ESPON Action 2.2.3: Territorial Effects Of the Structural Funds In Urban Areas

A Third Interim Report to the ESPON Coordination Unit

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Part One

1. EXECUTIVE SUMMARY WITH MAIN PRELIMINARY RESULTS, INCLUDING POLICY RECOMMENDATIONS

This is the third Interim Report of TPG 2.2.3 which is examining the territorial effects of the Structural Funds in urban areas. The study has been requested to concentrate on identifying consistent indicators and methods for identifying those urban areas that might be eligible for Objective 2 style programmes in the future. The study has also been asked to examine specific sectors, and sub-sectors, within industry, and the implications of their evolution for urban areas within Europe. The evolution of these different industrial sectors, and the effects of liberalisation and enlargement of the Union on individual sectors is seen as being of particular importance.

The study builds upon the on-going work of TPG 1.1.1, which is developing typologies of Functional Urban Areas. TPG 2.2.3 builds upon this through an assessment of the dynamics of change over time. The focus of the project is on the whole European territory, including candidate countries (EU 27). Databases, indicators and maps are to be established at the level of NUTS-3 regions or below, where already available. The study is to include all urban areas in the EU27 + 2 with a focus on urban industrial areas in decline in Objective 1 and Objective 2 areas.

This report focuses upon a diagnosis of urban areas in Europe, using consistent data sets, and the construction of a typology reflecting the strengths and weaknesses identified. The limitations of the approach are considered and the implications of this for future Structural Fund policies set out. An initial assessment is also made of the distribution of Structural Fund expenditure according to different types of urban area. Initial policy recommendations are included, although further consideration of these in the light of the results of the case studies (to be analysed in the coming weeks) will be required.

The present report is intended as a first draft. Work remains ongoing, particularly in extending the typology and Structural Fund analysis. Additional material with respect to an extended typology will be provided by 8th September 2003 and further analysis in the field of the Structural Fund's urban policy undertaken as data becomes available in the Autumn. We acknowledge that on this basis the planned timetable for the study has slipped a little.

The diverse objectives for the study have proved to be challenging and ambitious. The increased focus on developing detailed typologies of urban areas for the purpose of assessing potential future eligibility for Structural Fund actions in urban areas, compared to that initially envisaged, has involved a diversion of resources, and prioritisation, to this task. This has had implications for the timing of the remainder of the work programme and for the scale of actions that can be foreseen for the remainder of the study. We would be pleased to discuss this issue further with the ESPON Monitoring Committee. We hope that this report begins to address some of these challenges.

Methodology

The methodology adopted for the study falls broadly into 5 parts:

- Literature review
- Data collection
- Data analysis
- Typology development
- Analysis of the Structural Funds in urban areas

In the following section we summarise each of these parts. The remainder of the report is then structured around each part.

Literature review: an extensive review was undertaken of the use of Structural Funds in urban areas and of the drivers for change that are commonly affecting urban areas. Together these were used to assess the types of indicators for which data would be sought.

Data collection: Data was collected on the basis of the indicators selected and as discussed with the Commission in march 2003. Data collection has focused on identifying data at the NUTS 3 level, owing to the difficulties of identifying data at levels below this scale though sources such as EUROSTAT or the EEA. Data at NUTS 4 and 5 scale is available from National Statistical Offices but the coverage varies significantly by country, with some, such as Greece, having no data available at a sub-NUTS 3 level. Whilst utilising data at the NUTS 3 scale provides the advantage of broadly consistent data sets for a number of key variables, it presents additional challenges in identifying the strengths and weaknesses of urban areas.

Data analysis: the data collected through the study has been analysed to identify patterns of strengths and weaknesses across the European territory. The data is held in an ACCESS database and has also been analysed using EXCEL spreadsheets.

Typology development: Using the results of the data analysis exercise undertaken a typology of urban areas has been developed. This groups areas into three primary categories with a number of sub-categories also identified.

Analysis of Structural Funds in urban areas: Using the results of the typology developed an initial analysis has been undertaken of the distribution of Structural Fund programmes in urban areas across the European territory, based upon initial data available from TPG 2.2.1. In addition, TPG 2.2.3 has undertaken 25 case studies to examine the use of the Structural Funds in urban areas, focusing on actions by local level bodies (such as local authorities) as requested. The analysis of this element of the work programme has not yet been completed.

The indicators for assessing strengths and weaknesses of urban areas have been suggested by the focus of the Structural Funds, coupled with an assessment of the likely drivers of change that urban areas may face. The most common indicators used for signaling the presence of structural difficulties of an area include the nature of the economic base, levels of employment and unemployment, levels of productivity and household incomes.
Data has been collected or estimated for the following indicators at the NUTS 3 level across the European territory:

- GDP per capita at purchasing power parity
- Unemployment
- Employment levels
- Population levels
- GVA (by NACE 17 sector)

These indicators were those for which data has been found to be consistently available in comparable formats. In addition the availability of the following indicators has also been explored. Some have proved to be potentially more useful than others.

- Population with tertiary education qualifications
- Economic activity rate
- Employment in manufacturing
- Employment in high-tech manufacturing
- Employment in services
- Employment in high-tech services
- Household incomes
- Air quality

Typology development

Using the data collected for the European territory the study has developed an initial typology of urban areas, using NUTS 3 data as a proxy for identified functional urban areas. The typology relates to the broad economic and social conditions prevailing in the area. It is constructed through assessing the relative strength of each area by GDP, employment and unemployment. These indicators are combined to form a simple initial assessment of the relative strength of each area. The typology is based upon 3 categories with a number of sub-categories:

Type	Sub-type	Definition	Number of NUTS 3 areas
Absolute difficulty	AA	Those areas which are in absolute difficulty on 3 indicators	13
	AB	Those areas which are in absolute difficulty on 2 indicators and relative on 1	36
	AC	Those areas which are in absolute difficulty on 2 indicators but have none in relative difficulty	136
	AD	Those areas which are in absolute difficulty on 1 indicator but have 2 in relative difficulty	85
	AE	Those areas which are in absolute difficulty on 1 indicator but have 1 or less in relative difficulty	431
Relative difficulty	BA	Those areas which are in absolute difficulty of 0 indicator but have 3 in relative difficulty	29
	BB	Those areas which are in absolute difficulty on 0 indicator but have 2 area which is in relative difficulty	150
Not in difficulty	C	Those areas which have 0 areas in absolute difficulty and 1 or less areas in relative difficulty	713

Overall it would appear that some 713 areas are currently experiencing no significant difficulties, 179 are experiencing some relative difficulty and around 701 are

performing absolutely worse than comparable averages. Of the latter, 185 areas might be identified as experiencing particularly severe difficulties (Count of AA, AB and AC).

This initial typology will form one part of an extended typology currently under construction that takes into account other qualitative data, including the degree of urbanization of the NUTS 3 area. This extended typology is due to be completed on the 8th of September.

Using NUTS 3 data has the advantage of more consistent availability but the disadvantage that NUTS 3 areas rarely correspond to the functional urban areas. An assessment of the degree of confidence has been undertaken based upon the extent of discontinuous urban fabric within the NUTS 3 area, and the proportion of the NUTS 3 population accounted for by each functional urban area. This demonstrates that a high degree of confidence can be attached to data from between 12%-25% of the NUTS 3 areas and a low degree of confidence to between 75%-50%.

Owing to the limitations of available NUTS 3 data the study has also explored the availability of data at the sub-NUTS 3 level. Inter alia, this was undertaken for the following indicators:

- Unemployment (particularly to assess the existence of urban level spatial disparities)
- Household incomes
- Economic activity rates
- Air quality
- Life expectancy

The results demonstrate that indicators such as unemployment and household incomes, when available, provide a useful indication of urban conditions, whilst those for air quality, economic activity rates and life expectancy are all problematic in one manner or another.

It is clear from the work undertaken that a highly specific and well-resourced initiative will be required to identify urban-level data of a consistent and comparable quality across the European territory. The Urban Audit 2 will provide an important step in this direction when the results of its work become available later this year or early in 2004. If this is level of data were to become available then the application of a more detailed typology might be feasible, based upon multicriteria analysis (MCA). We outline the approach that might be taken towards developing such an approach if the data were to be available.

The ESPON studies are – amongst others – intended to develop:

- Territorial indicators and typologies, capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Tools supporting diagnosis of principal structural difficulties, as well as potentialities. This should include disparities within cities and regenerating deprived urban areas.

- And conduct investigations of territorial impacts of sectoral and structural policies such as the Structural Funds.

Following these intentions and based upon the ESPON 2.2.3. data base we have tried to specify this classification and typology – following the final end to allocate *"sectoral and structural policy"* measures efficiently and successfully. In doing so the basic aim of this contribution follows the vast literature on policy evaluation which has produced a considerable output in the last years.

Policy evaluation, which is basically an examination of the efficiency and effectiveness of political acting (measures and/ or programmes), is based upon multiple tasks:

- Increasingly tight budgets of the public administrations hand in hand with the increasing complexity and interrelatedness of policy fields and -contexts have lead to the necessity to analyse political acting more thoroughly and with a higher need to picture complex cause effect relations, effectivity, relevance and social benefit of a political measure.
- In analogy to the private sector policy evaluation is intended to provide a success/ failure measure of a political action – justification of a measure on the one hand and identification/ proof of societal needs (or the fulfilment of such needs) on the other hand.
- Policy evaluation provides information for possible adjustments and improvements of measures and could therefore be described as tool of decision aid.
- Last but not least policy evaluation serves the duty of the political realm to inform its stakeholders and financiers – i.e. the taxpayers – whether their money is spent in an efficient and useful way.

The strong points for MCA methods are that problems like the one at hand are mathematically ill defined in the first place. There is a vast number of different methods summarized under the heading of multicriteria analysis (about 32) and it will not be possible within this text to give a complete overview. From this number we have chosen an outranking method called PROMETHEE (Preference Ranking Organization METHod for Enrichment Evaluations)[1].

Analysis based upon available data

In the EU 15 urban areas are more likely to suffer population loss, below average employment growth and an above average unemployment rate. They are slightly more likely to be dependent upon manufacturing activity. These differences are accentuated when looking at FUAs with more than 8% and 25% discontinuous urban fabric. There is also an additional difference that GDP per Capita was 30% higher than the European average amongst those with 8% discontinuous urban fabric and higher still amongst those with at least 25% discontinuous urban fabric.

[1] Developed by Brans and Mareschal – Free University of Brussels in 1986

Broad Characteristics of FUAs in the EU15

Area	Average Population Growth (%)	Average Employment Growth (%)	Av. Manuf, Output % of GDP	Average Unemployment Rate (%)	Average GDP / Capita (Euros)
EU15	1.4	4.8	20.6*	7.5	22,577
EU15 FUAs	0.7	3.4	24.5**	7.8	22,385
EU15 FUAs (more than 8% Discontinuous Urban Fabric)	-0.8	0.5	27.7**	7.8	29,475
EU15 FUAs (more than 25% Discontinuous Urban Fabric)	-1.0	0.2	27.3**	8.1	32,662

* Estimated on the basis of all EU nations apart from UK
** Estimated as by projecting Manufacturing output from NUTS II to NUTS III level by the share of total output accounted for by the NUTSIII area.

In the Accession and Candidate Countries the situation is slightly different. Here urban areas are likely to have lower levels of unemployment and to be less dependent on manufacturing activity. The reasons for this are not considered here. GDP per capita tends to be higher within FUAs, suggesting higher standards of living, while there is greater population loss within FUAs than across the AC12 area.

Broad Characteristics of FUAs in the Accession Countries

Area	Average Population Growth (%)	Av. Manuf, Output % of GDP	Average Unemployment Rate (%)	Average GDP / Capita (Euros)
AC12	-1.1	22.4	13.1	5,597
AC12 FUAs	-1. 4	20.7*	13.4	3,500
AC12 FUAs (more than 8% Discontinuous Urban Fabric)	-2.0	16.9*	7.2	6,987
AC12 FUAs (more than 25% Discontinuous Urban Fabric)	-3.7	16.5*	6.6	7770.44

* Estimated by projecting Manufacturing output from NUTSII to NUTSIII level by the share of total output accounted for by the NUTSIII area for available areas.

Considerable variation exists between FUAs, but systematic patterns can also be observed. Less than half of FUAs in the EU demonstrate population growth, with more urbanized areas demonstrating steadily worsening performance. A similar pattern exists with respect to employment growth. Unemployment is worse in approximately half of FUAs, with the situation worse in more urbanized areas. However, urban FUAs do tend to have a GDP per capita greater than the EU average.

The table also shows the difference in the averages of those FUAs underperforming against the EU average and those outperforming the EU average. The table shows a

slight tendency for more urbanized FUAs (at NUTSIII level) to have more homogenous characteristics, with smaller differences in unemployment rates, employment growth, and dependency on manufacturing.

	% of FUAs outperforming EU, and difference between average of those outperforming and underperforming					
Indicator	**All FUAs**		**FUAs > 8%**		**FUAs > 25%**	
	% > EU	Diff.	% > EU	Diff.	% > EU	Diff.
Population Growth	38.3	4.9	25.2	5.2	17.3	4.8
Employment Growth	36.5	9.8	17.1	8.8	6.4	7.2
Unemployment	46.3	8.0	44.8	6.4	53.1	5.3
GDP per Capita	41.3	13343	71.0	14713	79.0	16145
Manufacturing Output as % of Total Output	61.3	19.7	70.1	17.4	48.1	73.5

Based on the empirical work carried out by ESPON 2.2.1, an assessment has been made as to how much Structural Funds assistance the various types of urban areas in difficulties have received during the 1994-99 period. This work relies on preliminary NUTS III data indicating a proxy.

Map 3 illustrates the location of each functional urban area according to the agreed typology. This clearly demonstrates the strength of clustering effects, with neighbouring areas, generally, in a similar or neighbouring typology classification. The strong concentration of the best performing areas (Type C) over the period of study is clear, as is the concentration of the worst performing areas referenced above. In very few cases are isolated examples identifiable. This does seem to suggest that the performance of urban areas is strongly influenced by the overall performance of the wider surrounding region, with commensurate implications for the focus of Structural Funds policies.

In terms of the location of urban areas in difficulty fewer spatial patterns are immediately obvious, although clustering is also apparent. There does, however, appear to be a strong relationship between areas in difficulty and the connectivity of different parts of Europe (Map 4). A similar relationship with population change is not apparent (Map 5). In the same vein we have assessed the relationship between urban area type and Structural Fund expenditure per capita. No clear relationship is evident from the data currently available (Map 6).

Applying the spending typology and data compiled by ESPON 2.2.1 to the classification of urban areas in difficulties, it becomes obvious that almost half of the Structural Funds assistance (Objective 1, 2, 3, 5b and 6 plus Cohesion Funds) of the 1994-99 period fell to urban areas that are classified as not being in difficulties. Considering that this type of urban areas represents only 42% of the urban areas classified, urban areas not in difficulties receive relatively more funding than those in difficulties.

170 regions, i.e. approx. 23 percent of the urban areas, are classified as fragile. These received 30 percent of the Structural Fund assistance going to urban areas. Urban areas in absolute difficulties and urban areas in relative difficulties received approx.

10 percent each. It has to be kept in mind that about 20% of the urban areas are in absolute difficulties whereas only about 13 percent are classified as in relative difficulties. Consequently, the assistance per region appears to be lowest in urban areas in absolute difficulties.

Indeed this picture is confirmed by the figures on the absolute spending per region. For regions in absolute difficulties the assistance varies between below 200,000 Euro and almost 800,000,000 Euro. For the other types of urban areas the highest amounts of spending lie between 2,000,000,000 and 3,000,000,000 Euro.

Structural Fund assistance in urban areas in difficulties 1994-99

	Absolute (AA-AD)	Fragile (AE)	Relative (BA-BB)	Not (C)
SF per capita (in Euro)	275	530	275	365
No of region	149	170	96	300
SF spending on regional development and productive infrastructure (in percent of total)	6	18	7	25
SF spending on agriculture, fishery, rural development (in percent of total)	1	4	1	5
SF spending on social integration and human resources (in percent of total)	2	6	3	15
Cohesion Funds (in percent of total)	0	1	0	5
SUM	9	30	12	49

Source: ESPON 2.2.3 using the spending typology of ESPON 2.2.1.

The figures show a different picture when taking into account the number of inhabitants in the various types of regions. Fragile regions have the highest assistance per capita, 530 Euro between 1994-99, followed by areas not being in difficulties, 300 Euro, and areas in relative and absolute difficulties with 275 Euro per capita. It has however, to be taken into account that this are average values and there are considerable disparities between the regions coming together in one type of urban areas.

Referring to the discussion on polycentric development in Europe, the typology of NUTS III regions provided by ESPON 1.1.1 has been used to assess which kind of functional urban area is predominant. This typology allows to identify for each NUTS III region whether it contains one or several functional urban areas of local/regional, national or international importance.

Following the typology provided by ESPON 1.1.1, almost 80% of the urban areas identified are categorised as local or regional functional urban areas. About 16% categorise as national functional urban areas and only less than four are of international character.

Looking deeper into this, we find that approx. 30 percent of the identified urban areas are local/regional functional areas that are not in difficulties, around 20 percent are fragile local/regional functional urban areas, ca. 17 percent are local/regional functional urban areas that are in absolute difficulty and 11 percent are local/regional functional urban areas that are in relative difficulties.

Less than 4 percent of the identified urban areas classify as national functional urban areas in difficulty.

Thus, we may conclude, that in particular local and regional functional urban areas are in difficulties and most of those that are in difficulties are either fragile or in absolute difficulty. This is also reflected in terms of Structural Funds assistance that these areas received between 1994-99. Taking into account Objective 1, 2, 3, 5b and 6 plus Cohesion Funds, local/regional functional urban areas that are not in difficulties received altogether approx. one third of the total funding. Approx. one quarter of the total assistance went to fragile local/regional functional urban areas. This two are by far the largest shares. Concentrating on areas in absolute difficulties, we find that local and regional function urban areas in absolute difficulties received approx. 8 percent of the total assistance.

Structural Fund assistance in functional urban regions in difficulties 1994-99

	Absolute	Fragile	Relative	No
no fua (in %)	0	0,1	0	1
local/regional (in %)	8	26	7	34
National (in %)	2	2	1	9
International (in %)	0	3	5	3

Source: ESPON 2.2.3 using the spending typology of ESPON 2.2.1 and the functional urban areas typology of ESPON 1.1.1.

Further analysis of the territorial effects of the Structural Funds will be undertaken over the coming months as data becomes available from the TPG 2.2.1 work programme and the case study material collated by TPG 2.2.3 is analysed.

Policy recommendations

The following recommendations are preliminary conclusions based upon the assessment of the information analysed to date. This naturally limits the scope of the potential recommendations.

Urban NUTS 3 areas do tend to perform least well against all the common indicators identified, bar GDP per capita, at least in the current EU 15. Performance seems to worsen as a region becomes more urbanised. The same is not true in the Accession and Candidate Countries, where urban areas tend to have a better performance in terms of unemployment for example. This suggests that a common policy approach across the whole of the EU will not be appropriate. The greater concentration of social and economic difficulties in urban areas in the EU-15 does suggest, though, that a greater focus on urban areas is merited in the future.

As regards the current EU Member States, there is likely to be an environment of reduced funding during the next period. Accordingly, the Structural Funds need either

to focus more efficiently or to employ their indirect influences better (agenda setting etc.).

Initial analysis of the distribution of the Structural Funds suggests that the bulk of spending did not go to areas in difficulties. This confirms the findings presented in the 2nd Cohesion Report that disparities within Member States increase. Thus aiming at cohesion, more specific measures and area delimitation addressing areas in difficulties might be recommended. This would support a focus on urban areas in difficulty.

Proportionately, local/regional functional urban areas appear to be most likely to exhibit signs of absolute difficulty. Equally, these areas may have the best potentials. However, areas in absolute difficulties seem to be currently underrepresented in the funding schemes. This may be due to their location within more general regional or national programmes, which are not tuned to their particular needs. This is a situation that requires further exploration. We would recommend developing the Structural Funds to support urban areas in absolute difficulties more adequately. The urban areas Objective 2 Programme in the Netherlands may be an example of such an action.

In order to develop an effective approach to targeting such urban areas it is necessary to formulate an adequate mechanism to identify potential urban areas. The initial methodology developed in this study has some strengths in that it is based upon consistent and comparable datasets. This has enabled a European wide typology to be developed. However, it suffers in that it relies upon a limited number of indicators, analysed at a scale somewhat greater than most urban areas.

To undertake more detailed analysis it is necessary to utilise nationally available statistics. These are not comparable between countries, nor are they consistently available. We found that figures for unemployment and household incomes were the most commonly available and useful for analytical purposes. These are particularly valuable for identifying spatial disparities in well-being within urban areas. Economic activity rates did not exhibit strong disparities between urban areas and there was a paucity of urban environmental indicators collected on a regular basis. Similarly, health indicators were found to be rare. It appears that specific, urban-level data will need to be provided if urban assessments are to be made in any detail.

The Urban Audit 2 data exercise demonstrates one approach towards identifying specific urban level data for selected indicators. This can be an important contribution to the process and we recommend that the indicators that it is based upon are taken into consideration when assessing the strengths and weaknesses of urban areas. This is an approach that we recommend, as it maintains the role of local partners in contributing to the development of appropriate programmes; an important element in conforming to the principle of subsidiarity.

We recommend one approach which might be adopted; that is to use NUTS 3 data analysis to identify areas of difficulty at the NUTS 3 level and then to use urban level statistics to assess the detailed nature of the urban problems, and potential, within the area. This latter element would require the close co-operation of the Commission services and partners at the urban level within the member state, as there is insufficient data available for a consistent and reliable assessment of the issues facing

individual urban areas. Levels of funding and the actions supported can then also be based upon this information. Further light may be shed on the nature of appropriate Structural Fund actions in different circumstances as the analysis of Structural Fund actions at a local scale is undertaken by this study. This is not necessarily to suggest that individual Structural Fund programmes should be established for such areas.

However, we recognise that this approach is likely to underplay the situation of small urban areas suffering social and economic problems in more prosperous areas. We have no recommendation as to how to overcome this lack of consistent and available data by which to make such an analysis at a European scale. The approach taken towards such small areas will go to the heart of debates relating to the future shape, nature and delivery of Structural Fund type actions.

