

3. REMARKS ON HOW TO MAP THE EUROPE 2020 STRATEGY

*Marta Calvet <marta@mcrit.com>
Andreu Ulied <ulied@mcrit.com>
Oriol Biosca <obiosca@mcrit.com>
MCRIT SL (Barcelona)*

3.1. Introduction

The aim of this chapter is to explain the cartographic criteria set to produce the final maps which have been included on the Europe 2020 Atlas. As the main objective of the SIESTA Project has been to map the Europe 2020 Strategy (EU2020S), maps have been one of the key issues. The Europe 2020 Atlas is the main output of SIESTA Project and it aims to present, as a synoptic and compressive way, the current situation of European regions in relation to the EU2020S. The final version of the Europe 2020 Atlas presents 50 maps. It is structured in the same manner like the EU2020S, based on three pillars and seven flagships initiatives. Following the EU2020S, the Europe 2020 Atlas is structured as listed below:

- Sustainable Growth:
 - o Growth and Competitiveness in a Crisis Differently Affecting the European Territories.
 - o Territorial dissimilarities in Energy and Climate Change.
- Smart Growth:
 - o Research, Development and Innovation across the European Territories.
 - o The Territorial Dimension of Education.
 - o Persisting Digital Society Territorial Divides.
- Inclusive Growth:
 - o The Territorial Configurations of Employment and Lifelong Learning.
 - o Territorial Dissimilarities in Poverty and Exclusion.

Within each of these categories, the SIESTA Project has designed three basic types of maps:

- Maps by themes, illustrating the current state of European regions in relation to each of the themes analysed by the SIESTA Project.
- Maps of progress towards the EU2020S headline targets, illustrating the degree of accomplishment of the official EU2020S set targets in each region.
- Larger urban zones (LUZ) maps,¹ illustrating the current state of cities in relation to each theme analysed.

The Atlas is available on paper format as output of Final Report of SIESTA Project, and also on a digital version available at the ESPON Map Finder tool (<<http://mapfinder.espon.eu>>). As in March 2013, twelve SIESTA Project Maps are already available digitally and it is planned to have the full EU2020S published online during Spring — Summer 2013. The ESPON Map Finder is a tool of the ESPON programme aimed at making available the most policy communicative maps produced by ESPON financed projects to the scientific community and to policy makers.

ESPON		Table of Contents
<p>SIESTA Spatial Indicators for a 'Europe 2020 Strategy' Territorial Analysis</p> <p>Applied Research 2013/1/18 Report Version 24/12/2012</p>	<p>Foreword 1</p> <p>1. The Europe 2020 Strategy: an Overlook 4</p> <p>2. Sustainable Growth 7</p> <p>2.1. Growth and Competitiveness in a Crisis Differently Affecting the European Territories 8</p> <p>2.2. Territorial Dissimilarities in Energy and Climate Change 13</p> <p>2.2.1. Territorial Heterogeneity on Renewable Energy Development and Reduction of Energy Consumption 13</p> <p>2.2.2. Speed of the European Territories in the Transition towards a Low Emissions Economy 21</p> <p>3. Smart Growth 25</p> <p>3.1. Research, Development and Innovation across the European Territories 25</p> <p>3.1.1. Territorial Disparities in Research and Development 25</p> <p>3.1.2. The Extreme Territorial Concentration of Innovation 30</p> <p>3.2. The Territorial Dimension of Education 33</p> <p>3.2.1. Territorial Polarisation in Basic Educational Achievement 33</p> <p>3.2.2. Territorial Contradictions in Tertiary Education 38</p> <p>3.3. Persisting Digital Society Territorial Divides 42</p> <p>4. Inclusive Growth 47</p> <p>4.1. The Territorial Configurations of Employment and Lifelong Learning 47</p> <p>4.1.1. The Contrasting Territories of Employment and Unemployment 47</p> <p>4.1.2. Territorial Opposition between Lifelong Learning and Low Educational Attainment 54</p> <p>4.2. Territorial Dissimilarities in Poverty and Exclusion 57</p> <p>5. Conclusions: The Uneven Territories of the EU2020S 64</p> <p>5.1. Unbalanced Territorial Interpretations of the EU2020S through an Aggregate Index 64</p> <p>5.2. Territorial Clustering of the EU2020S: towards a Great Division? 68</p> <p>5.3. Concluding Remark 70</p>	

Figure 3.1. Table of contents of the EU2020S Atlas.

