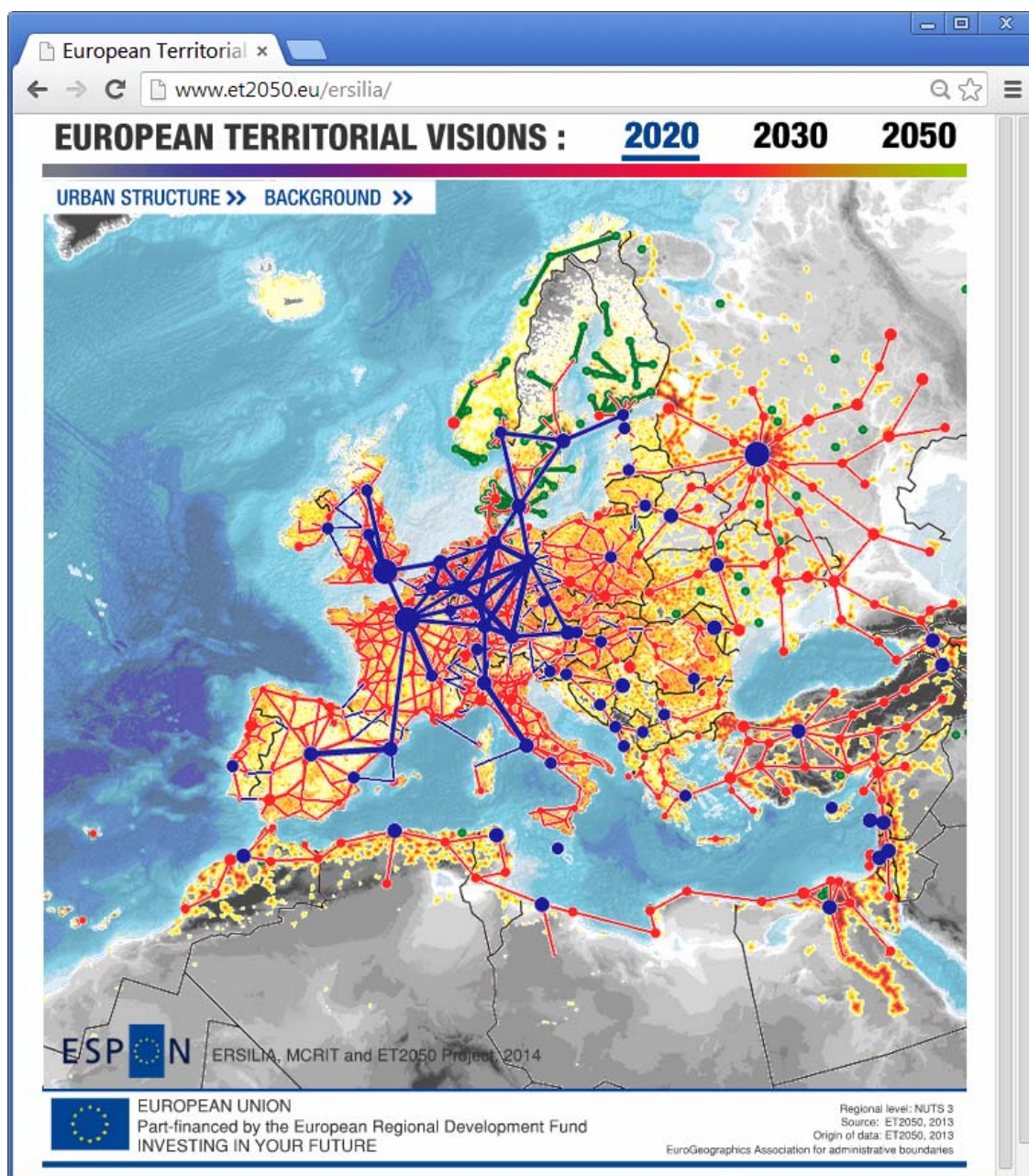
Dynamic Animation

The tool is developed online (<http://www.et2050.eu/ersilia/>) to allow users displaying and overlaying alternative territorial strategies over a European background, to explore different territorial organizations opening ways towards the territorial Vision and variations. The tool also include the European neighborhood.

The tool has been developed in the occasion of the Stakeholder Workshop on the Territorial Vision in Vilnius (December 2013).