Summary

In terms of the planned programme of work we have been able to deliver the first four outputs, namely:

- Typology of urban areas relevant to Structural Fund issues, particularly focusing on changing industrial structures.
- Identification of urban areas in declining industrial areas
- Identification of urban areas in difficulties (suffering economic decline or social problems)
- Identification of urban areas in regions with potential economic vulnerability (based on industrial structure)

This information was prioritized in discussions with the European Commission and the Co-ordination Unit. Following these discussions the typology developed has concentrated on bullet points 1, 3 and 4. Unfortunately, owing to a reliance on data that is not yet available we have not been able to complete the final four outputs anticipated for this stage of the study. We anticipate that these will be completed within the next three months. The four remaining outputs are:

- Coincidence of Structural Funds activity and urban areas in declining industrial areas and urban areas in difficulty
- Nature of Structural Fund activities in selected urban areas
- Relationship between Structural Fund activities and identified urban problems, with qualitative assessment of factors governing these issues
- Consideration of problems of urban development in selected urban areas and role of Structural Funds in tackling these.

This also affects the ability of the study to draw significant policy conclusions at this stage of the study.

2. ACCOMPANYING INFORMATION

2.1. Short presentation on concepts, methodologies and typologies used/developed

This study is exploring the territorial effects of Structural Funds in urban areas. To date the study has concentrated on identifying consistent indicators and methods for identifying those urban areas that might be eligible for Objective 2 style programmes in the future. This has involved examining data which might appertain to all urban areas in the EU 27 + 2 identified as functional urban areas by TPG 1.1.1. No single concept has been adopted in doing so.

The work does build on spatial concepts such as the potential influence of polycentric and monocentric structures and the spatial homogeneity of an area. This has been incorporated when exploring the typology of urban areas. This builds on the work of other TPGs as well as our own data analysis.

In considering the components of this typology we have also been guided by the principle objectives of European urban policy, namely:

- Strengthening economic prosperity and employment in towns and cities
- Promoting equality, social inclusion and regeneration in urban areas
- Protecting and improving the urban environment
- Contributing to good urban governance and local empowerment

Overall, though we have focused on exploring the potential of using available information to identify urban areas that are:

- experiencing problems as a consequence of industrial restructuring
- experiencing problems as a consequence of other urban issues such as poverty and social exclusion.

The work undertaken demonstrates significant shortcomings with the approach. In attempting to address some of these shortcomings we have constructed a more extensive typology of urban areas, as a pilot exercise. This also demonstrates a number of shortcomings but does illustrate the potential that such an approach might provide.

The methodology adopted for this process has been based upon an initial assessment of potential indicators to inform consideration of the above questions, the identification of available sources and the collection of that data. In the first instance common European level data sets have been used although these have significant shortcomings in terms of relevant scale. This has been bolstered by the collection of data available from national statistical sources, however, this has proved not to be available on a consistent basis for all urban areas. Finally, the study has collected further detailed data on individual urban areas through case study analysis.

In addition the study has been seeking data on the use of the Structural Funds in urban areas, through case study analysis and by drawing on the work of TPG 2.2.1. The final analysis of this element of the study awaits the completion of data work by the latter TPG in the Autumn of 2003.

The results of the work have resulted in a preliminary typology based upon social and economic factors. We have then built on this work using the data available to develop an extended typology. Owing to the constraints of available data at an appropriate scale this has to remain a pilot exercise at this stage. It may be developed further once more consistent data becomes available at an urban scale, such as through the work of the second Urban Audit.

Details of these two typologies are set out in the Executive Summary above and in the body of the main report. We do not repeat them again here.

2.2. List of indicators developed/provided to the ESPON Data base

The indicators developed and provided to the ESPON database are set out in the attached Table. Not all indicators apply to all urban areas. Full details are contained in the Methodology Section (part 6) of the main report.

Table: Total list of indicators collected for ESPON 223

Level of comparability	Economic base	Economic performance	Social performance	Environmental
EU level data sets (for all NUTS 3 areas). All figures actual or estimated from NUTS 2	- GVA broken down by NACE 3 categories (Agriculture, Industry and Services) - GVA broken down by NACE 17 categories (A-Q) - Employment in services - Employment in manufacturing - High-tech employment in services - High-tech employment in manufacturing	- GDP per inhabitant - GDP purchasing power - Total numbers employed	- Proportion of population with tertiary education - Percentage unemployed - Population - Population by age and sex - Activity rates - Household incomes	
National data sets	- GVA or employment broken down by NACE 17 categories			
National data sets (for 'urban areas in difficulty')			- Difference between highest and lowest unemployment rate within the urban area - Difference between highest and lowest household income within the urban area - % economically active in population of working age - Life expectancy	- Summer smog
National data sets (for sample of 25 urban areas)	- Sectoral mix (industry, services)* - Number of business start-ups* - Business survival rates - Employment* - Occupation (manual, administrative)*	- Poverty* - Overcrowding* - Number of empty homes - Car ownership rates - Demographic structure* - Migration data	- Congestion - Amount of derelict land* - Greenfield land take* - Water quality - Air quality*	- Governance capacity* (number of institutions, number of employees) -

2.3. List of maps and tables in the Interim Report

2.3.1. Tables

2.3.2. Maps and figures

2.4. Application of common platform and Crete Guidance paper

The study has drawn together information on the availability of a number of indicators at the NUTS 3 level and below. Sections 7 and 8 report on how these indicators have been combined together to inform the analytical elements of the study. One core indicator was identified by TPG 3.1 – crime levels – in the Crete Guidance paper, this has not been collected as it was not felt to offer sufficient insights, compared to other potential indicators, for the study.

An initial typology has been established based upon the core indicators developed through the study. This is reported in Section X. Additional development of this typology is proposed to take into account a wider set of variables, particularly those related to geographical context. The intention of the typology – as established in the Crete Guidance Paper – is that by combining different dimensions it may be possible to define specific regional problem situations and identify regions for structural funds support. Urban problem areas are one of three categories so identified. We explore the potential of this in Part 2 of this Report.

We have, as yet, not undertaken a significant analysis of the policy goals and concepts of the use of the Structural Funds in urban areas as we have been steered away from these elements of the study. We have been asked to focus on ways of identifying those urban areas that should benefit from Structural Fund support in the future and for mechanisms to identify the appropriate policy interventions. The latter element will be informed by the case study analysis that is currently ongoing.

2.5. Integration of points raised in CU response on IR from March 2003

The following comments and questions were raised:

Focus of the study

- The fact, that the Commission has stressed the inclusion of urban industrial areas in the study (according to the Terms of Reference and the Addendum of the contract) does not imply that the "study is firmly focused on industrial declining areas" (page 3).

The study has addressed all urban areas. The indicators selected reflect the range of issues that urban areas might face.

Analysis and Typology

- The database established by the project should be exploited and analysed thoroughly.

- As regards the typology, the types of urban areas, addressed in the report, should be described and mapped in concrete terms taking into account the available data.

- The analysis of industrial NUTS2 regions (as carried out in the 2nd Cohesion Report) should be based on up-to-date employment (2001). And population (2000) data, instead of the "original" 2nd Cohesion Report data (p. 35 onwards).

Data

- Most of the data for accession and neighbouring countries is lacking.

- Data from Urban Audit II does not seem to be appropriate, as they won't be available on time (The actual meaning of the second request to Eurostat remains something to be explained further – i.e. is additional data requested? p. 68).

- p. 41: Additional indicators will not be available from Eurostat (detailed data at NUTS3 level). Data collection through NSI and /or coordination with other ESPON projects, using similar data, will be necessary.

The data issues identified above were noted and a programme of actions put in place to seek appropriate data at appropriate scales. The results of this exercise are reported in Sections 6 and 7.

Case studies

- No case studies have been selected at this stage of work, which should soon be done.

The case studies have been selected and the work undertaken.

Mapping

- P. 90: map production and output:

    - Map output in PowerPoint format is not appropriate.

    - Thematic maps (even if produced in an alternative GIS software environment) have to be exported and delivered in industry standard vector formats (i.e. Adobe Illustrator or Illustrator EPS)

Addendum to the SIR

The TPG provided an addendum to the Second Interim Report, which the Coordination Unit acknowledged addressed all points for which further clarification had been requested. However, it reported that data remained a considerable concern. Much of the data required for implementing the typology proposed, particularly that for Accession Countries and Neighbouring countries, was still lacking. This has been addressed above, although from the information provided in this report it is clear that despite the extensive efforts adopted, data limitations remain considerable.

The Co-ordination Unit noted that it was agreed to focus on elements of the study being important for the Third Cohesion Report, in particular, an urban typology and qualitative characterisation through some case studies. The possibility of carrying through more than one case study in the accession countries will be explored. A proposal for the database as well as the urban typology complementary to project 1.1.1., adjusted to the specific needs of the project, will be proposed. This is reported on further in Part Two of this Report.

2.6. Networking undertaken towards other TPG.

The following TPGs have been significantly associated with this study: 1.1.1; 1.1.2; 2.2.1.

Part Two

3. INTRODUCTION

The ESPON research programme is intended to support policy development, in particular in the field of the Structural Funds, by providing new knowledge, concepts and indicators on territorial trends and policy impacts related to an enlarged European Union. Both the European Spatial Development Perspective (ESDP), adopted in May 1999, and the Second Report on Economic and Social Cohesion, published in January 2001, highlighted the need to promote a more balanced and sustainable development of the European territory. Against this background, the ESPON programme is intended to:

- Identify decisive factors relevant for a more polycentric Europe
- Develop territorial indicators and typologies capable of identifying and measuring development trends;
- Develop tools supporting diagnoses of principal structural difficulties as well as potentialities;
- Investigeterritorial impacts of sectoral and structural policies;
- Produce a cartographic picture of major territorial disparities and of their respective intensity;
- Develop a number of territorial indicators and typologies assisting a setting of European priorities for a balanced and polycentric enlarged European territory;
- Provide some integrated tools and appropriate instruments (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial coordination of sector policies.

Taking this into account, and the more detailed requirements for ESPON 2.2.3 set out in the Terms of Reference, the Objectives of the research project are broadly to:

- Develop methods for territorial impact assessment of policies;
- Develop territorial indicators, typologies and new methodologies to consider territorial information and concepts, establishing database and map making facilities, sustained through data analysis on EU wide effects of spatially relevant development trends and their underlying determinants;
- Pay special attention to the detection of territories most negatively and positively affected by the identified trends, with special reference to identified features;
- Analyse these territorial trends at different scales and different parts of an enlarged European territory;
- Show the territorial influence of the policies on spatial development at relevant scales;
- Show the interplay between EU and sub-EU spatial policies and best examples for implementation;
- Recommend further policy developments in support of territorial cohesion and a polycentric and better balanced EU territory with reference to the objectives of the ESDP;
- Develop possible orientations for policy responses considering institutional, instrumental and procedural aspects;
- Consider the provisions made and to provide input for the achievement of the horizontal projects under Priority 3.

In order to take forward these objectives, and ensure overlap with related studies, the project will:

- Identify, gather and propose new indicators to display the state, trends and impacts of identified issues for urban areas
- Operationalise the relevant policy options developed in the ESDP, developing a methodology for territorial impact analysis at the EU scale
- Tackle specific territorial questions in the framework of urban affairs such as:
    - How far the structural funds address the process of metropolisation in relation to greenhouse effects and climate change
    - How the structural funds address the question of control of urban sprawl and the links between urban and rural areas
    - The territorial effects of increased socio-spatial segregation and inequity of access to amenities and services
- Evaluate the effects of good governance on strengthening urban functions and the role of the structural funds

This is the third Interim Report of TPG 2.2.3 which is examining the territorial effects of the Structural Funds in urban areas. The study has been requested to concentrate on identifying consistent indicators and methods for identifying those urban areas that might be eligible for Objective 2 style programmes in the future. The study has also been asked to examine specific sectors, and sub-sectors, within industry, and the implications of their evolution for urban areas within Europe. The evolution of these different industrial sectors, and the effects of liberalisation and enlargement of the Union on individual sectors is seen as being of particular importance.

The study builds upon the on-going work of TPG 1.1.1, which is developing typologies of Functional Urban Areas. TPG 2.2.3 builds upon this through an assessment of the dynamics of change over time. The focus of the project is on the whole European territory, including candidate countries (EU 27). Databases, indicators and maps are to be established at the level of NUTS-3 regions or below, where already available. The study is to include all urban areas in the EU27 + 2 with a focus on urban industrial areas in decline in Objective 1 and Objective 2 areas.

The Third Interim Report is required to contain the following information:

- Analysis of the Structural Fund's urban policy in relation to balanced territorial and regional development.
- Diagnosis of and territorial typologies for urban areas in Europe, having regard to different types of urban areas (such as metropoles, industrial clusters and intermediate cities), their strengths and weaknesses, structural difficulties, risks and their potentials for further development.
- Policy recommendations, as the basis for the future focus of the Structural Funds interventions post 2006
- Proposal of a methodology for the territorial impact assessment of Structural Funds policies and of appropriate instruments to improve the spatial co-ordination of Structural Funds interventions and EU sector policies with implications for spatial development.

This report focuses upon a diagnosis of urban areas in Europe, using consistent data sets, and the construction of a typology reflecting the strengths and weaknesses identified. The limitations of the approach are considered and the implications of this for future Structural Fund policies set out. An initial assessment is also made of the distribution of Structural Fund expenditure according to different types of urban area. Initial policy recommendations are included, although further consideration of these in the light of the results of the case studies (to be analysed in the coming weeks) will be required. We have been steered away from assessing the potential role of urban areas as growth catalysts for the wider region and so focus primarily on urban strengths and weaknesses, rather than addressing urban potentials more explicitly.

The present report is intended as a first draft. Work remains ongoing, particularly in extending the typology and Structural Fund analysis. Further analysis in the field of the Structural Fund's urban policy undertaken as data becomes available in the Autumn. We acknowledge that on this basis the planned timetable for the study has slipped a little.

The diverse objectives for the study have proved to be challenging and ambitious. The increased focus on developing detailed typologies of urban areas for the purpose of assessing potential future eligibility for Structural Fund actions in urban areas, compared to that initially envisaged, has involved a diversion of resources, and prioritisation, to this task. This has had implications for the timing of the remainder of the work programme and for the scale of actions that can be foreseen for the remainder of the study. We would be pleased to discuss this issue further with the ESPON Monitoring Committee. We hope that this report begins to address some of these challenges.

4. METHODOLOGY

The methodology adopted for the study falls broadly into 5 parts:

- Literature review
- Data collection
- Data analysis
- Typology development
- Analysis of the Structural Funds in urban areas

In the following section we summarise each of these parts. The remainder of the report is then structured around each part.

Literature review: an extensive review was undertaken of the use of Structural Funds in urban areas and of the drivers for change that are commonly affecting urban areas. Together these were used to assess the types of indicators for which data would be sought. The results of this exercise are reported in Section 5.

Data collection: Data was collected on the basis of the indicators selected and as discussed with the Commission in march 2003. Data collection has focused on identifying data at the NUTS 3 level, owing to the difficulties of identifying data at levels below this scale though sources such as EUROSTAT or the EEA. Data at NUTS 4 and 5 scale is available from National Statistical Offices but the coverage varies significantly by country, with some, such as Greece, having no data available at a sub-NUTS 3 level. Whilst utilising data at the NUTS 3 scale provides the advantage of broadly consistent data sets for a number of key variables, it presents additional challenges in identifying the strengths and weaknesses of urban areas. We discuss this point in more detail later. A full description of the approach is set out in Section 6.

Data analysis: the data collected through the study has been analysed to identify patterns of strengths and weaknesses across the European territory. The data is held in an ACCESS database and has also been analysed using EXCEL spreadsheets. A full description of the approach is set out in Section 7.

Typology development: Using the results of the data analysis exercise undertaken a typology of urban areas has been developed. This groups areas into three primary categories with a number of sub-categories also identified. A full description of the approach is set out in Section 7.

Analysis of Structural Funds in urban areas: Using the results of the typology developed an initial analysis has been undertaken of the distribution of Structural Fund programmes in urban areas across the European territory, based upon initial data available from TPG 2.2.1. In addition, TPG 2.2.3 has undertaken 25 case studies to examine the use of the Structural Funds in urban areas, focusing on actions by local level bodies (such as local authorities) as requested. The analysis of this element of the work programme has not yet been completed, although preliminary results are reported in Section 9.

The approach adopted has been one aimed at identifying appropriate indicators which could inform decisions on the eligibility of urban areas for Structural Funds in the future. Although this sounds a simple task it is, in reality, highly complex, owing to, significantly, to issues pertaining to data availability at a consistent and useful scale.

Data availability at the urban level is highly limited and rarely available to a consistent standard across the European territory. A wider range of data is available at the NUTS 3 level, although this does not accord closely to urban area boundaries. In order to explore the potential offered by different data sets the study has adopted a three level approach:

- Firstly, common datasets have been interrogated for all NUTS 3 areas in which functional urban areas, as identified by TPG 1.1.1, are located. This analysis is intended to assess the value of this approach to policy makers
- Secondly, data on a further set of common indicators has been collected using national datasets where these are available. Again this is intended to assess whether this approach offers valuable insights. This has been undertaken for a selection of urban areas to demonstrate the robustness of the approach
- Thirdly, more detailed data at the level of identified urban areas has been collected for a limited number of urban areas through the case study analysis identified above.

The layered approach set out has been applied to develop a typology that explores different aspects of NUTS 3 areas, and urban areas within these, which might have a bearing on the use of the Structural Funds within the urban areas. Two typologies are outlined, the first focuses on the social and economic issues using common European level data and has the benefit of offering consistency of analysis in areas directly relevant to the aims and objectives of the Structural Funds. This in turn contributes to an extended typology that draws on a wider range of datasets to illustrate a potential approach in this area.

Tin developing an extended typology we have taken into consideration the fact that the ESPON studies are – amongst others – intended to develop:

- Territorial indicators and typologies, capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Tools supporting diagnosis of principal structural difficulties, as well as potentialities. This should include disparities within cities and regenerating deprived urban areas.
- And conduct investigations of territorial impacts of sectoral and structural policies such as the Structural Funds.

So far the main emphasis within ESPON 2.2.3. has been to collect a data base which will support the above mentioned goals. The data collection has been based upon assumptions about how such an indicator set, which will be able to provide a picture of Functional Urban Areas (FUAs) and allow for a classification of them along their status of "difficulty", could look like.

Following these intentions and based upon the ESPON 2.2.3. data base we have tried to specify this classification and typology – following the final end to allocate

"sectoral and structural policy" measures efficiently and successfully. In doing so the basic aim of this contribution follows the vast literature on policy evaluation which has produced a considerable output in the last years.

Policy evaluation, which is basically an examination of the efficiency and effectiveness of political acting (measures and/ or programmes), is based upon multiple tasks:

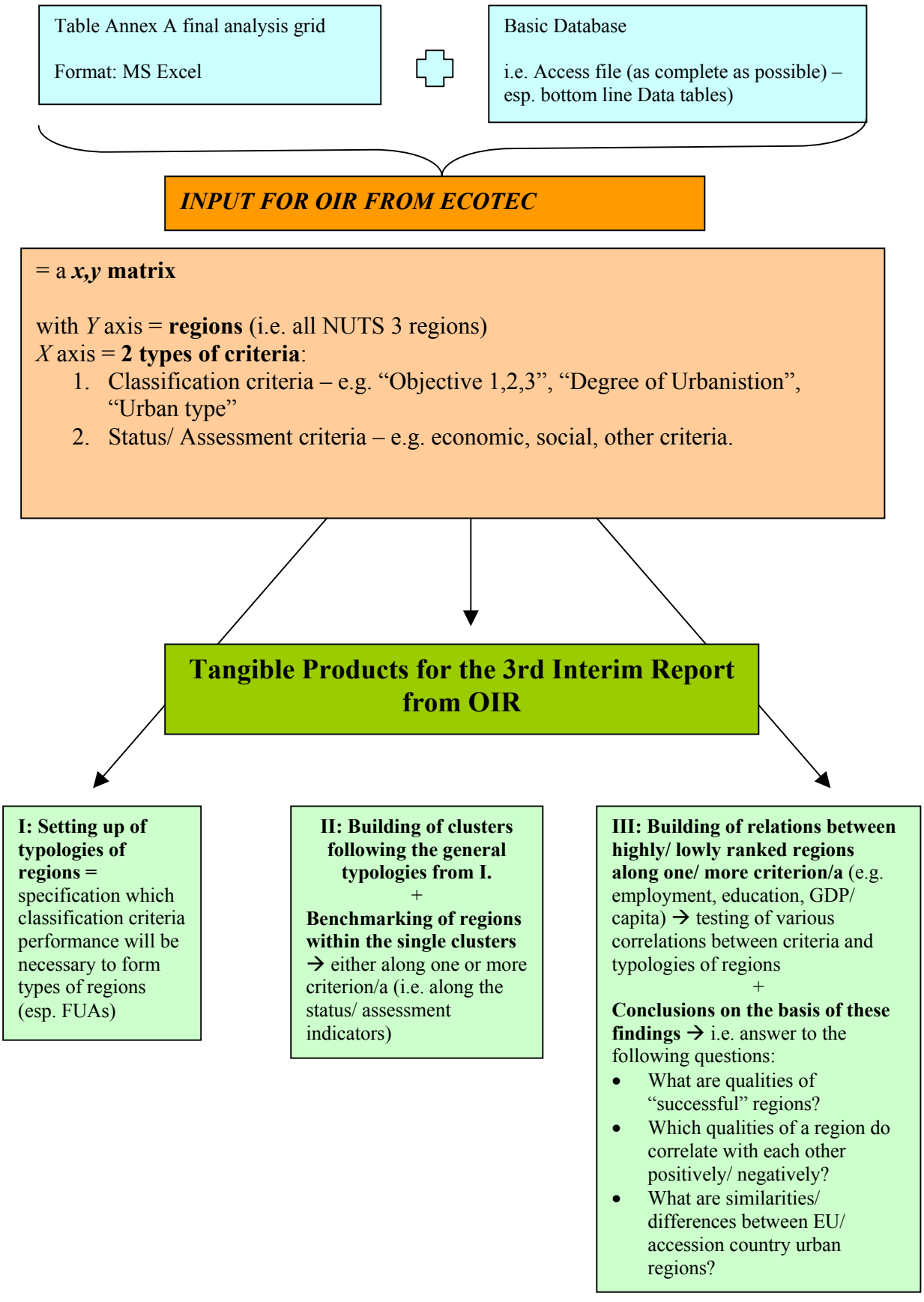
- Increasingly tight budgets of the public administrations hand in hand with the increasing complexity and interrelatedness of policy fields and -contexts have lead to the necessity to analyse political acting more thoroughly and with a higher need to picture complex cause effect relations, effectivity, relevance and social benefit of a political measure.
- In analogy to the private sector policy evaluation is intended to provide a success/ failure measure of a political action – justification of a measure on the one hand and identification/ proof of societal needs (or the fulfilment of such needs) on the other hand.
- Policy evaluation provides information for possible adjustments and improvements of measures and could therefore be described as tool of decision aid.
- Last but not least policy evaluation serves the duty of the political realm to inform its stakeholders and financiers – i.e. the taxpayers – whether their money is spent in an efficient and useful way.