¹ LUZs are an approximation of the functional urban zone centred around a town/city, within the Urban Audit methodology (Urban Audit, 2004).



Figure 3.2. View of ESPON Map Finder. Source: <<http://mapfinder.espon.eu>> (Access 31.3.2013).

3.2. Mapping Criteria for the EU2020S

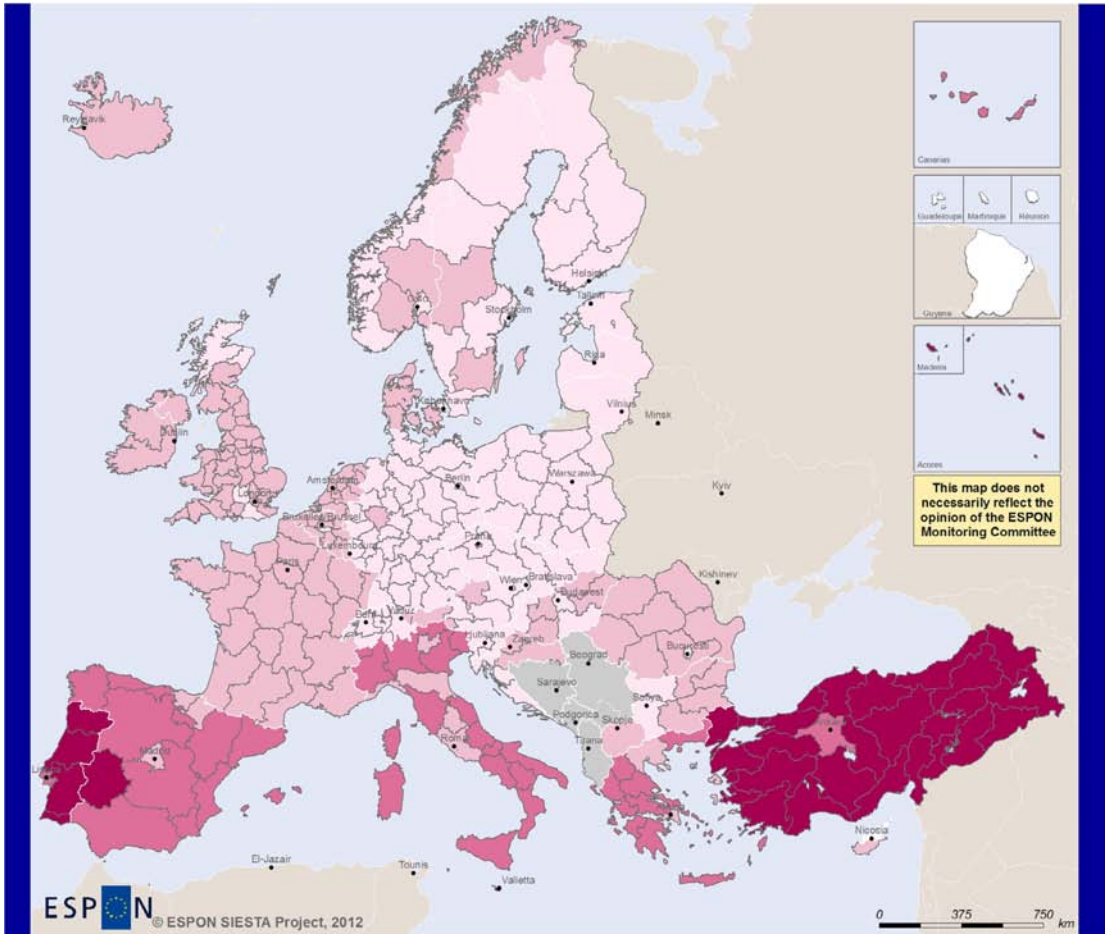
According to Edward Tufte (2001), in one of the most influential studies on the subject, excellence in statistical graphics, and mapping, consists of complex ideas communicated with clarity, precision and efficiency. Graphical and cartographic displays must induce the viewer and reader to think about the substance (a given scientific result or political message) rather than about something else, encourage the eye to compare different pieces of data, reveal the data at different levels of detail, from a broad overview to a fine structure, serve a reasonably clear purpose and be closely integrated with statistical and verbal descriptions of the dataset. After all, graphics and maps *reveal data*.