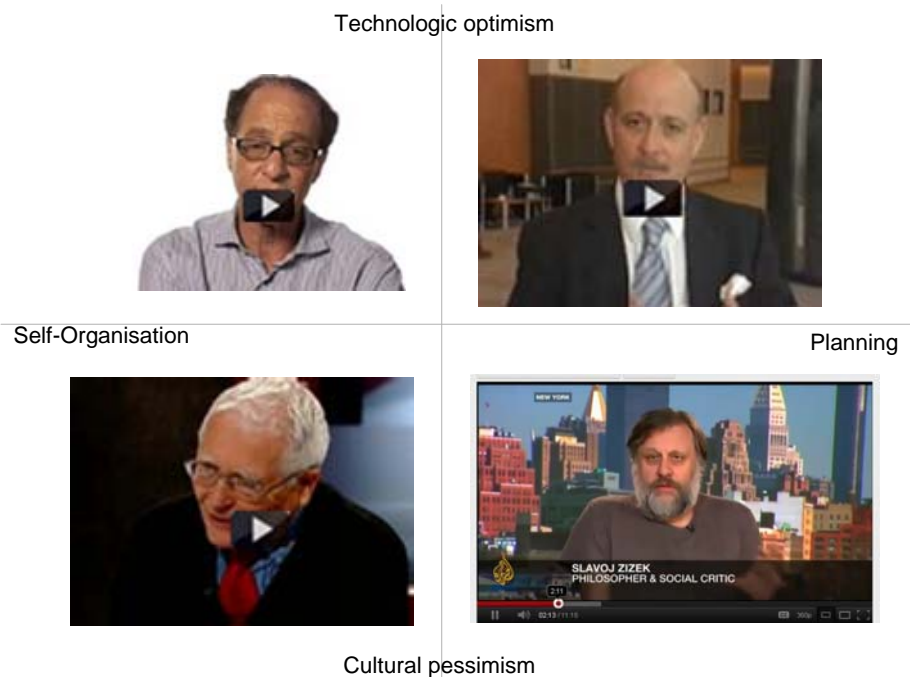
Graphic 34 Building tools for exploring alternative territorial strategies



Graphic 35 Territorial Vision by 2020

YouTube/Vimeo channel: movie production

A Vimeo channel has been opened to store multimedia materials produced by the ET2050 project. A first video has been produced to illustrate of the spirit of the different ET2050 scenarios, and presented to the ESPON MC in the Paphos Policy Workshop, to begin the discussion of the session. The movie depicted features of 3 alternative scenarios and the vision, along with extracts of interventions by key thinkers that provided narratives to the succession of images.



Graphic 36 Four extreme visions according to alternative views on technology and planning

Website

Resources for participation are being developed aiming to disseminate project ongoing works and activities in a communicative, user-friendly manner, exploiting different media and facilitating interaction with potential participants in the process. The paramount aim is to generate interest for the project during the process of participation (for the stakeholders) and to increase the awareness of wider audiences once the project is over.

The ET2050 website has continued to be both an important tool to internally coordinate the work of the consortium, and to maintain an open platform for both communication and dissemination. In this direction, the website has kept being updated periodically to include the latest project activities, reference documents, and available materials for dissemination.

The central communication platform of ET2050 is the www.et2050.eu website.

The screenshot shows the ET2050 website interface with several annotations pointing to specific features:

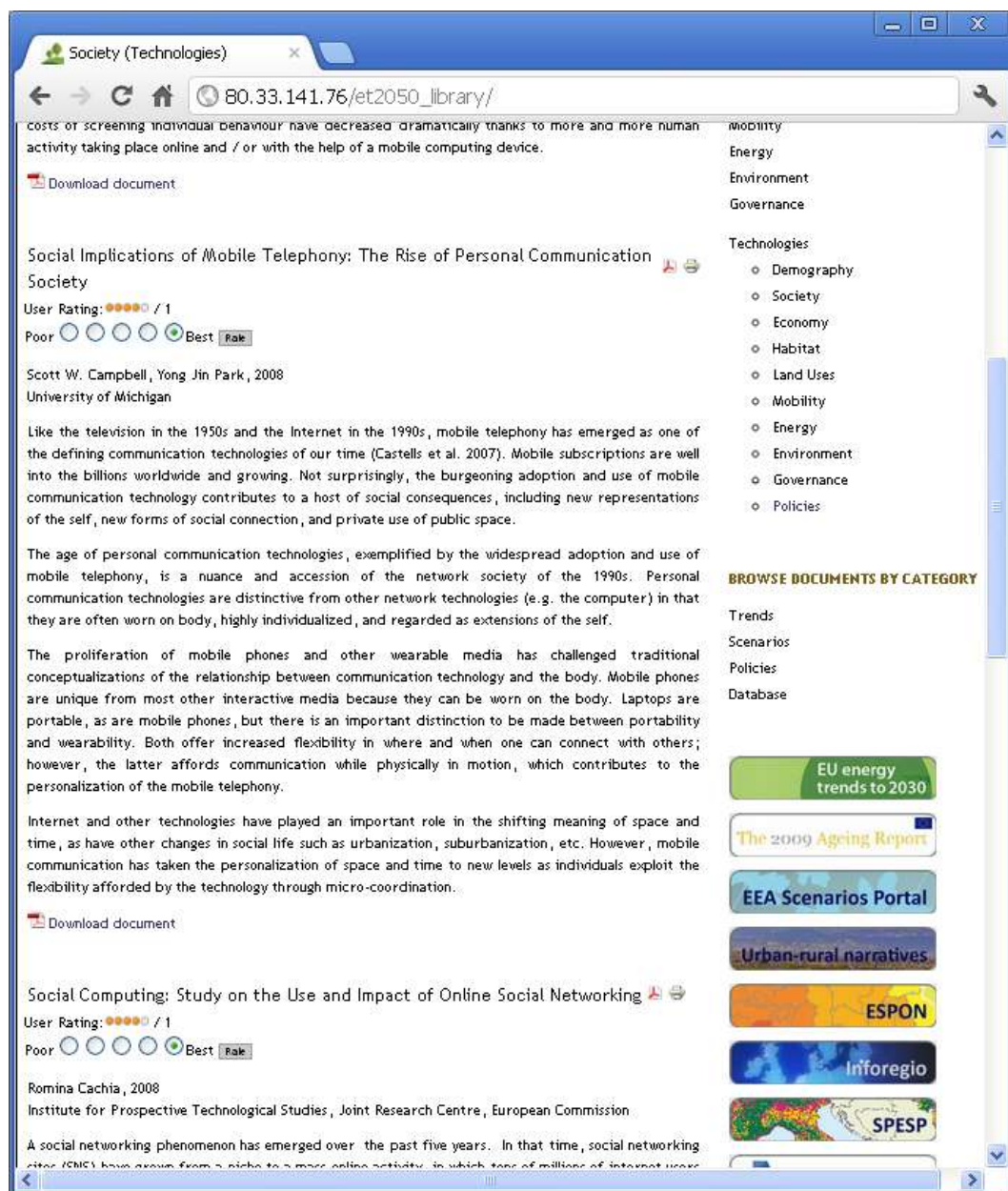
- Management area:** Points to the top navigation bar and the left sidebar menu.
- Project information and materials:** Points to the main content area featuring a large banner image and text about the MC Meeting.
- Box of announcements:** Points to the 'Next TPG Deadlines' box on the right, which includes a 'NEW UPDATE 7' notification.
- Search tool:** Points to the search bar on the right side of the page.
- Access to internal area:** Points to the login section on the right, including fields for 'User Name' (ET2050) and 'Password', a 'Remember Me' checkbox, and a 'Log in' button.
- ET2050 partial results:** Points to the 'Participatory Events' section at the bottom right, which lists 'Schedule & Type of Event' and 'Directory of participants'.

The website content includes sections for 'ET2050 Management' (Consortium, Steering Committee, Internal Expert Panel, etc.), 'About ET2050' (Project Specification, Aim of ET2050, etc.), 'ET2050 Activities' (Work Programme, Participation, etc.), and 'Consortium Resources'. It also features a central announcement about the 'MC Meeting 12th June & ESPON Open Seminar 13-14 June in Aalborg' and a 'March 19th TPG Meeting & March 20th Steering Committee Meeting in Brussels'.



Graphic 37 ET2050 homepage (www.et2050.eu)

ET2050 virtual library contains selected documents concerning future trends, technologies, scenarios, policies and databases on a set of topics from societal and demographic issues up to governance, including economy, transport, energy, environment, habitat, land-uses. Use the right menus to browse presently available documents. The library is to be kept updated with new documentation.



Graphic 38 Virtual library at http://www.et2050.eu/Et2050_Library/

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