In order to fulfil these tasks properly high qualitative requirements are to be met by a method which is able to be used in this context.

In the following sections we try to take these necessary qualities into account when suggesting a typology of FUAs[2] and a possible aggregation method which allows for an operationalisation of the ESPON aims stated above. The contribution has followed the outline of tasks shown in the following picture:

[2] N.b.: the terms FUA (Functional Urban Area), area and region are used synonymously in discussing the extended typology.

Working Plan for the OIR – task in ESPON 2.2.3.



5. URBAN AREAS AND THE STRUCTURAL FUNDS

5.1. What problems do Structural Funds tackle in urban areas?

Although Structural Funds interventions in urban areas vary between regions they tend to focus on similar themes, which typically include strengthening of economic prosperity, social integration and urban renewal, environment improvement, and urban management. However, these themes are often dealt with in the same intervention rather than by having specific actions targeting each one. Thus, some of the actions described below can refer to more than one theme. Regarding the relative importance of the different themes, it is apparent that actions to improve economic prosperity, e.g. various kinds of business support, were high on the agenda in most regions.

Strengthening economic prosperity and employment in urban areas

The first policy aim of the UFA is directly related to the main objectives of EU Structural Funds. Indeed, the Commission stresses the importance of improving the effectiveness of Structural Fund support by providing for an explicit urban dimension in regional programming. In addition to co-operation between urban areas, emphasis is placed on developing a stronger urban dimension in employment policies, through strengthened local involvement and support to local employment and development initiatives. This regards also role of cities as centres for innovation and economic development. Indeed, a lot of the vocabulary reminds of what has later been presented in the ESDP document in terms of terms of city networks (promoting balanced polycentric development) and cities as engines for regional development (promoting dynamic, attractive and competitive cites and urbanised regions).

The literature on Structural Funds suggests, that there is a wide range of activities in this field and also that the urban focus is often rather implicit. Given the cohesion focus of Structural Funds interventions, actions carried out centre mainly around the promoting dynamic, attractive and competitive cites and urbanised regions. Accordingly in the field of strengthening economic prosperity and employment in urban areas, the main emphasis is on inner-urban problems rather than on urban co-operation and urban systems.

Action carried out focuses on increasing diversification of the economic activities, strengthening research and development activities in a urban region, supporting enterprises by providing innovation infrastructure and attracting inward investments.

- *Diversification*: Increased diversification of economic activities is considered and important factor in improving the economic viability in urban areas, for example by measures encouraging entrepreneurship, the development of SME's, support of tourism and cultural industries etc. SME development is in fact one of the most common strategies related to the Structural Funds both in urban and rural areas. Local enterprise agencies have been set up to provide advice and expertise on topics e.g. financing, business planning, legal issues etc, and in some cases have provided or helped fledgling firms in finding suitable premises. One such example is in Manchester in England, where a

business centre has been set up on the campus of the University of Manchester to help high-tech business start-up.

- *Research and development*: High levels of activity in the fields of research and development are regarded as an important factor of the productive environment in competitive regional economies. Research centres have been set up with the support of the Structural Funds, for example a biotech centre in Halle in the Saale in Germany, with the aim of producing scientific knowledge to be applied for SME firms in the region. Parallel to the research centre, a business start up centre is set up to encourage establishment of new SME firms.
- *Developing innovation infrastructure*: Related to research and development, innovation is often considered an important aspect in making enterprises more competitive. In Valencia for example, a network of innovation centres have been set up with the assistance of the Structural Funds to promote certain industries and increase their competitiveness by offering various kinds of assistance to firms within given industries.
- *Attracting inward investment projects*: Attracting investment is considered an important factor for improving economic prosperity and increase employment opportunities in deprived urban areas, for example by improving the general physical condition of the urban area or create business parks. In Burbach in Germany for instance, new high-tech companies as well as handcraft enterprises have been located on the renovated and revitalised area of an old iron and steel work.

It goes with out saying, that there is a vast variety of SF actions carried out in this field and many of them in urbanised areas. Because of the focus of Structural Funds, a certain emphasis is on old industrial areas.

Whereas actions carried out certainly have effects at local level, their contribution to European economic and social or even territorial cohesion is more uncertain. Despite the prevailing belief that territories cannot be pushed of the market, Camagni (2002) stress that this indeed is possible and that the law of comparative advantage does not hold for confrontations among local economies. So he argues that the general assumption that each region will always be granted some specialisation and role in the interregional division of labour is not valid. Following this line of argumentation the intention of the Structural Funds might not be achieved by the actions described above.

Support of equality, social integration and renewal of urban areas

For many years there have been attempts via the Structural Funds to aid lagging regions in updating and modernising their industrial structures in order to compete more effectively within the common European market. Atkinson (1998) underlines that during the 1980's increasing attention was given to the social dimension, as it was increasingly acknowledged, for both economic and political reasons, that the European Social Model, which was seen as essential to Europe's economic and political success, was under threat from global and European economic restructuring. Thus issues such as social exclusion and cohesion became part of the EU's vocabulary

and its policies, justified primarily in terms of their implication for economic development.

Indeed, both attractiveness and local competitiveness depend on similar common factors, which are not only found in physical externalities, accessibility and environmental quality but also in relational capital and the learning capacity expressed by the territory.

In the UFA the Commission advocates an area-based approach to the regeneration of deprived urban areas under the Structural Funds, integrating economic, social, cultural, environmental, transport and security aspects. Linkages between urban areas in difficulty and the wider social and economic strategies in order to avoid urban segregation are equally important. Special emphasis is placed on aspects such as second chance education and training.

Given the policy focus of social cohesion, actions carried out focus on deprived areas, and issues such as social integration, training and education and equality aspects.

- *Social integration:* Inhabitants in deprived urban areas facing declining economic performance, high unemployment, lack of opportunities, inferior housing, outward migration etc, run the risk increased isolation and social exclusion from society. In the Merseyside region in England, a project called pathways to integration was established with the goal of developing self-help in some deprived neighbourhood in the region. The aim was to let local residents identify the underlying causes of their own difficulties and then design their own *pathways* into education, training and employment with the help of local resource centres offering a range of services that combine training, service provisions and community development.
- *Training and education:* Accessibility to training and education is in many regions regarded as a valuable factor in improving the economic prosperity of deprived urban areas and enhancing social integration. The focus of measures and objectives can vary between areas, as some are directed at training of employees to increase competitiveness of firms, others focus on unemployed people to increase their job opportunities and yet another are aimed at training for those who want to start their own company. In Hamburg, an employment program was established as a pilot project, focusing on combating youth unemployment by preparing school-leavers specifically for starting work and to provide already unemployed young people with further training.
- *Improving the image of deprived areas*: To improve the image of deprived areas is regarded as an important aspect in trying to attract businesses, create new employment opportunities and enhance the general living condition of the inhabitants, for example by improving the physical appearance of the area in the form of urban centres development, recycling of vacant and derelict land, refurbishing old building (old industrial sites, harbour areas, run-down centres etc.). One such example is in Belfast, Northern Ireland, a city where areas previously used for various industrial and harbour activities along riverbanks are being redeveloped with the aim of improving the economic and social condition in the city.

- *Promoting equity*: It seems, as special projects focusing especially on women and the inequality between men and women in urban areas are not very common. This might be explained by the fact that gender equality is a mainstreaming issue of Structural Funds and thus only rarely addressed by explicit measures or project. Some projects can though be detected as a part of, for example, employment projects in deprived areas as in Merseyside pathways project mentioned above where childcare is offered for women seeking employment or training.

A major difference between actions regarding equality, social integration and renewal of urban areas and those addressing directly prosperity and employment in urban areas, can be seen in the geographic focus. Direct economic measures are mainly viewed in regional economic terms and thus address the problems of regions or of urban areas being motors for development of a certain region. The more socially oriented aspects are partly considered as cross-cutting issues running through a variety of Structural Funds actions. Those actions showing an emphasis of these issues focus often on rather small areas with a region or urban agglomeration. This is not at least illustrated by Hamburgian example. Hamburg itself is one of the most prosperous city-regions in Europe (in economic terms), however, there are pockets of poverty within the urban agglomeration, which have been subject to Structural Funds action.

In the context of Structural Funds, human, social and relational capital endowments emerge as the factors for regional competitiveness, as necessary pre-condition to secure employment stability, benefits from external integration and the growth of local well-being and wealth. Camgani (2002) underlines that there are a number of theoretical and operational problems that need to be considered, such as the actual necessity and usefulness of competitive policies, the possible targets and tools of such policies and the possible emergence of zero-sum games and beggar-my-neighbour attitudes among territories.

Protection and improvement of the urban and global environment: Towards local and global sustainable development

The UFA highlights environmental actions most likely to lead to demonstrable improvements in urban areas, and draws together a wide range of Community initiatives that affect the quality of the urban environment, including urban energy management, transport, waste, air quality, water, noise and contaminated land. Emphasis is placed on integrated environmental management approaches and on how the Structural Funds can contribute to a more sustainable urban environment.

Environmental issues have featured more prominently in EU objectives and regulations in recent years. Efforts to integrate these objective date back several decades, with an emphasis on the improvement of vacant and derelict land. Although much has been achieved with EU support, difficulties have been experienced with the relatively short time scale of the Structural Fund programmes, moves towards quantitative, commercially-oriented appraisals and evaluation procedures, and securing co-funding from less committed local partners (cf. Clement, Bachtler, Turok).

Despite the wide range of problems when it comes to environmental aspects and sustainable development within the Structural Funds programmes, issues such as improving public transport, environmental improvement of urban areas and infrastructure for pollution management are covered.

- *Improving city public transport:* Growing concerns, both locally and globally, over increased traffic in cities and resulting pollution has led to projects to support development of public transportation networks. The probably most famous example is the extension of the Athens metro, which was completed in 2000, partly financed by the Structural Funds.
- *Urban green space and environmental improvement in urban areas:* Improving the urban green space, for example by planting trees, can be a part of measures aimed at enhancing the general appearance of deprived neighbourhoods. In Sheffield, England, for example, a project funded by the Structural Funds involved a series of environmental improvements on council owned land around and between housing in a deprived area.
- *Promote environmental awareness*: To reach the goal of a more sustainable urban development, measures in promoting environmental awareness among both citizens and firms are important. Improving the environmental performance of production can also open up new markets and increase the competitiveness of firms. Investments in environmentally friendly technology are though often expensive, making it hard for SME firms to compete with larger firms. In Berlin, SME firms have since 1989 received support for environment improvement schemes from a so-called environment assistance programme.
- *Infrastructure for pollution management:* Integral part of plans to improve the environment, both local and global, in order to move towards sustainable development are measures related to the treatment of waste in all forms. In Bilbao, the Structural Funds have been used to help funding the second phase in the construction of a wastewater treatment plant, which will double the primary treatment capacity to include the treatment of storm water and provide a system for organic treatment of active deposits. The plant treats wastewater from 80% of the population of the Greater Bilbao area.

These examples confirm the conclusions draw by Goodstadt and Clement (1998), that there has been a growing recognition that economic decline, social problems and environmental degradation experienced in European cities and regions are part of the same dynamic, and initiatives tackling these themes are no longer viewed as reconciling competing objectives but are rather increasingly designed to support identifiable inter-relationships between features that are central to strategies for renewing urban environments.

Especially actions falling into the sections “improving public transport” and “infrastructure for pollution management” illustrate that contributing to environmental sustainability is a horizontal goal of the Structural Funds. Thus one may detect a number of infrastructure projects contributing to the improvement of the local (and

global) environment. On the other hand the vast majority of infrastructure investments might not consider environmental aspects or even harm sustainable development.

The degree to which Structural Funds actions integrate environmental sustainability as horizontal goal varies among projects and among EU Member States. Accordingly, there might be a long way to go before achieving the aims put forward in the ESDP under the heading "wise management of the natural and cultural heritage". So far, Structural Funds seem to focus on aspects in the field of "water and resource management – a special challenge for spatial development". Also the ESDP aim already mentioned above on "dynamic, attractive and competitive cites and urbanised regions" relates to environmental policy options addressed by Structural Funds actions.

Contribution to a good urban management and strengthening of local self-governance

The UFA calls for stronger policy integration between various levels of government and policy sectors and for citizen empowerment and involvement. The Commission foresees awareness-raising and capacity-building measures and support for innovative urban development strategies aimed at promoting good urban governance, empowerment and urban security.

Governance, participation and process-orientation are increasingly considered important issues in policy making. Understanding a territory as a system of local governance, means concentrating on what brings together a collectivity, an ensemble of private actors and a system of local public administration. In terms of regional policy this means, individual companies are the entities that compete and act in the international market and that their innovativeness can never be separated form the presence of a Schumpeterian entrepreneur, but at the same time, these entrepreneurs/companies are to a large extent generated by the local context and, in order for them to govern and live with uncertainty their decision-making-processes are firmly based on socialised process and explicit collective action.

The importance of governance processes is reflected in different aspects of the Structural Funds system. In the context of Structural Funds in urban areas, aspects such as urban management, participation process and comprehensive development strategies seem to be key issues.

- *Good urban management:* The wide dimension of problems many urban areas are facing today are such that they have to be tackled through many policy areas, creating the need for an integrated approach involving several sectors. The establishment of partnerships between different levels of government (local, regional, national, European) and also between various actors active in the same area are considered an integral part of good urban management.
- *Public participation in developing processes:* Active involvement of local citizens affected by SF interventions, in the development and implementation of projects of neighbourhood renewal, is considered contributing to the success of such intervention. In a neighbourhood in Hague, Nederland, with the support of the URBAN community initiative, a wide consultation exercise was

carried out with different groups of the community with the aim of trying to transform a local park considered unattractive and unsafe.

- *Support of comprehensive development strategies:* In the German city of Neunkirchen, where the city-centre is dominated by iron and steel works that have been closed down, the Structural Funds in combination with national urban development funds facilitated a comprehensive urban development action. This included renewal of the iron and steel works, developing of the pedestrian area, creation of urban green structures and development of industrial areas.

Urban development and management is increasingly becoming part of European policies. Müller-Zick (2001) argues that although there is no formal EU competence in the field of urban development, structural policies influence urban development considerably. He illustrates that Structural Funds can be an instrument supporting comprehensive urban development strategies. Indeed, the European Union pushes towards complex strategies and solutions. This regards especially the work on cross-sectoral approaches to urban problems, which are pushed by the partnership principle in the Structural Funds. However, his review illustrates that Structural Funds open for the development of comprehensive urban development strategies mainly when combining them with other funding sources showing an explicit urban focus. Accordingly Structural Funds can be used for urban management and cross-sectoral development strategies but do not primarily stress this aspect.

Thus, we may conclude with a last quote of Camagni:
"In these conditions, the roles and responsibilities of local development policies and spatial planning widen, facing new political and cultural challenges. Integrating economic and spatial goals; integrating different sectoral tools; stimulating local co-operation networks and partnerships; guaranteeing the real and effective participation of people and citizen in the construction of territorial 'visions' and strategies; enhancing local competitiveness through appropriate policy tools address to collective learning and local relational capital: all these new tasks represent relevant challenges and ask for a rapid evolution of our models of territorial governance" (Camagni 2002:2407)

How might these be measured

The summary of Structural Fund actions in urban areas suggests a number of potential indicators which might be used to determine the need of an area for Structural Fund support. We group potential indicators under key headings. Not all of these will be addressed by the current study as some are considered by other TPGs.

Table 5.1 Potential Structural Fund indicators

Theme	***Potential indicator***
Diversification of the economy	Change in economic structure Dependency on a limited number of industrial sectors
Research and development	Level of R&D activity
Developing innovation infrastructure	Existing levels of innovation Capacity of existing innovation

	infrastructure
Social integration	Unemployment Concentrations of deprivation Outward migration Immigrant populations Crime
Training and education	Existing level of skills
Improving the image of deprived areas	Amount of derelict space
Promoting equity	Participation rates of men and women
Improving city public transport	Congestion Accessibility of local areas
Urban green space and environmental improvement in urban areas	Amount of green space Amount of derelict space
Promote environmental awareness	Investment in environmental technologies by SMEs Levels of public awareness Participation in recycling schemes
Infrastructure for pollution management	Level of air pollution Level of water pollution Water and waste-water treatment capacity
Good urban management	Extent of partnership involvement in development process

5.2. What trends are affecting urban areas?

In the following section we focus on identifying some of the key drivers of change as they will operate at a European level. These drivers are presented in broad format. Each sub-section focuses on those trends that are likely to have some impact on business activity. The trends are expressed at their broadest scale and will clearly have differential impacts. It is not the role of this section to determine what the geographical implications of the identified trends may be. The section is based upon an analysis of various secondary sources and provides a snapshot of currently identified trends.

The section is organised under the following broad categories:

- Economic drivers
- Leisure and tourism drivers
- Education and skills drivers
- Science and technology drivers
- Demographic drivers

5.2.1. Economic Drivers

Globalisation of trade

Although primarily a policy issue, this is also being driven by changing economic conditions. The world economy in recent decades has been characterised by reductions in barriers to trade through liberalisation, deregulation, privatisation and the application of information technology. Whilst it has opened up companies to lower cost competitors and pressure from more demanding investors and capital markets, it has also facilitated the exploitation of new markets and new products. The evidence points towards the world's economic markets becoming ever closer and inter-twined.

Key trends in the continued liberalisation of trade will be:

- The membership of China to the World Trade Organisation, which is estimated may add up to 2% to global output over the next 10 years.
- Continued efforts by the EU to secure liberalisation of transport, energy, telecommunication and finance and labour markets
- The affects of the European Single Market, particularly when coupled with the accession of Central and Eastern European States to the EU

Whilst the precise effects of these changes are largely unpredictable it is safe to assume that firms relying upon cost competition will be increasingly disadvantaged. Those firms with technological advantages or intellectual property will be those that are more likely to thrive in the longer-term.

However, it is not certain that market liberalisation will continue as a dominant trend. Recent protectionism by the US, particularly in steel and textile markets, may signal a change in global trading conditions. However, protection in such industries is unlikely to confer significant benefits to the EU and may prove more damaging than tendencies towards liberalisation. Equally, increasing levels of legislation affecting industrial activity in the EU may, at least in the short-term, detrimentally affect the cost-competitiveness of some industries as they comply with higher legislative requirements than are required of their competitors.

Whilst market liberalization has been occurring the balance of trade has shifted. The pattern of change varies by country (see below). Some Member States have become more trade orientated towards other EU member states, whilst others have become less so. Again, this tends to reflect historical trading patterns and the nature of the economic sectors present in each country.

Table 5.2 Share of Intra-EU-Exports in Total Export (1958-1998)

	1958	*1975*	*1980*	*1990*	*1998*
France	30.9	53.2	55.6	65.3	62.4
Belgium and Luxembourg	55.4	72.7	73.7	79.9	75.8
Netherlands	58.3	73.0	75.1	81.4	79.0
Germany	37.9	46.9	51.4	64.0	56.4
Italy	34.5	49.2	52.3	62.8	56.2
United Kingdom	21.8	35.2	45.1	57.3	58.0
Ireland	82.3	81.4	76.9	78.6	69.8
Denmark	59.3	46.6	51.6	68.4	66.8

Greece	50.9	51.6	48.3	68.0	52.3
Portugal	38.9	53.8	59.7	81.2	81.6
Spain	48.9	48.1	52.7	67.6	70.5
Sweden	-	-	-	62.3	57.3
Finland	-	-	-	62.2	56.1
Austria	-	-	-	67.2	64.2

Source: EUROSTAT (adapted from second report on economic and social cohesion)

There is a growing trend for integration of markets and sectors at the EU level. The Cardiff report on the economic development of the internal market notes that, contrary to initial forecasts, a faster growth in peripheral Member States than in the core zone. Between 1998-00 GDP grew by an average of 3.8% per annum in Spain, Greece and Portugal compared to 2.8% in the rest of the EU and 2.9% for the EU as a whole. Growth rates in Ireland were even higher. In part this is due to the higher levels of specialisation in growth sectors in these countries, meaning that, overall, faster than average economic growth is being experienced. Those regions with strong export orientation (within the Eurozone) will tend to benefit from the introduction of the Euro as transaction costs are reduced.

There is only limited evidence to support the contention that significant concentration of economic activity in the core regions of Europe is occurring as a consequence of market liberalisation. However, there is some evidence that lower skilled/lower cost dependent industries are concentrating (both relatively and absolutely) in Southern European areas. It appears that concentration forces have increased since the late 1970s. Whether dispersion will follow as cost to market reduces is a moot point. On balance, though, it also appears that over time economic activity within regions has become less specialised.

Structural economic change

Amongst OECD member countries two thirds of business activity and 70% of jobs are now classified as based upon service provision. A number of sectors have been identified as offering the best prospects for sustained growth[3]. These sectors are a mixture of those with a long existing presence (retail, business services), and newer sectors which are considered to have the potential to provide a higher proportion of jobs in the future. In all, there is a movement towards more knowledge based, higher value added sectors.

Structural change is also reflected in a shift in the nature of the firm. There is an increasing pattern for major companies to out-source activities. This has been a significant factor in the growth of firms supplying business services, and has been one factor accounting for the changing balance of employment between manufacturing and service activities.

[3] They include: Research and Development; Biotechnology and pharmaceuticals; Information Communication Technologies and Software; Electronics; High-tech manufacturing; Business services; Financial Services; Tourism; Culture and Media; Education; Health and Personal Care; Food Processing; Retail

The growth of the 'Knowledge Economy'

There is increasing recognition that maintaining competitiveness in an increasing global economy is no longer dependent on the production of standardised products at the lowest possible cost. The greatest employment increases are expected in sectors connected to the knowledge economy: computer services, other business services and professional services for example.

Developing specialisation in knowledge, design and human capital intensive products, which can sell at premium prices in niche markets, is an increasing focus of economic policy and business practice. This in turn depends on a process of continuous innovation, driven by factors such as access to specialised labour and research and leading edge supply networks. For businesses, there is a need to connect all parts of their organisation so that knowledge can be shared quickly. The implications of this include:

- 24-hour knowledge transfer - driving the need for a flexible work force and 24 hour access to buildings;
- Increased efficiency and a reduction in production cycle times (thereby reducing space requirements);
- Knowledge and data transfer encouraging companies to out-source a larger number of processes – again reduction in space for a given level of activity; and
- Development of intranets and extranets, enabling non-specific location working linked by sophisticated telecommunications – leading to reduced space, requirements for larger offices to be replaced by smaller 'serviced' provision.