3.2.1. Maps by Themes

Maps by themes show the static data of each indicator. The data represented are ranked generally in 4 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. On these maps, data are presented in graduated colours where colours are ordered progressively from low to high. Light colours are used to show low data values and dark colours are used to show high data values. Map 3.1 is provided as an example.

Table 3.1. Mapping Criteria for Maps by Themes. Source: SIESTA 2013.

Indicators represented	Colours ramp	Data classification method
<i>Smart Growth</i>		
Innovation	Violet	Equal Interval in 4 classes
Education	Brown	Equal Interval in 4 classes
Digital Society	Purple	Equal Interval in 4 classes
<i>Sustainable Growth</i>		
Competitiveness and Economic Growth	Blue	Equal Interval in 4 classes
Green Economy, Climate Change and Energy	Orange	Equal Interval in 4 classes
<i>Inclusive Growth</i>		
Employment, Skills and Jobs	Rose	Equal Interval in 4 classes
Poverty and Exclusion	Pink	Equal Interval in 4 classes



This map does not necessarily reflect the opinion of the ESPON Monitoring Committee

EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Regional level: NUTS2, NUTS0
 Source: EUROSTAT
 Origin of data: EUROSTAT, 2012
 © EuroGeographics Association for administrative boundaries

Percentage of people aged 25 - 64 (%), 2010.

- < 20%
- 20% - 40%
- 40% - 60%
- > 60%
- No data (ESPON space)
- No data (No ESPON space)

Notes:
 This indicator is the ratio of people aged 25 - 64 with lower secondary education attainment. IS, EE, LV, LT, MK, CY and MT are shown at country level.

Map 3.1. Persons (aged 25 to 64) with low educational attainment (level 1 or 2 ISCED) by regions, 2010.

3.2.2. EU2020S Headline Target Maps

These maps show EU2020S headline targets to be achieved in 2020, as follows:

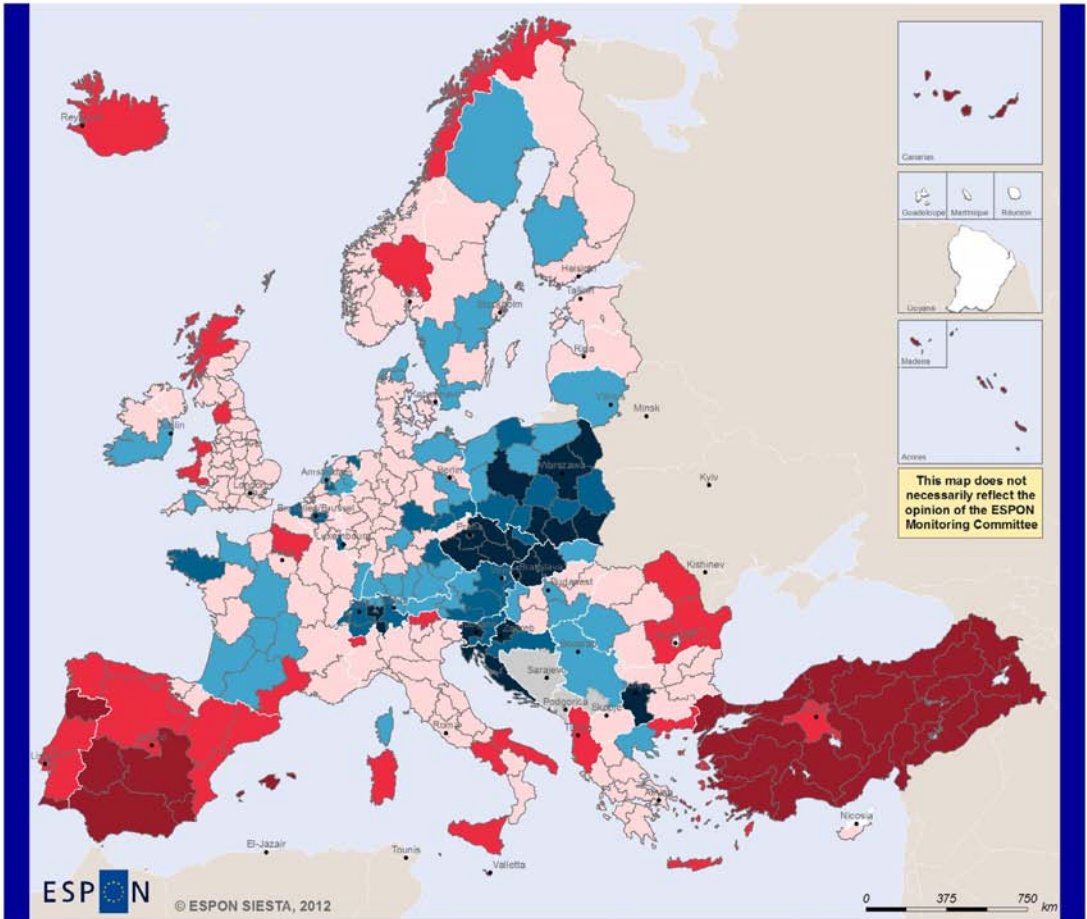
- Employment rate (population aged 20-64).
- Gross Domestic Product invested in R&D.
- Greenhouse gas emissions in relation to 1990 levels.
- Energy from renewable sources.
- Energy efficiency represented as reduction of energy consumption (Mtoe).
- Early school leavers rate (population aged 18-24).
- Population aged 30-34 completing third level education.
- At least 20 million fewer people in or at-risk-of-poverty and social exclusion.

Each target is shown in three different ways: present state in relation to EU2020S target; distance to the national target achievement; and change over time. The data represented are ranked generally in 6 classes, 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 represented are shown in two different colour ramps, one colour ramp for negative values and the other one, for positive values.

Present state in relation to EU2020S target maps show data in six different classes. Values below EU2020S headline target are shown in red colour ramp, and values above are shown in blue ramp. Map 3.2 is provided as an example.

Distance to national target maps show data in six different classes. These maps show distance from current value to the target set by each country. Negative values are shown in red colour ramp, and positive values are shown in green ramp. If the national target has not been set, no data are shown. Map 3.3 is provided as an example.

Change over time maps show data in six different classes. The intention of the SIESTA Project has been to have all the headline targets mapped in trends for the last decade. However, considering the general problems related to the lack of large datasets at regional level, we must recognise that there is reduced possibility of developing maps showing more than a given year, thus showing trends (development over time). Negative tendencies are shown in brown colour ramp, and positive tendencies are shown in green ramp. Map 3.4 is provided as an example.






 EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Regional level: NUTS2 and NUTS0
 Source: EUROSTAT, MS NRP, DG REGIO, Seventh Report
 on Economic, Social and Territorial Cohesion
 Origin of data: EUROSTAT, 2011
 © EuroGeographics Association for administrative boundaries

Percentage of population aged 18-24 (%) 2010.
EU 2020 Target = 10%

Below EU 2020 Target

-  < 5%
-  5% - 7.5%
-  7.5% - 10%

Above EU 2020 Target

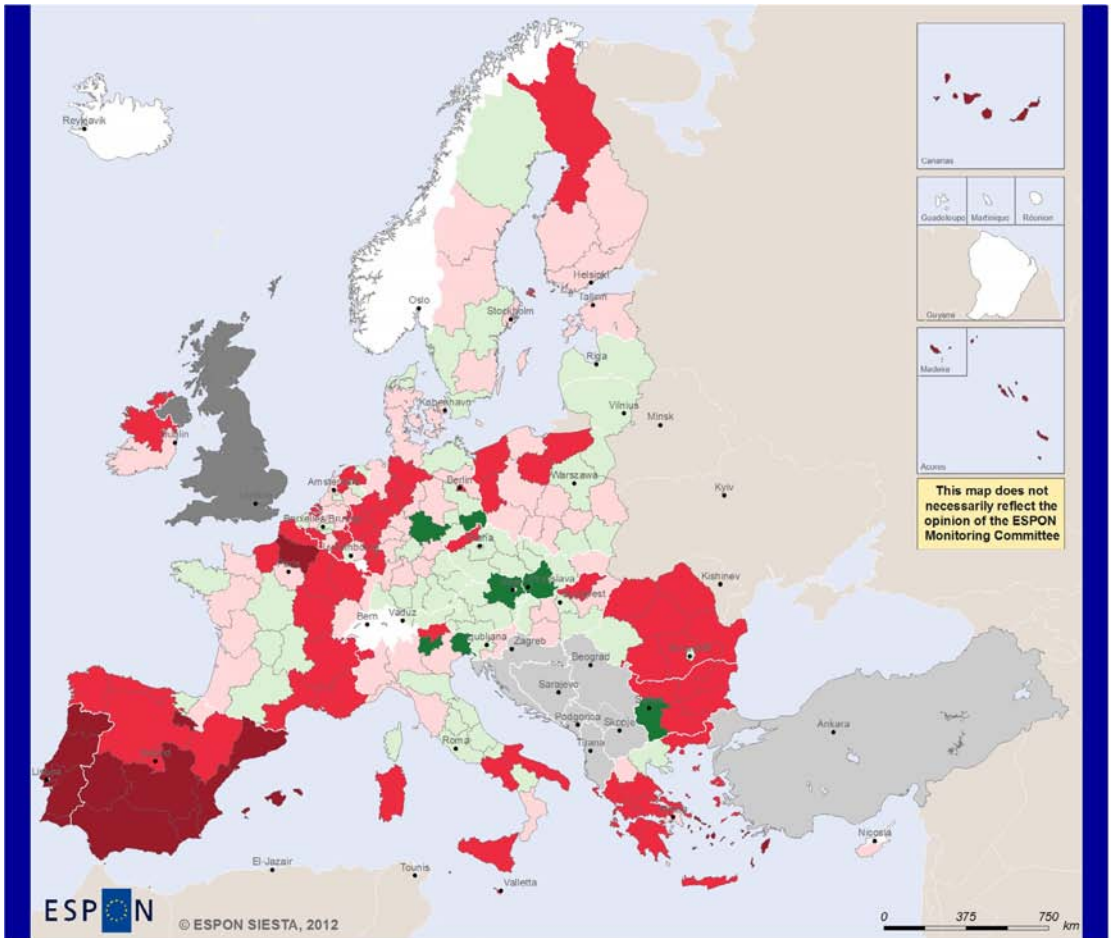
-  10% - 20%
-  20% - 30%
-  > 30%

-  No data (ESPON space)
-  No data (No ESPON space)

Notes:
 Early leavers from education and training refers to persons aged 18 to 24 fulfilling the following two conditions: first, the highest level of education training attained is ISCED 0, 1, 2 or 3c short, second respondents declared not having received any education or training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding no answers to the questions "highest level of education or training attained" and "participation to education and training".