While around 40-60% of all business R&D is performed in so called high-tech manufacturing, for many countries an increasing share (30-40%) of R&D is performed in the service sector. Although manufacturing has declined in overall importance, the high-tech element in some countries has potential to be very dynamic in terms of sales and productivity increases, although with less effect on jobs.

Inward Investment Trends

Foreign Direct Investment continues to be a major consideration within the worldwide economy. In 1999, global and European foreign direct investment rose to all-time highs. The US and the UK are the largest generators and beneficiaries of global FDI. Some of the key trends affecting FDI include:

- Movement towards more knowledge-based sector projects, producing a greater number of investments, but smaller numbers of jobs and investment per project.

- Shift of FDI towards new locations - particularly southern Europe and accession states of Eastern Europe

- Shift towards cross-border mergers and acquisition activity (M&A), led by Europe and the US, rather than growth in more traditional FDI investment areas (for example greenfield investment, expansions, co-location).

- Movement towards direct investment protecting or safeguarding existing jobs rather than generating new jobs. Of 2,000 direct investment projects in Europe in 1999, only 1% generated jobs of 1,000 or more (Ernst & Young's European Investment Monitor).

- Sectoral focus of new project investments, with six sectors accounting for 50% of all projects in Europe (software, automotive, financial services, electronics, chemicals and pharmaceuticals). Manufacturing remains the largest single activity, although there has been strong growth in call/ contact centres, co-ordination/ head offices, and e-commerce.

Business Location Decisions

Business location decisions will increasingly be influenced by such factors as:

- Quality of working environment (including access to services);
- Quality of social infrastructure and housing choices;
- The need for, and increasing importance of, flexible working arrangements – home working, flexi hours;
- The quality of the local skill base – with organisations requiring access to large skilled labour pools.

5.2.2. Leisure and Tourism

Leisure and tourism are an increasingly important aspect of the economy and people's lifestyles. The pattern of spending (time and resources) in these areas can have a major impact on spatial structures.

Increased Leisure time

Improvements in productivity at work and more importantly labour-saving devices in the home are leading to increased amounts of leisure time across the population as a whole. While trends such as longer working hours are also evident today there are signs that some are beginning to trade-off increased wealth for more leisure and a better work-life balance.

Tourism

Trends in tourism in recent years have shown massive increases at a global scale - the industry is one of the largest and fastest growing in the world. The industry is forecast to increase in the next twenty years as a result of rising education levels (which affect cultural participation) and affluence (which serve to increase the aspirations of the population). The increasing age of the population results in a greater percentage of the population with more available time, being at the peaks of their careers, possessing the highest earning powers and thus having the highest levels of disposable income. The increasing economic role of women means that they also have more discretionary income and thus more control over holiday destinations and leisure time. There is

greater emphasis on shorter trips, combined breaks with business travel, weekend escapes and particularly day trips.

5.2.3. Education and skills drivers

Research has shown that the most successful regions generally have a highly skilled, flexible and well managed workforce, that is constantly updating and adapting to new circumstances. The competition to attract, train and retain knowledge-based personnel will be central to the success of both organisations and regional economies. Following on from the shift towards a knowledge-based economy, businesses are having to adapt their attitudes to work. Such a change suggests the following:

- Flexible work arrangements (working from home/flexible hours);
- The quality of working environment (including access to shopping, leisure, banking and other social infrastructure);
- Business location in an area of quality skill base, ie enabling access to the 'largest pool of talent'.
- Increased Use of Information and Communications Technology
- Increased use of Contracting

5.2.4. Science And Technology Drivers

Information and Technology Communication Technologies

New and emerging technologies continue to have a major influence on space. By 2010 the internet will be an all but ubiquitous technology enabling international markets to be reached with ease and joint working world-wide. Each new wave of technology in the past has had far reaching positive consequences on economic growth and employment. The indications are that the latest wave of new technologies will bring about similar benefits.

In manufacturing, ICT has had a major impact on the organisation of activity. It will enable businesses to manage their supply chain more effectively, enable the more efficient management of stocks through just in time delivery processes and result in the down sizing of manufacturing plants, at least in the medium to long term. For the service sector, the development of ICT will pose a potential threat to town centres, since many office based functions based within headquarters (for example, general admin, records storage) will no longer need to be located there.

Greater application of science and technology

Access to new technologies will increase as advancements are made and its application more commonplace. Advanced nations are now performing more science and technology research than ever before and exploiting the results more rapidly. In business, evidence collected from surveys of organisations suggests that those with a focus on Research and Development or high-technology achieve higher than average productivity and employment growth, although other factors such as worker training, organisational structures and managerial ability are also critical to this. The

application of science to new areas will bring about new possibilities and opportunities, for example:

- bio-technology to the fields of medicine – genetic engineering - crime and food processing;

- to agriculture, with the diversification towards crops for non-food uses (bio-fuels). Such changes would alter the appearance of areas planted (particularly if it were coppicing systems) and could attract small scale energy and manufacturing plant into more rural areas;

- to health care, through more remote monitoring, and automated support for living. The elderly may therefore be able to have care and a high quality of life in their own homes for much longer than is possible at present.

5.2.5. Demographic drivers

Ageing workforce

The EU is facing a substantial ageing of its population. One study has estimated that 34% of those living in the EU will be 65 or over by 2050 (PIU Strategic Futures). This affects all Member States bar Portugal and Ireland. This obviously has far reaching consequences for welfare provision and the labour supply.

An ageing population will see an increase in the number of economic dependents. This will put greater pressure on workforces and taxation policies. There is concern that a reduction in savings by this cohort (as suggested by Modigliani's life-cycle hypothesis) will also reduce overall levels of investment across the economy, thus influencing enterprise development and growth rates. However, this might be offset if the elderly have relatively high levels of accumulated wealth which they are use to increase consumption and so promote higher levels of economic activity.

One far-reaching consequence may be changes to retirement age, although this may not be uniform across social classes. Indeed, a key change may be to increase the practical retirement age (which is often around 55 years) rather than the statutory retirement age.

Migration

As a result of an ageing population and decreases in fertility rates, it is likely that migration flows will be the determining factor of population change in EU countries rather than natural increase/decrease. Increasing mobility of workers in the EU and the potential increase of labour supply from the accession states as they become integrated into the EU will be strong contributory factors.

5.2.6. Sectoral trends

Each economic sector in the EU faces its own unique pressures and conditions. This makes it very difficult to generalise on the implications for polycentric development models. Even within a sector there is not necessarily consensus on likely future development patterns. For example the European chemical industry is as likely to concentrate in the core of the EU, owing to high transport costs, as it is to disperse to peripheral port areas, as manufacturers seek to replace land-based transport modes by maritime shipping.

There is, though, a consensus amongst industry representatives that to the extent that there is a reduction in investment in the EU in favour of other markets (whether these are in central and eastern Europe, Asia or elsewhere) the effects are most likely to be felt in the weaker economies, such as Spain, Portugal and Greece. This was particularly remarked on in the context of food and drink industries, an area where these Member States might be felt to have some comparative advantage. Industry representatives have also remarked on the likely negative impact that the forthcoming WTO rounds could have on the first-processing sector, which might have differential regional impacts depending upon the nature of industrial mix. In contrast, bio-technology is seen to be a strong candidate for further growth, particularly in the UK, Germany and northern Belgium.

One factor that might support a more polycentric pattern of development is the increasing importance attached to niche products and branding. This can be seen in the food and drink industry as well as in other industries such as textiles, where high value added activities are associated with a limited number of locations throughout the EU.

In general, a sectoral shift towards service activity is clearly occurring throughout the EU. It will be these activities that drive much of economic development in the future, and those regions possessing strong high value service sectors will thrive. The extent to which different sectors are represented in urban areas is an important contributory factor to their prosperity.

How might these be measured

The drivers identified suggest a number of potential indicators which might be used to determine the need of an area for Structural Fund support. We group potential indicators under key headings. Not all of these will be addressed by the current study as some are considered by other TPGs.

Table 5.3 Potential driver indicators

Theme	Indicators
Changing economic structure	Employment by sector Output by sector
Inward investment trends	Level of inward investment
Views of quality of area for investment by business leaders	Qualitative surveys
Attractiveness of urban areas to tourists	Number of bed nights

Level of skills available	Proportion of population with tertiary education
Availability of ICT	Connectivity ICT usage
Demographic change	Changing proportion of elderly residents
Migration	Level of out-migration of existing residents Level of in-migration from immigrants

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6. DATA COLLECTION

The Process

We initially sought data for all of the Functional Urban Areas identified by 1.1.1 for the EU 27+ 2 (1611 urban areas). Our typology required us to collect data which was:

- available for all the countries EU 27+2
- of the lowest level possible (preferably NUTS 4 or 5)
- available over a time period of up to five years to show trends

Our first goals was to identify comparable information, and we therefore sought as much data as possible from the EUROSTAT New Cronos data base supplied to the ESPON programme by DG Regio.

Through this database we were able to acquire information on the following indicators:

Table 6.1 Data available through Eurostat

	Indicator	**Relevant period**	**NUTS level**
Economic base	GVA by NACE codes 3	1995-2000	NUTS 3
	GVA by NACE codes 17	1995-2000	NUTS 2
	Employment in services	1994-2001	NUTS 2
	Employment in manufacturing	1994-2001	NUTS 2
Economic performance	GDP per inhabitant	1995-2000	NUTS 3
	GDP purchasing power	1995-2000	NUTS 3
	Employment	1995-2000	NUTS 2
Social performance	Proportion of working population with tertiary education	1994-2001	NUTS 2
	Percentage unemployed	1994-2001	NUTS 3
	Population	1994-2002	NUTS 3
	Population by age and sex	1994-2001	NUTS 3
	Economic Activity rates	1994-2001	NUTS 2
	Household incomes	1995-1999	NUTS 2

The data available from EUROSTAT was broadly useful for the purposes of our study. For example, economic trends data on GDP and employment can be supported by social trends data on unemployment, population growth and household income levels to gain an idea on whether an urban area is experiencing economic growth or decline, and how this growth or decline has been shared by the local population. In addition, indicators such as 'proportion of the working population with tertiary education' provide a useful indication of the education and skills levels of the urban population, whilst not including current university students who could skew the data should the urban area be a university town.

ESPON 223 used the above indicators to construct a basic ACCESS database which stored the relevant data available for each of the Functional Urban Areas identified by TPG 1.1.1. This was a relatively time consuming task which included checking what information could be found, performing data calculations in relation to certain indicators, and ensuring the data was transferred accurately into the database.

Despite the usefulness of the data, there were a number of problems and issues to be resolved, in particular:

a. Geographical level

Data on the New Cronos database is mainly available at NUTS 3 level or above. For some indicators, such as employment by manufacturing and services, GVA by NACE 17 codes and educational levels of the working population, the data was only available at NUTS 2 level. This means that data is not available at the urban level for the purposes of this study.

In terms of comparable data sets at the EU level, therefore ESPON 223 has therefore been obliged to use NUTS 3 and sometimes NUTS 2 data as a guide for what was occurring at the urban level. This was further complicated by the fact that the administrative levels are significantly different within different European countries, and whereas NUTS 3 is a relatively good indicator of the urban level in Germany, NUTS 4 or 5 data is more appropriate for the urban level in the Nordic Countries.

Finally, the lack of data at the NUTS 4 and 5 level meant that it would be difficult to identify the disparities which were occurring within urban areas in relation to certain indicators, such as employment, unemployment and household income.

b. Coverage for the EU27+2

For several indicators, such as the ISCED educational indicators, information was only available for the EU15 and not for the Accession countries;

c. Data gaps

The data included a series of gaps which would need to be sourced through data collection at the national level. These gaps existed for particular regions and for particular years. For example while data on GDP, GVA and population was generally available, population data was scarce at the NUTS 3 level for 2000 and 2001, probably due to the ten year census collection process. GVA data was also particularly lacking for the year 2000. For other indicators, data availability was much more patchy. For example data on economic activity rates and average household incomes was almost non existent even at the NUTS II level.

d. Environmental data

Environmental data was particularly lacking within EUROSTAT. The only available data available which was relevant to the ESPON 223 typology was in relation to 'Emission of acidifying pollutants (trends in NH3, NOX, SO2

emissions) and 'Greenhouse gas emissions'(Data on greenhouse gas emissions and removals) which were available at the national level only for the EU 15.

We outline the different stages to the process in more detail below.

Stage 1: Compiling initial European level database

This task involved:

- Checking what information could be found, what years are available, etc.
- Calculations and checking. Ensuring that the information has been calculated in the right way and that data are at the right place.
- Integrating the data into the database. Ensuring data is transferred accurately into the database.
- Preparing overview of missing data.

Stage 2: *Attempting to find data for indicators not included in Eurostat from alternative sources*

Our main objective was to identify alternative sources for relevant indicators to our typology which would be at a sufficiently low geographical level but also comparable across Europe. The ESPON Data Navigator proved particularly useful for identifying relevant institutions likely to be able to supply this information at the European level.

We in particular sought information on environmental indicators and on labour market information. In relation to environmental indicators, the project team cooperated with EEA informally and sent a formal request via horizontal action 3.1 in order to acquire more information on environmental indicators relevant for urban areas. However the EEA were not able to provide any relevant data at a NUTS III level, despite having piloted a project in relation to environmental indicators for urban areas in the past.

This reflects a broad lack of data availability in relation to environmental issues at urban level. One of the reasons for this may be that environmental monitoring stations are often distributed nationally in a way which is not related to urban structure, so it is difficult to link urban areas to particular measurement stations.

There have been attempts to increase the collection of environmental indicators at the urban level for example as part of the Local Agenda 21 process. The Cities 21 project, developed by ICLEI, aimed to create a common framework for its local government members to evaluate their local, as well as their joint or cumulative progress, towards sustainable development. To do this, a set of 70 core indicators were selected, including:

- Presence of Cities for Climate Protection Campaign
- Presence of Local Agenda 21 Process
- Ambient Levels monitored of Nitrogen Oxides (NOx) , Carbon Monoxide (CO), Ozone (O3) Suspended Particulates (TSP or PM 10) Monitored
- Industries Required to Pretreat Effluent before Releasing it into the Municipal Wastewater System
- Presence of Municipal Environmental Strategy or Plan

- Municipal Energy Balance
- Total Energy Use in Municipality from all Sources
- Infrastructure and Urban Form
- Percentage of Green/Open Space in Municipality

Ultimately, 30 local governments were able to provide detailed data on most of the indicators. The final results of the Cities21 Pilot Project are presented in *Measuring Progress: Final Report of the Cities21 Pilot Project which includes* a detailed account of the methodological issues that ICLEI encountered in trying to collect globally comparable data from its member local governments.

The Urban Audit II will do a considerable amount to raise the number of Environmental indiators available at the urban level at least for the 160 cities which are the focus for the Urban Audit II exercise.

The following indicators should be available for 160 cities by Spring 2004 :

- Winter Smog: Number of days per year sulphur dioxide SO2 concentrations exceed 125 µg/m3 (24 hours averaging time)
- Summer Smog: Number of days per year ozone O3 concentrations exceed 120 µg/m3 (8 hours averaging time)
- Number of days per year nitrogen dioxide NO2 concentrations exceed 200 µg/m3 (1 hour averaging time)
- Number of days per year particulate matter PM10 concentrations exceed 50 µg/m3 (24 hour averaging time)
- Concentration of lead Pb in ambient air in µg/m3 (1 year averaging time)
- Number of residents exposed to outdoor day noise levels above 55 dB(A) (12 hour day, normally 07-19)
- Number of residents exposed to sleep disturbing outdoor night noise levels above 45 dB(A) (8 hours night, normally 23-07)
- Total carbon dioxide CO2 emissions (tonnes)
- Total carbon monoxide CO emissions (tonnes)
- Total methane CH4 emissions (tonnes)
- Total non-methane volatile organic compounds NVOC emissions (tonnes)
- Total sulphur dioxide SO2 emissions (tonnes)
- Total nitrogen dioxide NO2 emissions (tonnes)
- Annual amount of solid waste (domestic and commercial) collected from within the designated boundary
- Annual amount of solid waste (domestic and commercial) arising within the boundary that is processed by landfill.
- Annual amount of solid waste (domestic and commercial) arising within the boundary that is processed by incinerator
- Annual amount of solid waste (domestic and commercial) that is recycled
- Annual amount of solid waste (domestic and commercial) given to other disposal
- Annual amount of toxic waste produced within the boundaries

A second area where we sought data was in relation to the Labour Market Survey as this survey contains relatively complex sources of data which are not available immediately through New Chronos. We contacted the Labour Market Survey in particular to request information on occupational type (manual, semi-skilled, skilled)

at a NUTS III level and educational levels for the EU27+2. Unfortunately this data was not available through the Labour Market Survey so we put in a special request via Horizontal Action 3.1 (see below).

Stage 3: Completing data gaps

We first attempted to complete data gaps through contacting other TPGs and using the ESPON 3.1 database. NORDREGIO were able to provide us with GVA breakdowns by NACE but only for 2000.

We sent our experts excel spreadsheets attached listing data gaps for all the Functional Urban Areas identified within their countries. We asked experts to contact national statistical offices for this information where possible. If the data was not available we asked experts to state so clearly for each indicator.

Table 6.2 below is an example of the request we sent to each country in relation to data gaps:

Table 6.2 Data request sheet

Table name	Data missing or not available at NUTS2 or NUTS3 level
Activity rates	1994: No data available for all FUAs From 1995 to 1998, no data available for Joenkoeping (SE091);, Vaernamo (SE091), Tranaas (SE091), Vaxexjoe(SE092), Ljungby (SE092), Kalmar(SE093), Vaestervik (SE093), Oskarshamn(SE093, Visby(SE094) Falkeberg SE0A1, Varberg SEA01 Halmstad SE0A1 Boraas, SEA02, Goeteborg SEA02 Lidkoeping SEA02 Skoevde SEA02 Trollhaettan SEA02 Uddevalla SEA02 Mariestad SEA02
Employment in manufacturing	No data available for 1994 1995 1996: no data available for oenkoeping SE091, Vaernamo SE091 Tranaas SE091 Vaexjoe SE092 Ljungby SE092 Kalmar SE093 Vaestervik SE093 Oskarshamn SE093 Visby SE094 Falkenberg SE0A1 Varberg SE0A1 Halmstad SE0A1 Boraas SE0A2 Goeteborg SE0A2 Lidkoeping SE0A2, Skoevde, SE0A2 Trollhaettan SE0A2 Udeevalla SE0A2 Mariestad SE0A2
Employment in services	No data available for 1994 1995 1996: no data available for oenkoeping SE091, Vaernamo SE091 Tranaas SE091 Vaexjoe SE092 Ljungby SE092 Kalmar SE093 Vaestervik SE093 Oskarshamn SE093 Visby SE094 Falkenberg SE0A1 Varberg SE0A1 Halmstad SE0A1 Boraas SE0A2 Goeteborg SE0A2 Lidkoeping SE0A2, Skoevde, SE0A2 Trollhaettan SE0A2 Udeevalla SE0A2 Mariestad SE0A2
Employment	No data available for 2000
Hightech Employment in manufacturing	no data available in 1995 and 2000 for Sundsvall SE071 Haernoesand SE071 Oernskoeldsvik SE071 Oestersund SE072 Skellefteaa SE081 Umeaa SE081 Kiruna SE082 Luleaa SE082

Hightech Employment in services	No data available for 1994 1994 1995 1996 1997 1999 2000: no data for Sundsvall SE071 Haernoesand SE071 Oernskoeldsvik SE071 Oestersund SE072 From 1996 to 1999, no data for Skellefteaa SE081 Umeaa SE081 Kiruna SE082 Luleaa SE082 From 1996 to 1998, no data for Joenkoeping SE091, Vaernamo SE091 Tranaas SE091 Vaexjoe SE092 Ljungby SE092 Kalmar SE093 Vaestervik SE093 Oskarshamn SE093 Visby SE094
% population with terciary qualification	no data available for 1994 1995 1996
GDP euro per inhabitant	ok
GDP purchasing power	ok
GVA at Nace 17	No data available
GVA at Nace 3	No data available for 2000
Income of households	no data available
Population	No data available for 2000 2001 2002
Population by sex and age	no data available
Unemployment	1994 No data available 1995 No data available for Joenkoeping SE091, Vaernamo SE091 Tranaas SE091 Boraas SE0A2 Goeteborg SE0A2 Lidkoeping SE0A2, Skoevde, SE0A2 Trollhaettan SE0A2 Udeevalla SE0A2 Mariestad SE0A2

Data descriptions

In order to facilitate our bringing together of the data collected, we circulated a series of indicator definitions in relation to the definitions used within the European level database (see box 6.2 below). We also asked partners to specify the exact definition of the data they were presenting, and to state where alternative data was available

Box 6.2: European level definitions for the indicators collected

i. unemployment

Unemployment rates – unemployment as a % of total labour force (employed and unemployed) according to the Community Labour Force Survey definition below.

In accordance with the ILO standards adopted by the 13th and 14th International Conference of Labour Statisticians (ICLS), for the purposes of the Community labour force sample survey, unemployed persons comprise persons aged 15 to 74 who were:

- without work during the reference week, i.e. neither had a job nor were at work (for one hour or more) in paid employment or self-employment;
- currently available for work, i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week;
- actively seeking work, i.e. had taken specific steps in the four week period ending with the reference week to seek paid employment or self-employment or who found a job to start later, i.e. within a period of at most three months.

ii. % population in tertiary education

The % of the population of working age (25-64) who have completed some form of post-secondary education. The definition is ISCED levels 5 and 6 (ISCED : International standard defintion of education).

iv.% hi tech employment in services

It is the number of people employed in the NACE codes below expressed as a percentage of total number employed in all NACE codes.

High-technology services: NACE Revision 1 (ISIC Revision 3)
1. Post and telecommunications: 64 (641+642)
2. Computer and related activities: 72 (721+722+723+724+725+729)
3. Research and development: 73 (731+732)

v. % hi tech employment in manufacturing

It is the number of people employed in the NACE codes below expressed as a percentage of total number employed in all NACE codes.

Medium-high technology industries:	
Chemicals NACE (24) - Pharmaceuticals (NACE 24.4)	DG24 (incl. 24.4)
Machinery (NACE 29)	DK29
Electrical equipment (NACE 31)	DL31
Precision instruments (NACE 33)	DL33
Automobiles (NACE 34)	DM34
Aerospace and other transport (NACE 35) - Aerospace (NACE 35.3)	DM35 (incl. 35.3)
High technology industries:	
Pharmaceuticals (NACE 24.4)	N.A.
Office equipment (NACE 30)	DL30
Telecommunications and related equipment (NACE 32)	DL32
Aerospace (NACE 35.3)	N.A.

VI. Income per household

In relation to information on Income per Household, the EU level database currently consists of data on disposable income (net) and balance of primary income (net) in relation to Euro per inhabitant/millions of euro and purchasing power standards based on final consumption. We are therefore looking for data which matches these definitions if this is available.

Stage 4: Collecting indicators as the national level.

As mentioned above, a series of gaps exist in relation to the types of indicator which are collected at the European level which could support the typology being developed by ESPON 223. In particular information on environmental factors and disparities at the urban level is missing. Also, data is not collected at a sufficiently low level in relation to NACE 17 codes and below, economic activity rates and income per household.

According to the requirements of the terms of reference, ESPON 223 therefore undertook a more detailed data gathering exercise to identify the types of problems urban areas are experiencing beneath the broad economic and social trends identifiable at the EU level. It was decided, in discussion with DG Regio at the Commission, to focus on particular issues of:

- high reliance on particular codes and sub-codes within the NACE 17 classification
- economic activity rates at the urban level
- disparities within urban areas in relation to income per household and unemployment
- environmental indicators (of urban pollution)

The first indicator was sought in relation to high reliance on particular industries at the urban level. This is important as an indicator of likely future potentials and weaknesses and it was therefore necessary to collect this information at the NUTS 3 level or below for all FUAs in each country. We initially collected information on each of the NACE 17 codes against GVA. However it became apparent that this was not often readily available, so we also gave our partners the option of supplying information on employment by NACE code. As the manufacturing code D within NACE 17 is a very comprehensive category we also asked for data on sub-codes within D.

For the remaining indicators we sought information only for the 317 ‘urban areas in difficulty’ which we had identified through the EU level analysis, in order to be able to diagnosis the underlying problems which were symptoms of the broader economic and social trends. In the section below we give more details on the process ESPON 223 took forward to collect data against these indicators.

As this data would mainly be used for comparative purposes within the urban area or between the urban area and its national context, it was not necessary that the

information collected was comparable at the European level. There was therefore some room for flexibility in relation to the indicators collected. We forwarded pre-formatted Excel datasheets in relation to the information collection so that the exercise would produce consistent data formats.

A: Indicators for selected urban areas

We collected the following indicators for identified urban areas. Data was collected for the most recent date available (2000, 2001 or 2002). A five year trend was then requested to this date point. In relation to the first two indicators below we were particularly interested in disparities that are apparent within the urban area for these urban areas.

Table 6.3 Indicators collected

Description	Indicator Name	Minimum Territorial Level	Type of indicator
Disparities in unemployment within urban areas	Difference between highest and lowest unemployment rate within the urban area	Below NUTS 3 (NUTS 4 and 5)	Absolute/%
Disparities in poverty and deprivation	Difference between highest and lowest household income within the urban area	Below NUTS 3 level (NUTS 4 and 5)	Absolute/%
Economic activity rates	% economically active in population of working age	NUTS 3	Absolute %
Health	Life expectancy	NUTS 3	Absolute %
Indicators of pollution (smog etc)	Summer smog	NUTS 3	Absolute %

For the selected urban areas we requested information at the level of the functional urban area in so far as possible. As NUTS IV is a more appropriate level for data collection on urban areas than NUTS III partners were asked to supply data at this level for the suggested indicators where practical. Partners were also asked to be pragmatic about the boundary/definition of the urban area used, but to define at what level they had used to look at the urban area (eg administrative boundary, other definition of urban area) and ensure that they were consistent in using this definition. Data on national comparators for the indicators collected was requested in order to facilitate comparisons between the situation in urban areas/NUTS III regions, and the national average.

B: Indicators of dependency on certain sectors

The breakdown of sectors identified through NACE 17 is not available for NUTS III regions at the European level. Therefore for all the functional urban areas across Europe we asked our experts to identify percentages (and absolute value if available)

of each NACE code 17 for each NUTS 3 area, as a minimum. Further, where it is clear that there is a dependency of over 25% for manufacturing code D, then experts were requested to look beneath this code at the sub-sectors (identified below) to assess whether there is dependency on any particular industries. We asked for the % (and absolute value if available) for each of these sub-sectors.

Table 6.4 sub-sectors of NACE Code D

Description	Indicator Name	Level	Type of indicator
GVA data below NACE 17	DA: Manufacture of food products and beverages	NUTS 3	Absolute %
	DB: Manufacture of textiles and textile products		
	DC: Manufacture of leather and leather products		
	DD: Manufacture of wood and wood products		
	DE: Manufacture of pulp, paper and paper products; publishing and printing		
	DF: Manufacture of coke, refined petroleum products and nuclear fuel		
	DG: Manufacture of chemicals, chemical products and man-made fibres		
	DH: Manufacture of rubber and plastic products		
	DI: Manufacture of other non-metallic mineral products		
	DJ: Manufacture of basic metals		
	DK: Manufacture of machinery and equipment n.e.c		
	DL: Manufacture of electrical and optical equipment		
	DM: Manufacture of transport equipment		
	DN: Manufacturing n.e.c		

The following organisations have been contacted as part of the process outlined above.

Table 6.5 National and regional data sources

Country	Partner	Source/organistion contacted
EU 15		
Austria	**OIR**	**Statistik Austria**

Belgium	**ECOTEC**	**Jean Luc Strobans** **Infoshop Bruxelles** **Rue de Louvain 44/46** **1000 Bruxelles** **Service des études et de la statistique de la Région Wallonne** **Belgian National Institute of Statistics** Steunpunt WAV. http://www.steunpuntwav.be/stat/2000/Vlaamsgewest2000/vlgewest2000.htm The council-level statistics came from the APS igemeentelijke and regionale databank http://aps.vlaanderen.be/statistiek/Frameset_database.htm
Denmark	**NORDREGIO**	**Statistics Denmark**
Finland	NORDREGIO	Statistics Finland
France	ECOTEC	INSEE (National Estatistical Institute of France) INSEE regional office http://www.indices.insee.fr/bsweb/servlet/bsweb?action=BS_RECHGUIDEE&BS_IDARBO=010 00000000000 http://www.insee.fr/fr/a_propos/stat_pub/redirection.htm French ministry Pays de la Loire web site
Germany	**OIR**	**Indicators Unemployment and Employment:** Bundesanstalt für Arbeit; Referat Beschäftigungsstatistik; IIIb5 – 4217 (3) Martina.Buettner@arbeitsamt.de Bundesanstalt für Arbeit; Referat IIIb5; Beschäftigungsstatistik, Erwerbsstatistik, Wirtschaftsnummer; D-90327 Nürnberg; Tel. +49 911 179-2861 Fax +49 911 179-5205; E-Mail an das Referat Beschäftigungsstatistik mailto:hauptstelle.beschaeftigungsstatistik@arbeitsamt.de Hier finden Sie Daten aus der Beschäftigtenstatistik im Internet: http://www1.arbeitsamt.de/hst/services/statistik/detail/b.html **Indicators Activity Rate and Household Incomes:** Statistisches Bundesamt ; Statistischer Informationsservice IC/ Sylvia Kunze Gustav-Stresemann-Ring 9-11; 65180 Wiesbaden ; Tel. 0611/75-2405 E-Mail: info@destatis.de; Internet: www.destatis.de; usann.kunze@destatis.de **Indicator Life Expectancy:** Statistisches Bundesamt; Statistischer Informationsservice IC/ Sylvia Kunze Gustav-Stresemann-Ring 9-11; 65180 Wiesbaden; Tel. 0611/75-2405 E-Mail: info@destatis.de; Internet: www.destatis.de; usann.kunze@destatis.de Only available on NUTS-0 level. **Indicators of pollution:** Susanne Grittner; Umweltbundesamt, Fachgebiet II 6.2; Immissionssituation Bismarckplatz 1; 14193 Berlin; Telefon: 030/8903 2757; Fax: 030/8903 2282 e-mail: usanne.grittner@uba.de **Indicators GDP, GVA and Purchasing Power:** Arbeitskreis Volkswirtschaftliche; Gesamtrechnungen der Länder; c/o Statistisches Landesamt Baden-Württemberg; Frau Alexandra Günther: alexandra.guenther@stala.bwl.de; Böblinger Str. 68; 70199 Stuttgart Tel.: 0711/64 12 470; Fax: 0711/64 12 479 http://www.statistik-bw.de/VolkswPreise/ArbeitskreisVGR/
Greece	SDRU	Greek al Statistical Service
Ireland		EU Structural Funding in Ireland website Central Statistics Office
Italy	**IRS**	**ISTAT** **Legambiente 1999-2001** **Unioncamere 2003**

Luxembourg	**ECOTEC**	**Datashop Luxembourg**
Netherlands	**ECORYS.nl**	**Netherland statistical office**
Portugal	**ECOTEC**	**Portuguese statistical office** **All Portuguese regional offices**
Spain	ECOTEC	* Ministerio de Medio Ambiente (Ministry for Environment) * Anuario Social de España de La Caixa (Social Yearbook) * Instituto Nacional de Estadística (National Statistics Institute) * Observatorio Ocupacional de Empleo Central (Central Employment Observatory) * Instituto Nacional de Empleo (Employment National Institute) http://www.ine.es/daco/daco42/cre_rh/cuenhog.xls
Sweden	**NORDREGIO**	**IVL Swedish Environmental Research institute Ltd.** **Statistics Sweden**
UK	**ECOTEC**	**NOMIS** **government office for national statistics**
Accession Countries		
Bulgaria	**SDRU**	**Mission of the Republic of Bulgaria** **National Centre for Regional Development** National Statistical Institute www.nsi.bg.
Cyprus	SDRU	Ministry of Interior**:** Ermis Klokkaris ermiskl@spidernet.com.cy Demosthenis Severis 1454 Nicosia Statistical Service of Cyprus [mailto:cydsr@cytanet.com.cy
Czech Republic	SDRU	Czech Statistical office KROK Database Dagmar Ledererova ing. Cesky statisticky urad oddeleni 5122 - poskytovani elektronickych vystupu Josefska 6 118 00 Praha 1 - Mala Strana telefon: 257 533 569 fax: 257 530 834 e-mail: ledererova@gw.czso.cz www.czso.cz Mrs.Salkova Cesky statisticky urad oddeleni 5122 - poskytovani elektronickych vystupu Josefska 6 118 00 Praha 1 - Mala Strana telefon: 257 533 569 fax: 257 530 834 e-mail: jsalkova@gw.czso.cz www.czso.cz
Estonia	SDRU	Erik Terk 'erik@eti.online.ee' Estonian Institute for Future Studies Estonia Statistical Office website
Hungary	SDRU	VATI - Ungarisches Institut für Regionalentwicklung Erzsèbet Vajdovich Visy evisy@vati.hu
Lithuania	SDRU	Ministry of Environment Aleksandra Gordevicius M A.Gordevicius@aplinkuma.lt Lithuania
Latvia	SDRU	Institute of Economics Raita Karnite apsis@lza.lv Latvia Akademijas laukums 1 1050 Riga LV

		Dzintra Upmace Ministry of Finance - Regional Policy and Planning Directorate dzintra.upmace@if.gov.lv Latvia 1 Smilsu Str. 1919 Riga Central Statistical Bureau of the Republic of Latvia.
Malta	**SDRU**	**http://www.nso.gov.mt/publications/industry/1998/industryb.htm** **Malta Environment and Planning Agency??(pa-malta)? SaviourFormosa** **saviour.formosa@pa-malta.org**
Poland	**SDRU**	**Government Centre for Strategic Studies Maciej Borsa** **interreg@region.rcss.gov.pl** **Polish statistical office, regional statistical offices.** **http://www.stat.gov.pl/english/**
Romania	SDRU	Dorottya Pantea Urbanproiect Pantea Dorottya [pantead@incdurban.ro] Ministry of Public Works, Transport and Housing Alexandruntal antal@mt.ro URBANPROJECT – BUCURESTI Serban Nadejde office@incdurban.ro
Slovakia	**SDRU**	**http://www.statistics.sk/webdata/english/index2_a.htm** **Ms Miloslava Pasková,Director, Ministry of Environment of Slovak Republic,Land Use Planning Department, Námestie Ludovita Stura 1, SK-81235 BRATISLAVA, '+421 7 5956 2267, '+421 7 5956 2232 ,** **http://www.statistics.sk/webdata/english/index2_a.htm** **Mr. Ivan Veruzáb,Slovak Environmental Agency,Unit URBION Bratislava,Hanulova 5/D, SK-84440 BRATISLAVA, '+421260201619, '+421265412156;**
Slovenia	SDRU	Franc Lenarcic,'Franc.Lenarcic@gov.si' **Ministry of environment and physical planning** **Margarita Jancic** **margarita.jancic@gov.sl**
EEA Countries		
Switzerland	ECROSY.nl SDRU	Marco Kellenberger ECP Switzerland Gérard OEUVRAY OFFICE FEDERAL DE LA STATISTIQUE Section information et documentation Espace de l'Europe 10 CH-2010 Neuchâtel Tel. ++41 32 713 60 11 fax. ++41 32 713 60 12 E-mail: Gerard.Oeuvray@bfs.admin.ch URL http://www.statistique.admin.ch/ **Muriel Odiet** **Groupe stratégique Politique des agglomérations** **Office fédéral du développement territorial (ARE)** **Kochergasse 10** **CH-3003 Berne** **Tel.: 031 325 02 66** **Fax.:031 322 78 69** **http://www.are.ch**
Norway	ECORYS.nl SDRU	New-Chronos Statistics Norway (www.ssb.no) +4721090000 Norwegian Institute for Urban and Regional Research +4722958800 Statistik Schweiz (www.statistik.admin.ch) Olaf Foss Norwegian contact point Norwegian statistical office **http://www.ssb.no/english/subjects/06/01/**

In relation to our data requests, we were successful in receiving data for the following countries as illustrated in Table 6.6 below. It is clear that there exist significant gaps in available data for territorial units below the NUTS 3 level, even if the outstanding queries are all positive.

Stage 5 : Sourcing indicators and data from other ESPON TPGs

Our cooperation within the extensive network of transnational project groups involved in the ESPON programme has allowed us to also source indicators from other groups.

For example, TPG 1.1.2 has been able to provide us with Corine data in relation to discontinuous urban fabric which has been an important indicator for confidence levels in using NUTS 3 data to diagnose trends within functional urban areas.

Data on GVA for 2000 at NUTS 3 has been acquired from TPG 1.1.1 although we have not yet integrated this in our overall database due to the fact this is based on estimations and may not therefore be easily used to plot trend information against the other years we have in our database.

In addition, the ESPON 3.1 database has proved an invaluable source to doublecheck information and data availability. We used data from this database to fill gaps in our own databse where possible. We were also able to acquire and analyse more comprehensive data on the 'total active population'.

TPG 2.1.2 was able to provide information on High tech employment in services as a percentage of total services, and high tech manufacturing employment as a percentage of total manufacturing for the period1995-2000 at NUTS 2 level, sourced from the Innovation scoreboard.

Finally, we have been liaising regularly with TPG 1.1.1. to ensure we have the necessary data from their research to usefully build key indicators used within their typology into our own analysis. A number of key indicators (for example on accessibility and polycentric/monocentric FUAs have been finalized for their Third Interim Report and we will be fitting these into our analysis over the coming weeks.

Table 6.6 Data synthesis

Country	Unemployment	Income	Economic activity	Health	Environment	NACE breakdown data	Data provided in relation to data gaps
Austria						✓	Population by age and sex Unemployment data Employment data
Belgium	✓	✓	✓	✓	x	✓	Employment Household income (partial) Population by sex
Denmark	✓	✓	✓	✓	x	✓	GVA NACE 17 at NUTS II Household income % Tertiary education population age and sex
Finland	✓	✓	✓	✓	x	x	Employment in manufacturing at NUTS II Employment in services at NUTS II Employment at NUTS III Population at NUTS III Population by sex and age at NUTS III
France	x	x	x	x	x	✓	Employment Population Population by age and sex
Germany	x	x	x	x	x	x	Unemployment Employment
Greece	x	x	x	x	x	x	

Country	Unemployment	Income	Economic activity	Health	Environment	NACE breakdown data	Data provided in relation to data gaps
Ireland						✓*	Employment in services and manufacturing Employment Income per household
Italy	✓	x	✓	✓	✓	✓	Population Economic activity Hi-tech services and manufacturing employment as a % of total services and manufacturing
Luxembourg						✓	GVA at NACE 3 and 17 NUTS II Population Population by age and sex Unemployment Income per household Employment
Netherlands						✓	Population Population by age and sex Household income
Portugal	-	-	✓	-	-	-	
Spain	x	x	✓	✓	x	x	Employment GDP euro per inhabitant Income of households Population by sex and age Unemployment
Sweden	✓	✓	✓	✓	x	✓	Population age and sex Unemployment at NUTS III Household income at NUTS II Employment in manufacturing/services Employment

Country	Unemployment	Income	Economic activity	Health	Environment	NACE breakdown data	Data provided in relation to data gaps
UK	✓	x	✓	✓	x	✓	Hi tech employment % population with Tertiary sector education GVA NACE breakdown Population Unemployment Income per household
Bulgaria	-	-	-	-	-	-	
Czech Republic	-	-	-	-	-	✓	GVA data by NACE
Cyprus	?*	?*	?¨*	?*	?*	?*	
Estonia	-	-	-	-	-	✓	GVA data by NACE
Hungary	x	x	✓	x	x	x	Activity rates Employment in manufacturing Employment in services Employment % population with tertiary qualification GDP euro per inhabitant GDP purchasing power Income of households Population by sex Unemployment
Lithuania	-	-	-	-	-	-	

Country	Unemployment	Income	Economic activity	Health	Environment	NACE breakdown data	Data provided in relation to data gaps
Latvia	x	x	x	x	x	✓	GVA data by NACE
Malta	x	x	x	x	x	x	GVA data by NACE
Poland	?*	?*	?¨*	?*	?*	?*	
Romania	-	-	-	-	-	-	
Slovakia	-	-	-	-	-	-	
Slovenia	-	-	-	-	-	-	GVA codes by NACE at a regional level Activity rates Employment Population by sex and age Unemployment
Switzerland						?*	Employment by services and manufacturing Employment
Norway	-	-	-	-	-	?*	Employment by services and manufacturing Employment

Shading indicates information not asked for as no urban areas selected in these countries at the point of data collection.

✓ Collected

✓* Being sent

X National expert reports not available from statistical offices

- National expert reports no response from the statistical offices

?* Data expected

Indicator collection as part of the sample of 25 urban areas

The main indicators collected at the case study level included :

Table 6.7 Case study indicators

Economic	Social	Environmental	Governance
• Sectoral mix (industry, services)* • Number of business start-ups* • Business survival rates • Employment* • Occupation (manual, administrative)*	• Poverty* • Overcrowding* • Number of empty homes • Car ownership rates • Demographic structure* • Migration data	• Congestion • Amount of derelict land* • Greenfield land take* • Water quality • Air quality*	• Governance capacity* (number of institutions, number of employees)

We allowed our partners some flexibility in relation to collection of the above indicators but asked for information :

- within the urban area if possible to identify **disparities**, and ;
- for a time period of at least five years to show **trends.**

We have already received the baseline information for 23 case studies, and the main indicators available under each section are listed below :

Table 6.8 Case study indicator availability

Broad theme	Type of indicator	Frequency collected %
Economic	Broad Sectoral mix (eg agriculture/services/manufacturing)	91%
	Employment rate	68%
	Business start ups	63%
Social	Unemployment rate	63%
	Car ownership	55%
	Inhabitants per dwelling/household size (overcrowding)	45%
	Population	50%
	Demographic structure – age	63%
	Demographic structure – % foreign minorities	60%
	Migration	55%
	Population density	45%
Environmental	Green space	17%
	Empty Homes	26%
	Congestion	2
	Urban Pollution	

	NO2	13%
	CO2	9%
	Waste Sewerage indicators	9%
Governance	Governance capacity(number of institutions, number of employees)	17%

Data received since the deadline for conducting the analysis for the TIR

Please note that not all the data now received was received in time for the analysis for the Third Interim Report. Data has been received in the last two weeks against particular indicators from:

- Belgium
- UK and Ireland
- Latvia
- Malta
- Slovenia
- Switzerland
- Norway

This data is being updated into the database and will be considered at the next analysis stage.

Analysis of data gathered

It is clear from the above table that we were more successful in collecting data in relation to certain countries and certain indicators as part of the national data gathering exercise. In particular gaps exist in relation to data available for the Accession Countries and Norway and Switzeland. Also, indicators relating to environmental issues were particularly hard to gather.

Accession countries

Our partner SDRU had responsibility for identifying indiactors and data for the Accession countries. This was partly due to their role as a ESPON national contact point which gave them useful connections to other contact points accross Europe. However, despite several requests to the ESPON contact points the project team did not receive a significant number of replies. The ESPON 223 TPG therefore supplemented these contacts with specific queries on seleceted indicators to contacts identified within the Data Navigator. Through both processes we received extra data from a number of countries including :

- Estonia
  Czech Republic
- Hungary
- Malta
- Latvia

- Slovenia

The ESPON 223 team will continue to ensure that as much data as possible is gained from the Accession countries support our analysis by recontacting relevant bodies over the next weeks.

Norway and Switzerland

In relation to Norway and Switzerland, ECORSYS.nl contacted the statistical offices a number of times at the commencement of the study in order to fill the data gaps within the database. We were successful in inititally receiving information on employment, and employment in manufacturing and services. SDRU then took responsiblity for following up on the national indicator collection and we received GVA by NACE 17 data for Norway. Switzerland could not provide NACE data but have since committed to sending NACE breakdown information for employment.

There were initially no urban areas in difficulty identified for Norway and Switzerland within the analysis so data was not sought for these indicators. In our revised analysis a number of urban areas in difficulty have been identified for Norway and we are therefore seeking information on social disparities and environment for these urban areas.

Environmental indicators

We have already identified above the difficulty in collecting comparable information on environmental issues for urban areas at the European level. Further evidence of this is also given by our difficulty in collecting this type of information in the national data gathering exercise. A look at the ESPON data navigator confirms why we have experienced particular problems in this area.

The table below shows what is available at below NUTS 3 accross the EU 27+2 according to the ESPON data navigator. The table shows that data on pollution is not available for EU 15 countries except for Sweden and France, while data availability is better in the Accession countries with data available for Hungary, Estonia, Lithuania, Poland and Czech Republic.