Data for RS, AL, and MK are shown at country level.
 *Data for AL are for 2009

Map 3.2. Regional early school leavers from education and training as percentage of population aged 18 to 28 (drop-out rate), 2010.



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Regional level: NUTS2 and NUTS0
Source: EUROSTAT, MS NRP's, DG REGIO, Seventh Report
on Economic, Social and Territorial Cohesion
Origin of data: EUROSTAT, 2011
© EuroGeographics Association for administrative boundaries

Distance in percentage of early leavers in relation to National Targets (%).

Below National Target (%)

■ <-3%

■ -3% - 0%

■ No National Target

No data (ESPON space)

Above National Target (%)

■ 0% - 3%

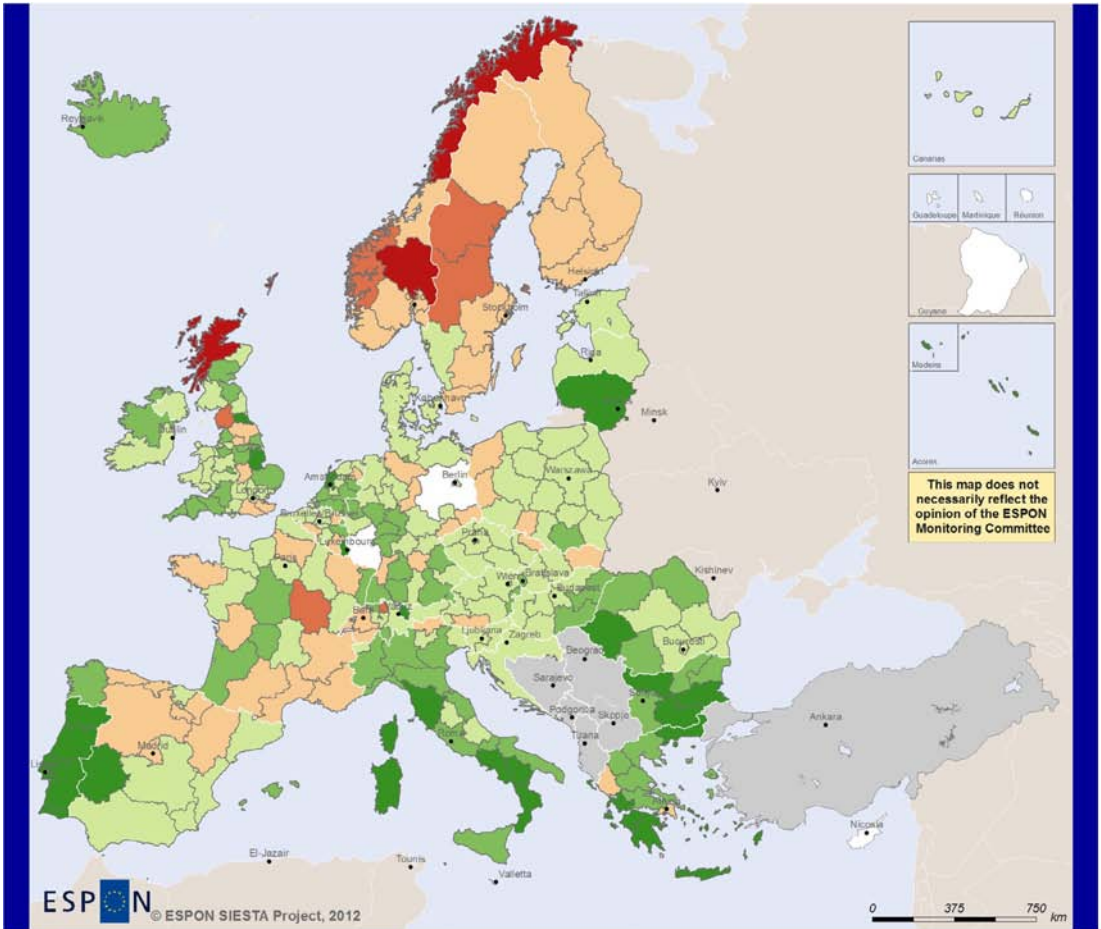
■ 3% - 12%

■ > 12%

No data (No ESPON space)