Table 6.9 Environmental indicators available at NUTS 3 or below according to the ESPON Data Navigator

Country	Indicator area	Statistical Office	Period	Level
Estonia	Pollution load of effluents into environment, amount of air pollutants from stationary sources	Statistical Office of Estonia	yearly	NUTS 3
France	Database of old industrial sites	RNDE-BRGM		NUTS 5
	Database of polluted sites and grounds	Réseau national des données sur l'eau (RNDE)		NUTS 5

	Sensitive area to pollution	Directions régionales de l'environnement	depuis 1994, révision tous les 4 ans	NUTS 5
Czech Republic	Emissions of solid pollutants, sulphur dioxide, nitrogen oxides, carbon monoxide, hydrocarbons	Czech Statistical Office	yearly	NUTS 4
Hungary	Emissions of solid pollutants, sulphur dioxide, nitrogen oxides, carbon monoxide, hydrocarbons	Hungarian Central Statistical Office	yearly	NUTS 4
Luxembourg	number and volume of contaminated sites	Rapport d'activité du Ministère de l'Environnement (2001)	yearly	NUTS 3, on basis of municipalities
	volume of air pollution by type of pollution and by source of air pollution	Annuaire statistique du Luxembourg (last edition: 2001)	yearly	NUTS 3
Lithuania	emissions from stationary sources: gas and liquid air; average; emission of CO2 and NO from stationary sources coverage per sq km and average per capita	Statistics Lithuania	monthly/updated yearly	NUTS 3, NUTS 4
Poland	Emission of industrial air pollution (total, particulates, gases, sulphur dioxide) in thous t.	Central Statistical Office	since 1998	NUTS 4 and 5 (NUTS 3 before 1998)
Sweden	Air pollution by substance	Statistics Sweden (SCB), www.scb.se	1990 and 1992.	NUTS 5

The timeline for the process of identifying indicators and collecting data is set out in Table 6.10 below.

Table 6.10: Timeline for Data collection

Date	Action
November 2002	Production of excel spreadsheets of data against agreed list of indicators by ECORYS.nl through converting data from Eurostat and doing first contacts in relation to data gaps (Norway and Switzerland)
	Conversion into Access database by ECOTEC for mapping purposes
December 2002	Production of data collection spreadsheets on CD-Rom on basis of first list of indicators within the First Interim Report on the basis of the following indicators : Nature of urban system 1. Administrative status 2. Accessibility 3. Geographical position
March 2003	Adjustment of list of indicators following meeting with DG Regio. Forwarded request for data to Horizontal Action 3.1 following their commitment to circulate this request to statistical offices within the Accession countries via
End of May/beginning of June 2003	Discussions with SDRU about taking on the role of coordinator data collection in Accession countries
June 2003	Allocation of responsibility to SDRU for all data requests to Accession countries
July/August	Request for outstanding data sent to each of the 29 ESPON contact points Parallel process conducted by ECOTEC in chasing individual statistical offices through contacts provided in the ESPON data navigator Data received in relation to data gaps and case study areas (% of data gaps filled/% of gaps received).

	Data received for the 25 case study areas

Summary

In order to carry out an accurate diagnosis of urban areas in Europe and identify strengths and weaknesses which form the basis of the ESPON 223 typology, the research team has dedicated considerable resources to collecting data sets across the countries in the EU 27+2.

Data was collected on the basis of the indicators selected during the first phase of the study and discussed with the Commission in March 2003. They fall under the following main areas:

- economic base
- economic performance
- social performance
- environmental performance

The full list of indicators we collected is included in Table 6.11 below. Unfortunately, despite the significant resources expended on this activity, many of the indicators are not available on a consistent and comparable basis. This has been allowed for in the analysis of the data in later sections and the construction of a typology of regions. It also informs our thinking on how an approach to identifying criteria to assist in the potential distribution of the Structural Funds between urban areas might be developed.

Table 6.11 : Total list of indicators collected for ESPON 223

Level of comparability	Economic base	Economic performance	Social performance	Environmental
EU level data sets (for all NUTS 3 areas). All figures actual or estimated from NUTS 2	- GVA broken down by NACE 3 categories (Agriculture, Industry and Services) - GVA broken down by NACE 17 categories (A-Q) - Employment in services - Employment in manufacturing - High-tech employment in services - High-tech employment in manufacturing	- GDP per inhabitant - GDP purchasing power - Total numbers employed	- Proportion of population with tertiary education - Percentage unemployed - Population - Population by age and sex - Activity rates - Household incomes	
National data sets	- GVA or employment broken down by NACE 17 categories			
National data sets (for 'urban areas in difficulty')			- Difference between highest and lowest unemployment rate within the urban area - Difference between highest and lowest household income within the urban area - % economically active in population of working age - Life expectancy	- Summer smog
National data sets (for sample of 25 urban areas)	- Sectoral mix (industry, services)* - Number of business start-ups* - Business survival rates - Employment* - Occupation (manual, administrative)*	- Poverty* - Overcrowding* - Number of empty homes - Car ownership rates - Demographic structure* - Migration data	- Congestion - Amount of derelict land* - Greenfield land take* - Water quality - Air quality*	- Governance capacity* (number of institutions, number of employees) -

7. DEFINING APPROPRIATE INDICATORS, TYPOLOGIES AND INSTRUMENTS

One of the principle objectives of this study is to detect regions and territories most negatively and positively affected by identified trends, with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information. In the following section we apply the observations drawn from our analysis of the Structural Funds and urban areas. We consider different attributes of NUTS 3 areas in order to develop a typology of these places, which might shed light on the nature of urban development in these areas.

7.1. Identifying appropriate indicators

In order to assess the strengths and weaknesses of different areas we have constructed indexes for each of the variables identified. The section below sets out the methodology we have used for calculating indexes and developing an analysis base from the indicators collected at the European and national level. This process was based on the analysis of our Access database and the tables we have collected as a result of the national data collection. We have used Excel to calculate some of the more complicated formulas required.

We have mainly used NUTS III data to calculate economic and social indicators in relation to each FUA as data below this has proved to be rarely available at the European level. In some cases (for GVA in manufacturing and our education indicator) we have used NUTS II indicators. However in the former case we have used this along with NUTS III data for GVA by NACE 3 codes to ensure as much accuracy as possible in our estimations. Where more than one FUA falls within a NUTS code we have asked our partners to provide a qualitative assessment of whether this is a realistic assessment. This has provided a useful quality check – for example contacts in Hungary asked us to revise our original list of urban areas in difficulty as it included more prosperous urban areas in poorer regions, while our partner in Greece confirmed that these urban areas in difficulty were accurate. Indexes developed specifically in relation to urban areas in difficulty (eg disparities at the urban level, economic activity, health and the environment) have been developed on the basis of information collected at either FUA level or NUTS 4 and 5 as appropriate.

In the remainder of this section we first set out the indexes we have used in classifying different FUAs as the basis for the ESPON 223 typology, before providing more detail about the calculations used for each individual index. The difficulty of using NUTS 3 data as a proxy for FUAs has already been alluded to. In Maps 1 and 2 we identify the distribution of FUAs by number present in each NUTS 3 area and the density.

Indexing of FUAS by indicators for typology building

The following table identifies the indexes which have been used in order to feed into the typology exercise:

Table 7.1 Indexes developed

Index	**Definition**
Indexes using EU data	
Level of difficulty experienced by area	This calculation is based on indexes against three different indicators.

	GDP • Absolute difficulty: Less than 50% average increase • Relative difficulty: Less than average but above 50% of average • No difficulty: Better than average Employment • Absolute difficulty: Employment decreasing • Relative difficulty: Employment increasing, but < EU average • No difficulty: Employment increasing > EU average Unemployment • Absolute difficulty: Unemployment rate negative • Relative difficulty: Positive, but worse than average • No difficulty: Positive and better than average
Urban type (A,B,C)	Typology based on performance against the above indicators (see Table 7.2 below).
Population index,	An index in relation to whether the population change is greater than or equal to the transnational average (If > or = to average, records 0. If this later clause is not true, records 1. Blank = no valid data index).
'urban' 'semiurban' 'rural'	This classification is based on the following definitions using the % of discontinuous urban area from Corine: 25%+ area strongly 'urban' in character 8-25% area potentially semiurban in character 0-8% significant rurally orientated areas
Manufacturing industry greater than the average	manufacturing GVA is indexed 1 if the value is larger than the average (AC or EU).
Indexes using National data	
Social indicator (education)	Index to show above or below European average in relation to (1=below average, 0= above average)
Over 25% Manufacturing	Index to show Functional Urban Areas which have over 25% employment or NACE in Manufacturing Sub-code D at NUTS 3 level. (1 = >25, 0 = <25, blank = no data)
Dependency	Index to show dependency within specific sub-sectors for those areas with over 25% employment or GVA in manufacturing at a NUTS 111 level. Dependancy is based on having over 25% employment or GVA within one specific sub-sector. (1 = <25 of manufacturing sector, 0 = <25, blank = no data)
Spatial disparities (Unempl)	Index to show the existence of local disparities in unemployment rate. Data was available to us for highest and lowest rates within the urban area at NUTS 4/5 level. Although we looked at calculating an index on the basis of the real difference between the two unemployment rates of +/- 5%, it was decided ultimately to look at the proportional difference between these rates. Where over 50% difference in the rates was apparent an index of 1 was allocated. (1= over 50% difference in unemployment rate, 0 = < 50% difference, blank = no data)
Spatial disparities (Income)	The second indicator was based on difference in household income. Data was also made available to us for highest and lowest rates within the urban area at NUTS 4/5 level. An index was developed on the basis of disparities of over 25% between actual incomes in NUTS4 and 5 areas. (1 =

	over 25% difference in income, 0 = < 25% difference, blank = no data)
Economic activity	We have compared lates available economic activity rate at FUA level to national level comparitors. An index was developed on the basis of those FUAs which had a rate of below 90% of the national average. (1 if less than 90% of national average, 0 if more than 90% of national average, blank = no data)
Health	We have used an index to highlight areas which have below average life expectancy rates or above average rates in relation to a national comparitor. (1= below average life expectancy rates, 0 = above average, blank = no data)
Environment	There was very little data available for this indicator. We worked out the change between two years five years apart, and compared this with the average increase for all the urban areas listed. If greater than the average increase it was given a 1, if not a 0.

The indicators in relation to absolute and relative difficulty contributed to an overall typology as set out in the table below:

Methodology for determining values for the identified indicators

Below we set out more detailed information on the methodology used to develop these indicators.

Indicators used to calculate areas in absolute and relative difficulty

a. Change in GDP in relation to EU/Accession averages

This query used GDP euro per inhabitant at NUTS 3 level. The average change in GDP between 1995 and 2000 was calculated as below.

change in GDP per person	TBL_NUTS0_
1225.1988372093	Accession
3778.97568807339	EU-15
	NO+CH

Two calculation relating to the increase in GDP have been carried out in relation to three mutually exclusive thresholds: The first set of calculations took a threshold value of less than 75% of average GDP increase as the limit for determing absolute and relative difficulty, the second examined the results if the threshold was to be altered to 50%. In the case of the 75% threshold the criteria were:

- Absolute difficulty = less than 75% average increase
- Relative difficulty = less than average but above 75% of average
- No difficulty = Better than average

The tables below show the distribution of NUTS 3 areas using the 50% and 75% thresholds.

75%

SumOfless than 75% of average	SumOfgreater than average	SumOf75% to equal of average	CountOfTBL_NUTS0_NUTS Area
614	443	205	1311

50%

SumOfless than 50% of average	SumOfgreater than average	SumOf50% to equal of average	CountOfcheck (all equal 1)
401	444	423	1272

The 50% threshold was used ultimately as this provides a more equitable distribution of indexes. However this could be altered to 75% if required.

Quality check

Data for GDP at NUTS 3 for 2000 and 1995 data fields are almost totally complete.

b. Growth or decline in employment in relation to EU or Accession country averages

This query used total employment data at NUTS 3 level. In order to calculate this trend we first carried out an assessment of the most useful dates for the best analysis of data.

CountOf2000a	CountOf1999a	CountOf1998a	CountOf1997a	CountOf1996a	CountOf1995a
160	9689	10065	9970	9988	9953

We concluded that it would be most effective to use either 2000 or 1999, depending on whichever is first. We therefore calculated the percentage increase over 1995-2000 (using 1999 data where needed).

We then calculated the averages based on existing data at AC and EU level:

NUTS Area	SumOflatest data	SumOf1995a00	AvgOfvalid data	percentage inc
Accession	621	617.6	1	0.55%
EU-15	110059.121	105054.5	1	4.76%

We calculated three indicators in reference to averages based on existing data at AC and EU level:

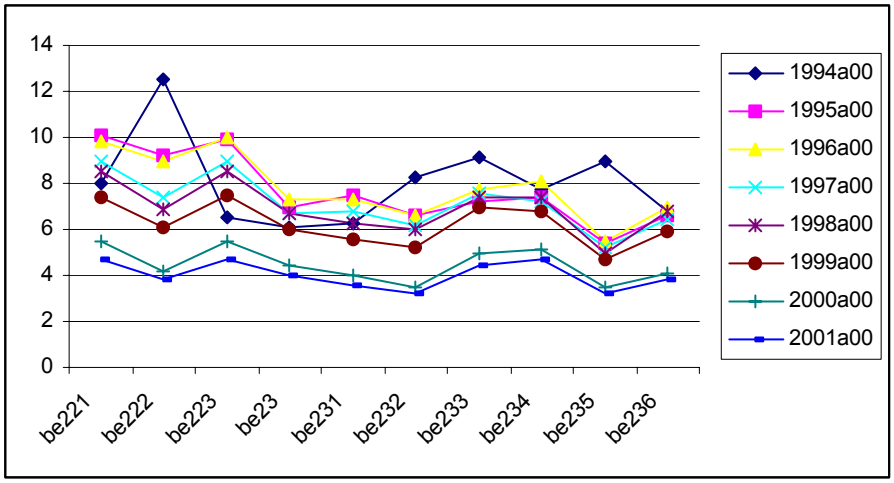
- Absolute difficulty = Employment decreasing
- Relative difficulty = Employment increasing but less than EU-15/AC-10 average
- No difficulty = Employment increasing and higher than EU-15 or AC10 average

Quality check

Completeness of data by countries: EU is about 70% complete data, AC almost no data

c. Unemployment

The calculations required here were too complex for Access so we used the Excel programme. The data available exhibited some strong anomalies and variations between years. The graph for Belgium reproduced below shows how year on year 'random-like' changes in unemployment of a percentage point or more occur. This makes trends based on say a two point 1998 to 2001 trend a risky basis on which to project the future. It is estimated that 66% of FUA have unemployment change by about 1% each year, resulting in distortions that may 'mask' the longer term trend.



To control, or at least mitigate, for these problems more detailed analysis used the following calculations. In order to smooth out the variations we:

- Take the average of the 1995 to 1999 data
- Take the average of the 2000 and 2001 data
- Calculate an index which triggers if either of these two averages is based on a population of less than two.

Averaging both the earlier year and later years helps mitigate some of the 'random-like' nature of the data. Around 87% of the data set is complete based on always using at least two years for an average. Where data is only available for one year, the index provides a 'risk' indicator which highlights potential discrepancies.

On the basis of the data available, it should not matter that some cases have data for say only 1995 and 1996, where as others may have only 1997 and 1998. On average, at an EU/AC level, unemployment rates are broadly consistent each year over the period 1995 to 2001 (9.5-10%) thus there is no evident trend on average and the use of different data years will not have a significant impact.

Quality check

Around 87% of the data set is complete based on always using at least two years for an average.

We then calculated the average rates at EU and AC10 level.

area	unemployment rate
Accession	-3.60
EU-15	2.40

We have calculated on the basis of percentage point differences rather than absolute percent. The index was calculated for

- Absolute difficulty = Overall increase in unemployment
- Relative difficulty = Overall decrease in unemployment but less than the EU-15 or AC-10 average
- No difficulty = Overall decrease in unemployment and more than the EU-15 or AC-10 average

Other indicators used for indexing

a. Manufacturing industry greater than the average

Query on Manufacturing GVA latest data

This calculation is based upon GVA at basic prices million euro by the NACE 17 codes at NUTS II. The most recent possible data is 2000, but this has only recently been received and analysis of this is not yet undertaken. We have therefore set the code to use 2000 year first if it is available, and then to select 1999 if available. For certain countries (Greece, Romania and parts of Portugal) we have needed to go back to 1997. This is clearly a weakness in the data.

We then looked at latest data available at NUTS III for NACE 3 (agriculture/industry and services) and used the ratio worked out at the NUTS II level to model the overall estimated GVA in manufacturing for the NUTS 3 area.

Finally an index was produced where manufacturing GVA is indexed 1 if the value is larger than the average (AC or EU). This process is illustrated in the table below:

AvgOfManufacturing GVA indicator	SumOfManufacturing GVA indicator	SumOflatest data valid	CountOflatest data valid	NUTS Area
344	33784	98	172	Accession
1433	1072135	748	1100	EU-15

Quality Check

GVA NUTS 2 data is about 77-80% complete (missing Portugal, Romania and Greece). For about 10% of the data the manufacturing value is shown as industry value. Absolute data (latest 1999-2000) quality check.

b. Population

We developed an indicator for latest population (2000 otherwise 1999) and earlier population (1994 otherwise 1995). There is very little data for 2000 onwards.
See below:

Count OfCode	CountOfTBL_NUTS3_NUTS Code	Count OfPop_x1000_1994	Count OfPop_x1000_1995	CountOf Pop_x1000_1996	Count OfPop_x1000_1997	CountOf Pop_x1000_1998	CountOf Pop_x1000_1999	CountOf Pop_x1000_2000	CountOf Pop_x1000_2001	Count OfPop_x1000_2002	Count OfRisk
1308	1411	1207	1279	1281	1277	1281	1281	240	39	39	20

We then calculate the percentage increase over the period for each area, referencing against a valid data indicator representing valid data in for both Trend and Absolute.

The average for the EU-15 and AC-12 was calculated as below:

latest pop 2000	earliest pop 1994	NUTS Area	change over 1994-2000
85752	86709	Accession	-1.104%
381226.5	375994.799999999	EU-15	1.391%

As the changes are very small, there is a need to use more significant figures in the rate.

area	AV Trans Nat change in population 1994-2000
Accession	-1.10%
EU-15	1.39%

To develop an index to assess the urban situation the following logic function was used in the query:

pop index 1 means neg' compared to trend: IIf([valid trend data]<>"",IIf([Popn growth]>=[AV Trans Nat change in population 1994-2000],0,1),"missing data")

…. if the valid data index is valid (not equal to no entry- <>””) then if the population change is greater than or equal to the transnational average, record 0. If this later clause is not true, put 1. Otherwise if the valid data index is not valid then record “missing”.

c. Discontinuous urban fabric

For this query we used Corrine_data_nuts3, also from the ESPON 3.1 database.

We looked at average rates of discontinuous urban fabric at a European/Accession country level to define 'urban',. 'semiurban' and 'rural' levels for each of the NUTS 3 areas identified as containing Functional Urban Areas.

area	urban area	semiurban area
Accession	20.00%	8.00%
EU-15	20.00%	8.00%
NO+CH	20.00%	8.00%

We used this as a basis for developing a categorisation on the following basis (which could be varied upwards or downwards):

25%+ strongly 'urban' in character
8-25% potentially semiurban in character
0-8% in all likelihood significant rurally orientated areas

On the basis of this threshold the following distribution can be idenitfied.

SumOf'urban'	SumOf'semiurban'	SumOf'rural'	CountOfcheck
142	165	920	1315

Quality check

The data set is fairly complete (83%).

d. Education indicator

For this indicator we have used the % of working population in Tertiary education at Nuts II level. This indicator includes the percentage of the population of working age (25-64) who have completed some form of post-secondary education. The definition is ISCED levels 5 and 6 (ISCED : International standard defintion of education). We used this indicator for educational levels to include those people who had finished full time education in order to avoid a bias produced by the presence of a university in a town.

The calculation is based on the latest available date – either 2000 or 1999 if 2000 data not available. The percentage of working population with tertiary education for each area was compared with the EU15 average (due to a lack of data for Accession countries). This average was found to be 20.022. An index was then constructed where 1 = below the European average in relation to % of working population having achieved tertiary education and 0 = above average.

Quality Check

This indicator is only available for the EU 15 countries in Eurostat and we have had a relatively poor response in relation to acquiring more information on this indicator from Accession countries.

Other indicators collected at the EU level

The following indicators have also been collected at a European level for refining and quality checking our analysis. They were not indexed in the same way as the indicators above but have been taking into consideration when carrying out the analysis, mapping and typology work:

- % hi tech employment in manufacturing and services at NUTS II 1995-2000
- Population by age and sex at NUTS II 1994-2001
- LoUDensity

We attempted to develop an economic activity indicator as there was very little data available on this at the European level. We compared Total Active Population from ESPON project 3.1 database. We also have the NACE 3 employment levels. Theoretically, we should have been able to calculate a proxy for NUTS3 economic activity (employees divided by total active population).

However, in practice, this produces unfeasible rates. See below for transnational averages. There are also many cases of much higher employees recorded than economically active population. There may be potentially an 'out of synch' factor between the year each is measuring (of a year max 2) but this could not explain the size of the difference. This suggests, at the very least, that the data sources are non-comparable.

Econ Active rate	NUTS Area
0.978	Accession
0.925	EU-15

Indicators collected at the national level

The data collection methodology section X shows the indicators which were collected at a national level. As the indicators only needed to be comparable at the urban and national level we did not set strict definitions in relation to this data. However we asked for data to be available over a five year period and to be sent with national comparators so that we could calculate the trends and comparators set out within Table X above. The data was collected mainly at FUA level except for

- unemployment and income per household (NUTS 4 and 5)
- NACE data on dependency (Nace 17 and two digit sub-sector codes within D Manufacturing where this code had over 25% of either GVA or employment) at NUTS 3

These indicators have not been inserted in our overall database but are available in table form.

Towards a typology of urban areas

We report on the results of the data analysis in the following section. The outcome of the data collection process and the calculations described above have been to develop an initial typology to be applied to the territorial units examined here. In the first instance the typology has been applied to the NUTS 3 areas which contain at least one Functional Urban Area. Lack of consistent data below this level precludes the application of the typology below this scale at the present time.