Notes:
Early leavers from education and training refers to persons aged 18 to 24 fulfilling the following two conditions: first, the highest level of education training attained is ISCED 0, 1, 2 or 3c short; second respondents declared not having received any education or training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding no answers to the questions "highest level of education or training attained" and "participation to education and training".

Map 3.3. Regional drop-out rate represented as distance to the 2020 national targets, 2010.



ESPON
 © ESPON SIESTA Project, 2012

EUROPEAN UNION
 Part-financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Regional level: NUTS0 and NUTS2
 Source: Eurostat, 2012
 Origin of data: EUROSAT, 2012
 © EuroGeographics Association for administrative boundaries

Percentage points difference (%), from 2000 to 2010.

Positive change (%)

- <-8%
- 8% - -4%
- 4% - 0%

Negative change (%)

- 0% - 4%
- 4% - 8%
- > 8%

- No data (ESPON sapce)
- No data (No ESPON sapce)

Notes:

EU 2020 Target: 10%

Early leavers from education and training refers to persons aged 18 to 24 fulfilling the following two conditions: first, the highest level of education training attained is ISCED 0, 1, 2 or 3c short, second respondents declared not having received any education or training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding no answers to the questions "highest level of education or training attained" and "participation to education and training".

Data for CH, DE30 and SI are shown for 2001 - 2010.
 Data for HR are shown for 2002 - 2010 at country level.
 Data for BG are shown for 2003 - 2010.
 DK is shown at country level.

Map 3.4. Change in regional drop-out rate, 2000-2010.

3.2.3. Larger Urban Zones Maps

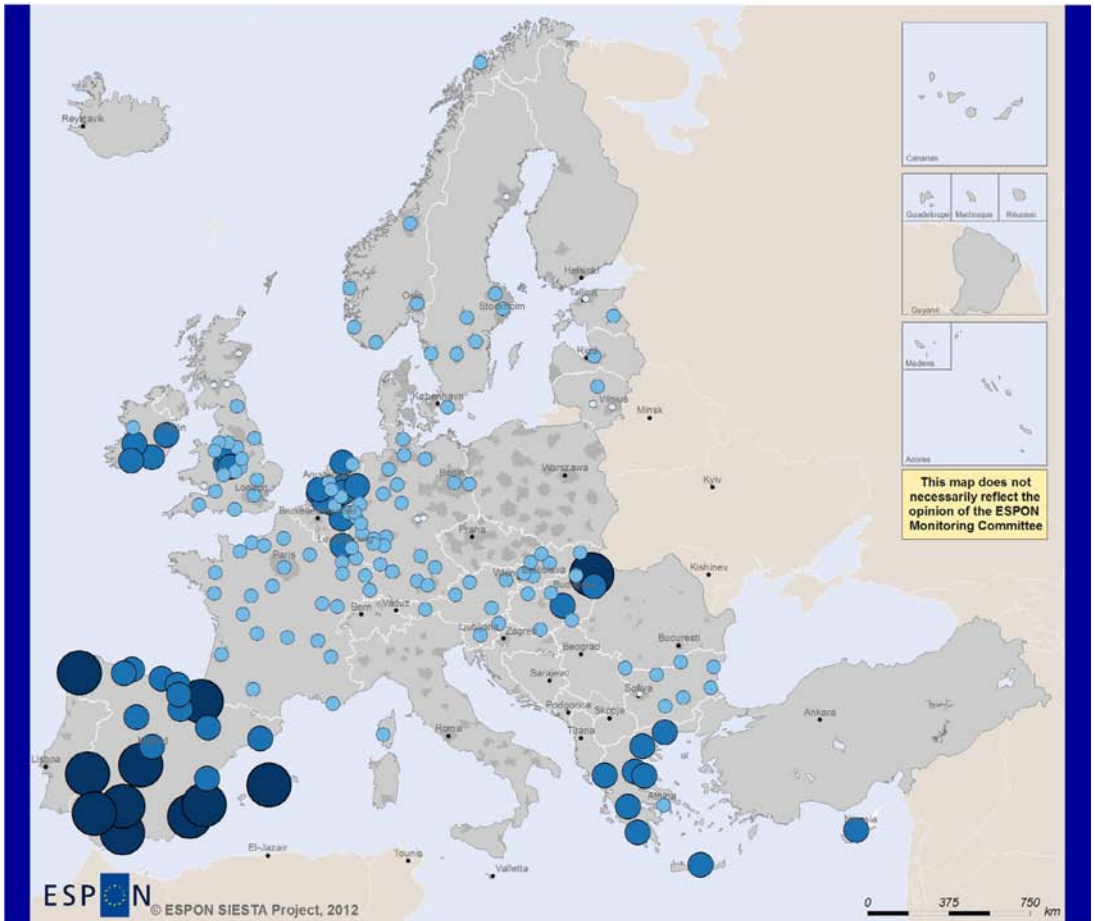
These maps show data values of urban areas. In the SIESTA Project cities were always statistically considered as larger urban zones (LUZ) or functional urban areas (FUA). Cities were not studied individually. This is consistent