The results of the exercise are illustrated in Table 7.2

Table 7.2 The initial typology of urban areas

Type	Title	Definition	Number of NUTS 3 areas
Absolute difficulty	AA	Those areas which are in absolute difficulty on 3 indicators	13
	AB	Those areas which are in absolute difficulty on 2 indicators and relative on 1	41
	AC	Those areas which are in absolute difficulty on 2 indicators but have none in relative difficulty	136
	AD	Those areas which are in absolute difficulty on 1 indicator but have 2 in relative difficulty	85
	AE	Those areas which are in absolute difficulty on 1 indicator but have 1 or less in relative difficulty	435
Relative difficulty	BA	Those areas which are in absolute difficulty of 0 indicator but have 3 in relative difficulty	29
	BB	Those areas which are in absolute difficulty on 0 indicator but have 2 area which is in relative difficulty	150
Not in difficulty	C	Those areas which have 0 areas in absolute difficulty and 1 or less areas in relative difficulty	700

Overall it would appear that some 713 areas are currently experiencing no significant difficulties, 179 are experiencing some relative difficulty and around 701 are performing absolutely worse than comparable averages. Of the latter, 185 areas might be identified as experiencing particularly severe difficulties (Count of AA, AB and AC).

The results of the analysis of the relative performance in urban areas in terms of trends in employment, unemployment and GDP shows a marked concentration of German regions among the worst performing areas. All the areas identified where all three trend indicators fall into the range of "absolute difficulty" (AA) are in Germany. In contrast, a high proportion of regions from the UK, Spain, Greece, Italy and Hungary fall show few signs of difficulty against the trend indicators used.

The main factor to bear in mind in interpreting these results is that the comparison is made on the basis of trends, rather than absolute performance against the indicators used. As a result, although the worst performing German regions have high levels of GDP per capita and moderate levels of unemployment by European standards in absolute terms, the relative stagnation of GDP and poor employment performance in these regions puts them among the worst performing in Europe. The relatively strong performance of UK or Hungarian regions on the same indicators over the same time period (albeit often from a more unfavourable base) leads to their classification among the regions with "no difficulty".

As an illustration, Brandenburg in Germany has emerged with all three trend indicators in the "absolute difficulty category" (a decline in employment of just over 10% between 1995 and 1999 and a GDP growth of 5.83% 1995-2000). In comparison, the Lisbon region of Portugal

saw GDP growth of 42.58% over the same period and comparable performance in unemployment trends.

The strength of this typology is that it makes use of comparable datasets enabling robust comparisons to be made across the European territory. The weakness is that it applies at the NUTS 3 level and is particularly 'blind' to sub-urban level difficulties. As noted above, it also focuses on the trends in performance of different indicators over time. This is a consequence of building on the work of 1.1.1. It would be valuable to further develop this typology in order to assess current standings. However, it must be said, that examination of social and economic performance does demonstrate some remarkably interesting results. It would be well to explore these further if resources allow.

Map 3 illustrates the location of each functional urban area according to the agreed typology. This clearly demonstrates the strength of clustering effects, with neighbouring areas, generally, in a similar or neighbouring typology classification. The strong concentration of the best performing areas (Type C) over the period of study is clear, as is the concentration of the worst performing areas referenced above. In very few cases are isolated examples identifiable. This does seem to suggest that the performance of urban areas is strongly influenced by the overall performance of the wider surrounding region, with commensurate implications for the focus of Structural Funds policies.

In terms of the location of urban areas in difficulty fewer spatial patterns are immediately obvious, although clustering is also apparent. There does, however, appear to be a strong relationship between areas in difficulty and the connectivity of different parts of Europe (Map 4). A similar relationship with population change is not apparent (Map 5). In the same vein we have assessed the relationship between urban area type and Structural Fund expenditure per capita. No clear relationship is evident from the data currently available (Map 6 and 7).

In order to assess the extent to which the typology might reasonably be expected to indicate urban level difficulties it is necessary to assess the degree of urbanisation of each NUTS 3 area. This can be done according to the level of discontinuous urban fabric, or the population of each urban area as a proportion of the NUTS 3 area.

In the former case we have identified that some 142 areas can be classified as predominantly urban and a further 165 as semi-urban. For these 307 areas the NUTS 3 typology may provide a reasonable indication of potential urban difficulties.

Examination of population figures provides a slightly fuller picture. 144 urban areas have populations greater than the NUTS 3 figures, demonstrating a size larger than the NUTS 3 areas. 237 urban areas contain between 50% and 100% of the population of the respective NUTS 3 area, suggesting that data is likely to be reflective of urban issues in the area. 364 contain between 25% and 50% of the NUTS 3 population and the remaining 777 contain less than 25% of the NUTS 3 population.

Taken together this suggests that the typology might be reasonably applied to between at least 307 and 381 of the NUTS 3 areas as a reasonable assessment of the urban situation. Further analysis on this point would be desirable, particularly in the context of the development of polycentric and bipolar classifications for different NUTS 3 areas.

As this typology only covers a limited number of indicators, albeit comparable at a European scale, we have developed an extended typology. This builds on the basic typology above and

also takes into consideration a wider range of qualitative factors and the additional data collected at national levels, including spatial disparities at the sub-urban level. The extended typology has regard to different types of urban areas, their strengths and weaknesses, structural difficulties and risks, in so far as the assessment has been possible. This is reported on separately in the following sub-section.

The first part deals with the development of a typology of FUAs which is able to provide a rich picture of urban regions and will be capable of meeting the needs to support the decision for an efficient/ "successful" allocation of sectoral and structural support measures (e.g. Structural Funds). In this respect the suggested typology will be both suitable for an ex-ante classification of FUAs in order to differentiate measures and allow for a more tailor made support of the single area in difficulty as well as part of an ex-post decision aid tool which looks at the effectiveness (which is far more than just a cost-effectiveness check!) of the measure in a holistic way.

The second part will then try to show how such an ex-post decision aid tool could look like. Due to the qualities of the problem at hand we have suggested to employ Multicriteria Analysis (MCA) methods in order to reach an aggregation of the descriptive indicator set of FUAs in order to provide manageable information and allow for comparisons (either in respect of correlations between clusters of "Status of difficulty" or in order to identify success/ failure cases). MCA methods – stemming from the scientific school of Operations Research – offer a vast range of information for problem analysis and evaluation purposes. We show a brief pilot evaluation and some of the features of the method.

7.2. Development of a typology of FUAs and evaluation indicator set:

7.2.1. Aim and background to set up a typology of FUAs:

Generally speaking the aim to set up typologies and classifications (not only but especially) in a political context - is the support of decision making. Decisions have to rely on information and should (hopefully) be based upon rational choice (bounded rationality at best[4]). In order to get a grip on the complexity and richness of information provided to us by the "real world" it will be necessary to reduce this complexity by using abstractions, models and simplifications which will allow for its processing by the limited capacity of the human sensitive apparatus. This step of model building and simplifying information is therefore a crucial one and could be seen as sailing between Scylla and Charybdis. On the one hand will an oversimplification of information (e.g. aggregation to one common denominator – like money) lead to the loss of maybe crucial details and differentiations which will prevent successful decisions. On the other hand will highly disaggregated information lead to the impossibility to process and compare data which will lead either to the subjective selection of data as basis of decisions or to no decision at all.

What will be needed in order to safeguard both – sufficient information on the subjects – i.e. the problems and potentials of urban areas – as well as information which could be handled efficiently by the policy makers, is a methodology which opens up the window of perspectives and visualisation first but aggregates this rich information in a way that as few details as possible are lost.

[4] See Simon H.A. (1982): Models of Bounded Rationality; Cambridge, MIT Press

We have therefore decided to suggest a two step procedure following the two basic modules highlighted above: First FUAs have to be pictured sufficiently – taking into account as much of the complexity as possible. This will be done by an indicator set, which covers a wide range of realms of the real world – i.e. from economic, social as well as environmental conditions. We will be ending up with a set of data which is rich in information but poor in comparability. Therefore it will be necessary in a second step to produce comparability – but in a way which sustains as much information as possible. This will be done by using Multicriteria Analysis, which allows for comparisons of weakly comparable and commensurable data.

So the starting point of setting up a typology for Functional Urban Areas is the question: what this typology is needed for and what the final end of such an abstraction of a real world phenomenon will be. From the overall aim of ESPON it becomes clear that the final purpose of the classification will be to support the efficient allocation of sectoral and structural policy measures such as Structural Funds in the future. The next question to be asked therefore will be what are these political measures aiming at and what will be their final end? – Basically and in few words their overall goal is the support of the improvement of regional development in the EU. When put in an urban context this would mean:

- Improvement of urban development of those regions lagging behind the average performance of FUAs in the EU
- Support in identifying and strengthening the development potentials of the individual urban area in the future.

Apart from these core goals of sectoral and structural policy measures policy is embedded in an overall frame of political strategy which is laid down in diverse strategic policy papers – e.g. the EU Amsterdam treaty, the ESDP, the European Sustainable Development Strategy, just to name a few. – Those guidelines will have to be considered and put into the context of FUA – development when implementing and operationalising the policy measures. Thus the basic information to be provided for the political decision maker will have to include aspects like – economic, social and environmental realms and development will therefore have to be considered as more than just GDP growth per capita.

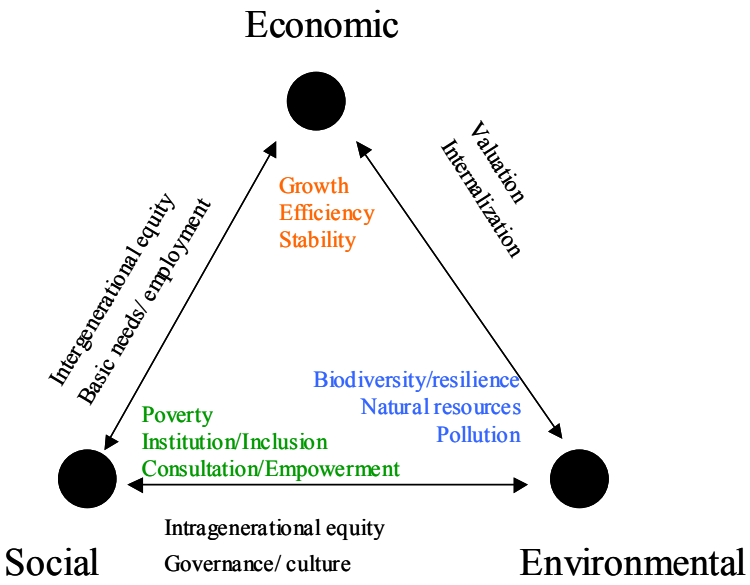
From this deduction of content focus of the typology of FUAs it becomes apparent that the next step will be to specify what is meant by the key terms of the policy goals – which the measures are aiming at:

Regional Development: relying on the framework of strategic policy in Europe development will have to be understood as Sustainable Development. The general vagueness of this term calls for a specification in the urban context. – From the vast literature and research in this field we will pick a minimum requirement of sustainable development in cities – i.e. the concept of Munasinghe (1993)[5]:

This approach emphasizes the importance of the inclusion of ecological, economic and social aspects into an analysis of Sustainable Development (following the logic of the E.U. Gothenburg Declaration). The stocks to be considered and upon which criteria have to be defined, can be clustered into "Three Pillars"(see figure 7.1) corresponding to the three categories mentioned.

[5] Munasinghe M. (1993): *Environmental Economics and Sustainable Development*; World Bank, Washington DC

Figure 7.1: The elements of sustainable development – Munasinghe 1993



Urban areas in "difficulty"/ areas "lagging" behind: from the above said it could fairly easily deducted that "difficulty" in this sense does not mean just economic difficulty. The problems of an urban area could therefore derive from all three pillars mentioned above – widening the focus to be looked at when trying to mend those difficulties. This does not necessarily have to be seen as drawback and complication but could help in better identifying causes and effects of problems urban areas are facing. Economic difficulties could very well be the result and not the cause of an initial problem[6] - which means that fighting the symptom will not mend the cause of the difficulty. In other words – applying a wider frame to the concept of "difficulty" will allow for a much more effective deduction of real causes of urban development problems and in due course a more effective selection of policy measures to support and aid. Furthermore the selection of the type of measure could be more "fine-tuned" – paying respect to the fact that e.g. social and economic difficulties have to be approached with different political measures. Certainly this enlargement of the concept leads to an increase in complexity for the decision maker – something we have already pointed out above. The most likely consequence will be that urban problems will become unique phenomena determined by a multitude of causes and specific for every urban area at hand. But such a result will make the application of countermeasures (economically) impossible and problems will become alert against EU-policy measures. It will therefore be the aim of the last step towards a realisation of such a typology to reduce this complexity to make the matter manageable by political acting.

The aim of setting up a typology for FUAs will therefore be the identification of common characteristics of urban areas which will then allow for some clustering along their basic qualities – still including economic, social and environmental concerns. The clusters will help both to identify similarities of FUAs all over Europe[7] and give in the following some hints on

[6] Lack of education, poor environmental quality of the area could be the real cause which brings along economic decline.

[7] N.b.: we are perfectly aware of the school of thought in regional science denying strictly the approach that urban areas – especially in Europe with a long unique history behind each of them – could be classified or clustered at all. But some pragmatism will have to be applied in this case.

correlations between different aspects of character (e.g. is there a correlation between the spatial organisation of a city [polycentric vs. mono-centric] and its attractiveness to citizens). Of course these clusters are tentative in the first place and have to be subject to alterations in the course of the analysis and aggregation of data. This means that the classification of FUAs will have to rely on a first set of indicators describing the general character of a city – i.e. the "Status Indicators".

But in addition to that "development" clearly is a dynamic concept. This "moving on" of a society has different aspects that need to be considered. These constitute, e.g. the (most likely) multiple objectives to be pursued if development is to occur as well as the constraints that need to be taken into account. In other words it will be necessary to set up a second set of indicators which are able to reflect this dynamism and will be able to produce comparability of FUAs along these development paths – i.e. the "Performance Indicators".

7.2.2. Differentiation between "Status" and "Performance Indicators"

In order to clarify the brief description of the indicators which will be used in our typology the two types of indicators should be differentiated in more detail:

Status Indicator	**Performance Indicator**
Definition: No direction (normative assumption) could be given on a change (relative or absolute) of the value of the indicator – either because of the "neutrality" of the indicator, or because of unclear/ contradicting cause-effect relations and/ or the hypothesis behind causes and benefits in relation to urban development.	**Definition**: a clear cut direction (normative assumption) could be given – i.e. a clear cause-effect relation exists between the change of value of this indicator and the achievement of a (sub-)goal of urban development.
Examples: the degree of urbanisation does not allow for any generalisable normative statement on how beneficial/ counterproductive for urban development this might be. The same holds true for the correlation between population growth and urban development, or the basic environmental/ topographic condition of a city and its development potential.	**Examples**: the equipment of an urban area with green space shows a positive correlation with the quality of life/ the environmental condition in a city. The GDP/ capita shows a positive correlation with (economic and partly social) development.

7.3. First tentative selection of indicators:

7.3.1. The Status Indicators:

The following indicators will be attributed to each FUA describing the general character of the area:

Objective area: Specifying whether and which status in respect of sectoral and structural policies the respective area has been attributed to. – Scale: 1,2 or 3 or 0

Degree of Urbanisation (spatial): specifying the average density of building structure within the area. – Scale: high (h), medium (m), low (l).

Degree of Urbanisation (location): this indicator is supposed to give a measure for the attractiveness of the area to businesses and administrations – thus determining an important factor of urbanisation. – Scale: high (h), medium (m), low (l).

Latest population: giving the most current figure of inhabitants living in the FUA. – Scale: no. of inhabitants/ permanent residents.

Dependency: specifying the degree a region is depending on one economic sector (NACE sector) – for the calculation of this indicator we are referring to the algorithm developed by ECOTEC: *the indicator shows the dependency within specific sub-sectors for those areas with over 25% employment or GVA in manufacturing at a NUTS 111 level. Dependency is based on having over 25% employment or GVA within one specific sub-sector. Scale: 1 = <25 of manufacturing sector, 0 = <25, blank = no data*

Polycentric/ mono-centric city: this indicator is based upon the concepts of Howard (1902)[8] and his successors claiming for a re-dimensioning of city centres thus making them more human centred and enabling modern urban life style concepts like the "city of the short distances"– in this context the indicator tries to capture whether the urban area is organised around many nuclei (with equal status) or one nucleus. Scale: Polycentric (P), Mono-centric (M).

Environment: This is not an indicator picturing the environmental conditions of a city (which would certainly be subject to normative statements and thus classify it for a performance indicator!) – the indicator wants to answer the question whether the area is prone to environmental pollution or natural/human hazards? This is merely a question about topographic and location facts than a factor being influenced by socio-economic activities in the FUA. – E.g. location of a city close to volcanoes, location of a city in a topographic surrounding which does not allow for air pollution to be diffused. – Scale: high (h), medium (m), low (l).

Participation/ democracy: the question to be answered with this indicator is the degree of direct participation of the population in democratic processes (elections, citizen movements). - Scale: high (h), medium (m), low (l).

R&D expenditures per capita: giving the status of local expenditures to support R&D in public or private institutions[9]. – Scale: above/ below EU average

Degree of political/ administrational self control: the indicator wants to specify to what extent the single FUA could act independently in the overall political/ administrational framework. Within this information concepts like "the Europe of the regions", living subsidiary principle and the enabling of flexible and fast reaction on negative regional/ local

[8] Howard E. (1974): Garden Cities of tomorrow; faber & faber, London - reprint

[9] Of course this seems at first sight rather a performance indicator as a positive correlation between R&D expenditures and regional development could be assumed rather certainly – still we think that there is no empirical evidence that regions which specialise in manufacturing rather than innovating will be worse off. Besides R&D expenditures trigger just one part of innovation (mostly technical incremental innovation) leaving aside other types of innovations.

feedback loops could be summarized. The question to be answered is to what extent is the area in control of legal/ administrational matters? – Scale: high (h), medium (m), low (l).

Education: the information which should be provided here is a rather complex one and therefore had to be simplified considerably. Basically what we would like to know is the general level of primary, secondary and tertiary education in the region. For the purpose at hand we are again referring to the algorithm developed by ECOTEC: *the indicator shows whether an area is "above or below European average in relation to % of working population having achieved tertiary education". – Scale: 1=below average, 0= above average.*

These status indicators are the **basis for the classification of the regions at hand** – i.e. a combination of standardized performances of specific indicators of this group will allow for a clustering of the FUAs along specified classes/ types of urban areas. As the overall aim is to identify those areas lagging behind the general development of regions in Europe it would – at first sight be better to include some performance indicators into this classification scheme (e.g. GDP/ capita) – but if so - the question remains who will fix the threshold where a regions performance will be classified as "being in difficulty"? This becomes especially problematic if holding in mind the specific circumstances of each region and the specific specialisation path an urban area might have taken[10]. We would therefore rather suggest a first step classification along the "relative neutral" status indicators and bring in a second step the performance indicators in to compare FUAs within single classes and then among classes. By this strategy we will ensure that specific strengths and weaknesses of urban areas will be considered and the dependency on subjective thresholds will be reduced. The suggested benchmarking process will then allow for adjustments of the single classes of FUAs – by using robustness and sensitivity analysis – thus keeping the necessary flexibility. Additionally this way of classification will bring along the possibility to detect correlations of indicators which have not been considered so far – or in the contrary to detect "false" correlations of indicators which have been considered as being dependent (see footnote 7) and are not.

Suggestion for a typology of FUAs "lagging behind":

	Dependency	**Degree of Urbanisation (location):**	**Environment**	**Degree of political/ administrational self control**
FUA Type A	0	High	Low	High
FUA Type B	0	Medium	Medium	Medium
FUA Type C	1	Low	High	Low

This is – of course – a first working suggestion which seems rather minimal – but it serves the first goal to roughly classify FUAs and allow for comparisons. Besides – facing the actual availability of data (see below) – even these minimum requirements for a qualification are set too high.

[10] Leading to the danger of mis-classifying a region because of one "bad" performance.

7.3.2. The Performance Indicators:

The following indicators will be attributed to each FUA describing the performance along the three columns of sustainable development:

Economic Performance: identifying the change in GDP/ capita over a five year period (95/00) thus reflecting the dynamism of development. – Scale: €

Spatial disparities (unemployment): Source and algorithm ECOTEC: *Indicator to show the existence of local disparities in unemployment rate. Data was available for highest and lowest rates within the urban area at NUTS 4/5 level. Although we looked at calculating an index on the basis of the real difference between the two unemployment rates of +/- 5%, it was decided ultimately to look at the proportional difference between these rates. Where over 50% difference in the rates was apparent an index of 1 was allocated. Scale: 1 = over 50% difference in unemployment rate, 0 = < 50% difference, blank = no data*

Spatial disparities (income): Source and algorithm ECOTEC: *This indicator was based on difference in household income. Data was also made available for highest and lowest rates within the urban area at NUTS 4/5 level. An index was developed on the basis of disparities of over 25% between actual incomes in NUTS 4 and 5 areas. Scale: 1 = over 25% difference in income, 0 = < 25% difference, blank = no data*

Qualification: this indicator should provide a picture of how high the qualification (i.e. abilities and knowledge) of the working population actually is/ or has developed throughout the observation period. Again a simplification had to be applied providing just a picture on hi-tech employment by manufacturing and services – being a rough equivalent of the qualification standard of the region. Scale: % of total working population.

Equipment with green space: giving an answer to the question: How big is the coverage of the area with green space? – Scale: high (h), medium (m), low (l).

Equipment with technical infrastructure: giving an answer to the question on how well equipped the area is. - Technical infrastructure in the sense of - e.g. telecommunication, energy supply. Scale: high (h), medium (m), low (l).

Equipment with social infrastructure: giving an answer to the question on how well equipped the area is. – Social infrastructure in the sense of – e.g. health care, security, social protection schemes. Scale: high (h), medium (m), low (l).

Equipment with education infrastructure: giving an impression on the coverage of the region with schools, universities and adult training facilities. Scale: high (h), medium (m), low (l).

Accessibility: this indicator tries to capture the equipment of the area with transport infrastructure - individual as well as public transport facilities. Scale: high (h), medium (m), low (l).