with the ESPON research in this respect, which has prevented urban areas in Europe being considered only by using the data of the central city in each case (see Projects FOCI in ESPON 2013 and 1.1.1 in ESPON 2006).² This means that URBAN AUDIT is only valid when it offers data at the LUZ/FUA level.

The most of the URBAN AUDIT datasets considered showed a marked lack of data in several countries; we did not get a satisfactory urban data coverage for the EU27, even by combining several years, for most of the URBAN AUDIT preselected indicators. This fact has finally compromised the use of the maps derived from URBAN AUDIT indicators in the Atlas, although the datasets were considered in the elaboration of the preliminary territorial research.

Data represented are ranked generally in 4 classes and they are shown as symbol (a circle), where size of the symbol is proportioned to value of the statistical variable being displayed on the map. The colour of the symbols is linked to the thematic maps. Map 3.5 is provided as an example.

2 Available at: <http://www.espon.eu/main/Menu_Projects/Menu_AppliedResearch/foci.html> and <http://www.espon.eu/main/Menu_Projects/Menu_ESPON2006Projects/Menu_ThematicProjects/polycentricity.html> (Access 25.3.2012).



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Regional level: LUZ
Source: Eurostat, 2012
Origin of data: EUROSTAT, URBAN AUDIT, 2012.
© EuroGeographics Association for administrative boundaries

Proportion of working age residents, combined years*.

- < 15
- 15 - 30
- 30 - 45
- > 45

Large Urban Zones

Notes:
Data are not available for the following countries: BE, CZ, DK, IT, MT, PL, PT, RO, HR, TR, CH and FI.
*Data for BG, AT, DE, LV, SE, NO, UK, LT, LU and EE are shown for 2008.
Data for FR are shown for 2005.
Data for HR are shown for 2005.
Data for CY, ES, EL, IE, NL, SK, SI are shown for 2004.

Urban Audit defines Larger Urban Zone (Label LUZ) as an approximation of the functional urban zone centred around the town/ city.

Map 3.5. Persons (aged 25 to 64) with low educational attainment (level 1 or 2 ISCED) by LUZs, combined years from 2004 to 2008.

References

Tufte, E. (2001). *The Visual Display of Quantitative Information*. Cheshire, Graphics Press.

URBAN AUDIT (2004). *Methodological Handbook*. Luxembourg, Office for Official Publications of the European Communities.