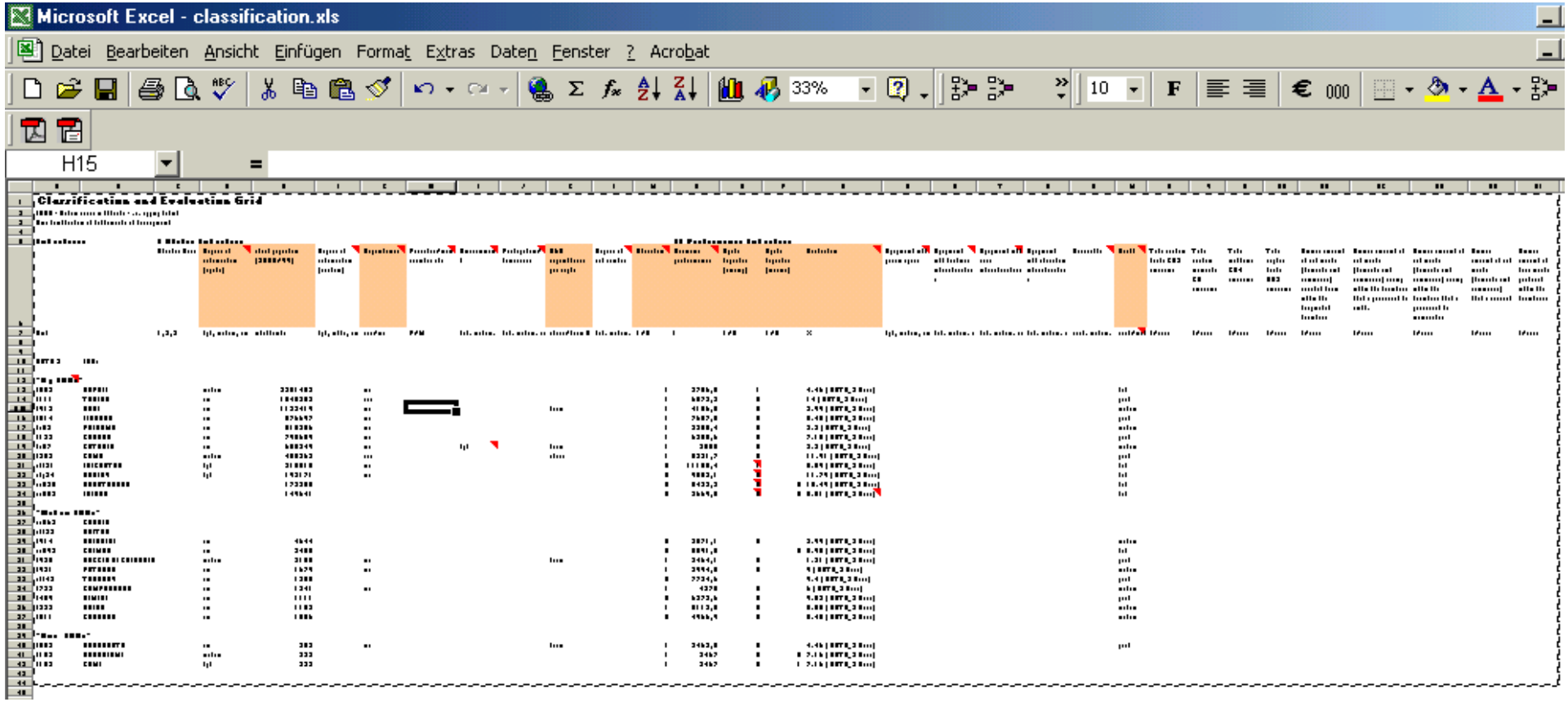
Health: tries to provide a picture of the general condition of physical and psychological health of the citizens in the area. As this concept suffers from too high complexity as well the rough surrogate indicator tries to give an impression on areas which have below average life expectancy rates or above average rates in relation to a national comparator (1= below average life expectancy rates, 0 = above average, blank = no data). The raw data broken down by sex has been aggregated. Scale: good - male + female 0/ medium - male/female 0 female/male 1/ bad - male + female 1

The following environmental indicators have been taken from the "Urban Audit II" indicator list which will be available in spring 2004:

Total carbon dioxide CO_2 emissions: Scale: t/year
Total carbon monoxide CO emissions: Scale: t/year
Total methane CH4 emissions: Scale: t/year
Total sulphur dioxide SO2 emissions: Scale: t/year
Annual amount of solid waste (domestic and commercial) **collected from within the designated boundary**: Scale: t/year
Annual amount of solid waste (domestic and commercial) **arising within the boundary that is processed by landfill**: Scale: t/year
Annual amount of solid waste (domestic and commercial) **arising within the boundary that is processed by incinerator**: Scale: t/year
Annual amount of solid waste (domestic and commercial**) that is recycled**: Scale: t/year
Annual amount of toxic waste produced within the boundaries: Scale: t/year

The following table gives a first impression on how the overall indicator set will look like, each indicator is allocated a column heading and each FUA a row:

Table 7.3: Classification and evaluation grid for FUAs – the figures in the table were taken from the ESPON 2.2.3. data base.



7.4. Problems with the data set & recommendations to be drawn from them:

The suggestions in this contribution and the following calculations are based upon the existing ESPON 2.2.3. data set which has been provided to us and consisted of an Access data base including a number of cross cutting queries. Additionally some Excel based data sheets have been covering a rough first draft of status and performance indicators and their results in the EU FUAs.

A first look at the data base reviled that the completeness of data has been not very encouraging: from a total of roughly 1.600 FUAs in Europe (including the accession countries and Switzerland) only about 100 FUAs showed a relatively complete set of indicators. It has to be noted furthermore that this refers only to a restricted number of indicators and not to the full indicator set stated above. Data material on specific aspects (especially the environment) has been lacking completely. Some of this data will probably not be available at all and some of it will only be available at rather high cost. Still before coming forward with the recommendation to start collecting and creating the missing data some qualitative remarks on the data set has to be made:

FUAs as smallest units of measurement are not sufficiently captured by NUTS 3 data, which is tried in the majority of the indicators. (e.g. the classification of the character of the area – "urban, semiurban and rural" based upon discontinuous urban area fails completely to correspond to the much more appropriate measuring rod of urbanisation in the sense of building structure density). To put it briefly too many FUAs are located within one NUTS 3 area. This make it impossible to properly differentiate between FUAs along the indicators at hand. Cities/ urban areas are local phenomena therefore the grid to filter information through will have to become more close-meshed. Of course this will lead to a trade-off between the effort/ cost to collect/ provide the data on this level (NUTS 4/5[11]) and the detailed focus and differentiation of FUAs.

A possible compromise and our suggestion would therefore be to make more use of qualitative (more loosely meshed) indicators – as suggested in our first draft of indicators mentioned above (e.g. "equipment with green space") – allowing for the description of tendencies and rough information which will still be enough to differentiate between urban areas and lead to efficient classifications.

7.5. Pilot classification/ aggregation of indicator set:

Leaving aside the problems with data availability we have tried to continue our suggested methodology by finding some means for an aggregation of the classes of urban areas. The reason for this step becomes apparent when having a cursory look at Table 7.3 and the problem in identifying policy recommendation on the basis of this rich though divers data set. To summarise this problem in a more scientific form four

[11] Moreover the problems in standardisation of data quality on this level are far from solved on the European level.

major philosophical concepts have to be taken into account in this context (see e.g. Martinez-Alier et al. 1997[12]):

- *Strong commensurability* according to which there exists a common measure of the different consequences of an action based on a cardinal scale of measurement
- *Weak commensurability* according to which there exists a common measure based on an ordinal scale of measurement
- *Strong comparability* according to which there exists a single comparative term by which all different consequences can be ranked
- *Weak comparability* according to which values are irreducibly plural and can not be uniquely ordered along a single scale.

It means we are returning to the initial problem of finding a compromise between the full richness of the information providing a full picture of urban conditions and the weak comparability and commensurability this brings along. A method being able to bridge this gap will be asked to fulfil the following qualities:

- Ability to capture complex cause-effect relations
- Ability to deal with a big as well as small amount of criteria and indicators and alternatives
- Processing of qualitative as well as quantitative data, aggregation of weakly comparable and commensurable data
- Transparency of preferences and values of the different decision makers
- Ability to conduct sensitivity analysis of the results.

During the last decade some scientific fields have come forward with suggestions to use methods stemming from Operations Research to evaluate policy measures – both in order to help in the process of decision making and measuring success/ failure of a policy measure. It has basically been a discussion about replacing traditionally used single criterion methods (e.g. cost benefit analysis) by multicriteria methods (MCA). Political decision makers have found these approaches rather useful although a wider application is still on the way[13]. The strong points for MCA methods are that problems like the one at hand are mathematically ill defined in the first place. There is a vast number of different methods summarized under the heading of multicriteria analysis (about 32) and it will not be possible within this text to give a complete overview. From this number we have chosen an outranking method called PROMETHEE (Preference Ranking Organization METHod for Enrichment Evaluations)[14] which will be briefly described in the following:

[12] Martinez-Alier J., Munda G., O´Neill J. (1997): *Incommensurability of Values in Ecological Economics* in O´Connor M., Spash C. (eds.): Valuation and the Environment – Theory, Method and Practice; Edward Elgar, Cheltenham

[13] see e.g. EU Kommission (DG XVI) (1995): MEANS Handbook No.4: Applying the Multi-criteria Method to the Evaluation of Structural Programmes; Brüssel
DTLR (Department of the Environment, Transport and the Regions) (2001): *Multi Criteria Analysis – a Manual*; DTLR, British Government, London

[14] Developed by Brans and Mareschal – Free University of Brussels in 1986

7.5.1. Brief description of the methodology:

The outranking approach is considered to be the European approach to Multicriteria Analysis. It is based on the concept that decisions can also be made if there is incomplete or conflicting information. Because of the fact that the more criteria used in a decision problem the more it is possible that contradictory rankings appear – this approach extents the concept of "preference" with the so-called "outranking relation", so that incomparabilities are also considered.

An outranking relation is a binary relation *S* defined on a set *A* of alternatives so that *aSb* with $\{a, b \in A\}$. If given what is known about the decision makers preference and given the quality of the valuations of the alternatives and the nature of the problem, there are enough arguments to decide that "a is at least as good as b", while there is no essential reason to refute that statement. The statement *aSb* covers therefore situations from indifference (*aIb*) to strict preference (*aPb*) going through weak preference (*aQb*). Incomparability (*aRb*) is observed when the decision maker hesitates between *aPb* and *bPa* (not *aSb* and not *bSa*).

Generally speaking a multicriteria problem could be described as follows:

$max \{f_1(a), f_2(a), \ldots f_n(a) \; \forall \; a \in A\}$

where *A* is a set of decision alternatives and $f_i(a), i = 1, \ldots, k$, is the set of criteria for which each alternative is to be evaluated. The ranking of alternatives is carried out by pair wise comparisons of the alternatives for each criterion. The comparison is measures using a predefined preference function. For a preference function *P*, alternatives *a* and *b* and criterion *j*,
$P_j(a,b,) = P_j [d_j (a,b)],$

where $d_j (a,b) = f_j(a) - f_j(b)$ gives the difference in measurement for a criterion *j*. PROMETHEE gives a choice of six generalised criteria to define the preference function.
The aggregate ranking or preference of the two alternatives is determined by summing up the weighted values of the preference functions of the complete set of criteria. So the overall measure is

$$\Pi(a,b) = \sum_{j=1}^{n} w_j P_j(a,b)$$

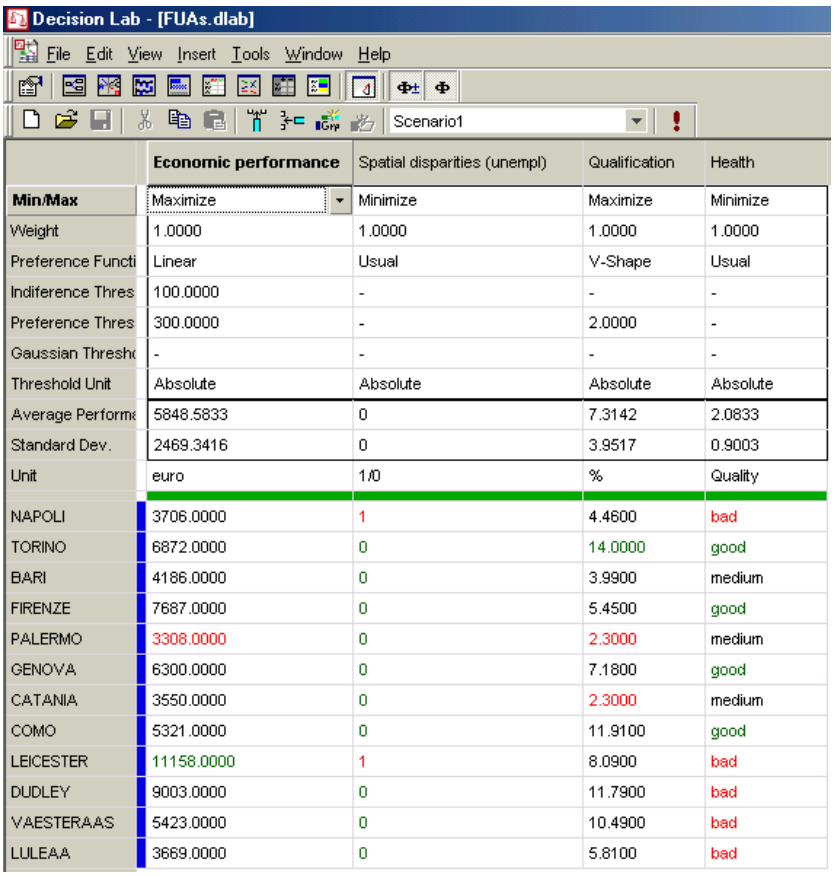
where w_j *is the weight given to criterion* j. *The weights are obtained from the decision maker (in our case we have left the weights constant as no decision maker could have been involved) and they are normalised to sum up to unity. If the number of alternatives is more than two, the overall ranking is achieved by aggregating the measures of pair wise comparisons. The outranking character of an alternative is measured by the "leaving flow", the outranked character by the "entering flow". The complete ranking of the set of alternatives is obtained by computing the "net flow" for each alternative. The higher the flow, the better the alternative.*

7.5.2. First evaluation and results:

We have applied the PROMETHEE method in the form of a software tool called "Decision Lab". As seen from the introduction above the starting point for our trial benchmarking of FUAs within one class of typology would have been a complete *n x m* matrix with *n* being the single FUAs classified by our typology and *m* being the complete set of performance indicators allowing for a differentiation and ranking of the alternatives (i.e. FUAs). Unfortunately the values of the set of indicators along each urban area has been far from complete – which called for a more pragmatic approach in order to be at least able to show the theoretical procedure of our methodology:

We have therefore selected 12 FUAs out of the 1.600 which met the following status criteria: FUAs which are ranked high at "FUA inhabitants" & mixed by nationality & data set almost complete. With this selection we have at least assured that cities of a certain size have been considered and a limited differentiation between different EU member countries (i.e. Italy, Sweden and UK) could be made. Sure enough this shortcut will not be necessary as soon as the classification of urban areas will be possible along the status indicators[15].

The evaluation matrix of the twelve FUAs selected has been the following:



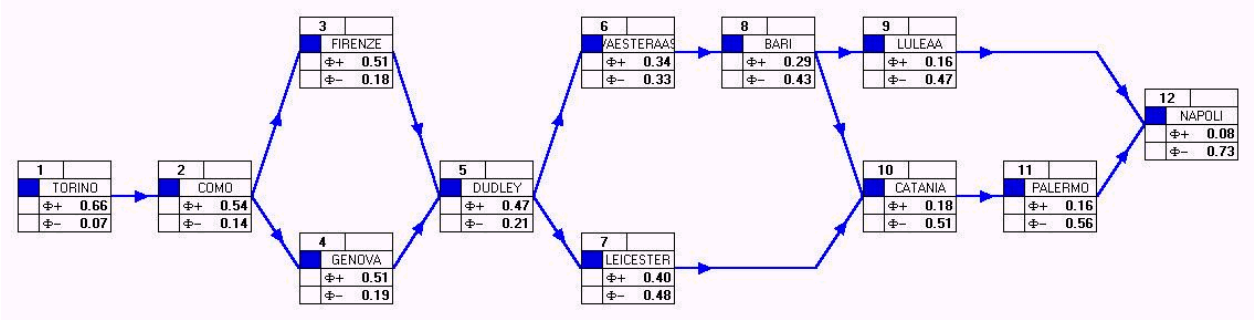
	Economic performance	Spatial disparities (unempl)	Qualification	Health
Min/Max	Maximize	Minimize	Maximize	Minimize
Weight	1.0000	1.0000	1.0000	1.0000
Preference Functi	Linear	Usual	V-Shape	Usual
Indiference Thres	100.0000	-	-	-
Preference Thres	300.0000	-	2.0000	-
Gaussian Thresh	-	-	-	-
Threshold Unit	Absolute	Absolute	Absolute	Absolute
Average Performa	5848.5833	0	7.3142	2.0833
Standard Dev.	2469.3416	0	3.9517	0.9003
Unit	euro	1/0	%	Quality
NAPOLI	3706.0000	1	4.4600	bad
TORINO	6872.0000	0	14.0000	good
BARI	4186.0000	0	3.9900	medium
FIRENZE	7687.0000	0	5.4500	good
PALERMO	3308.0000	0	2.3000	medium
GENOVA	6300.0000	0	7.1800	good
CATANIA	3550.0000	0	2.3000	medium
COMO	5321.0000	0	11.9100	good
LEICESTER	11158.0000	1	8.0900	bad
DUDLEY	9003.0000	0	11.7900	bad
VAESTERAAS	5423.0000	0	10.4900	bad
LULEAA	3669.0000	0	5.8100	bad

[15] for this trial evaluation just one status indicator has been complete enough to allow for differentiations!

Due to the incomplete data set only four criteria have been selected:

- Economic performance – measures by GDP change per capita and having to be maximized
- Spatial disparities (unemployment) – measured by *difference in unemployment rate* within the area – having to be minimized.
- Qualification – measured by hi-tech employment by manufacturing and services – having to be maximized.
- Health – measured by the mortality of the population – having to be minimized (due to the qualitative scale).

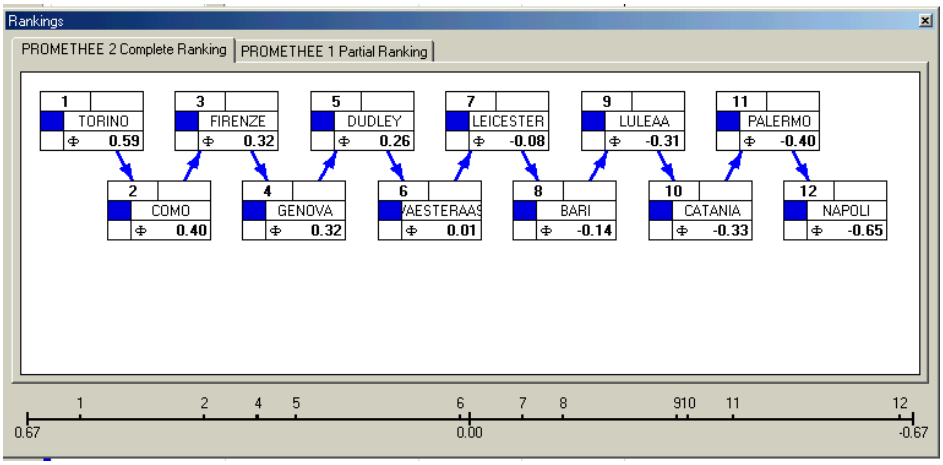
The matrix has been calculated by building a first "incomplete" pre-order – allowing for incomparabilities. This first pre-order showed the following result:



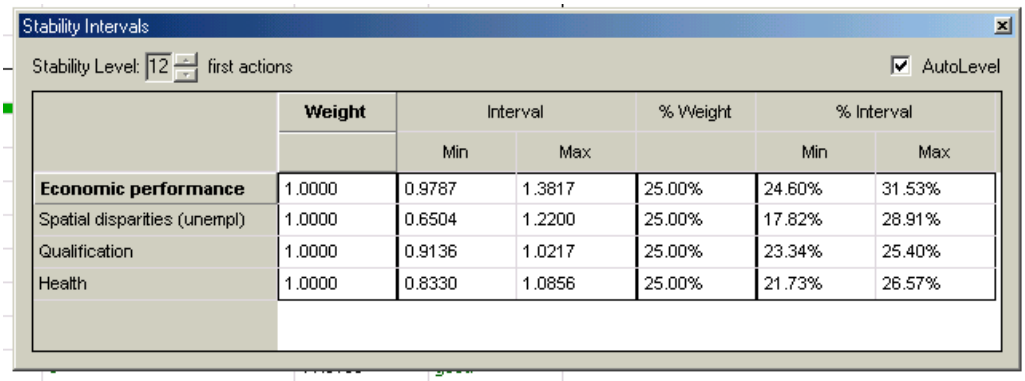
As described above the algorithm of the calculation lists the incoming and outgoing dominance flows of each alternative. As these flows could be the same incomparabilities between alternatives arise (as could be seen between "Firenze" and "Genova"). This first computation provides a very rich set of information as the reasons for these incomparabilities may now be analysed more thoroughly and conclusions could be made on the quality of the evaluation criteria. In other words by analysing this result it will be possible to gain information on the reliability of the selected indicators – or to put it more simply the question might be answered if we are measuring the right things.

Due to the restriction in time and budget this analysis has not been possible within this contribution.

A second important result of the computation has then been the calculation of a complete order of the alternatives calculating the net dominance flows of each alternative.



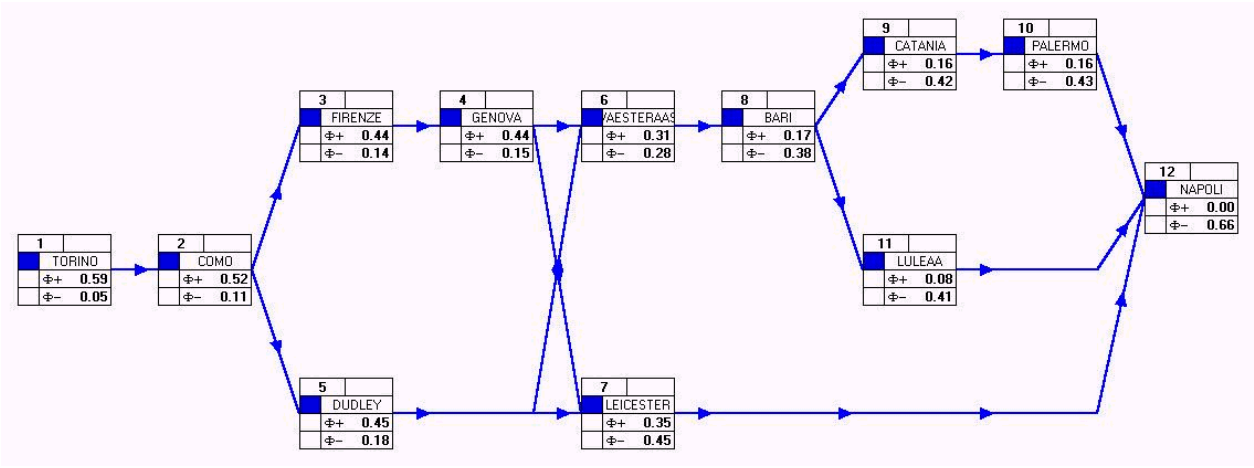
As could easily be seen the ranking is stable for the first two FUAs but then a differentiation between the third and fourth best alternative is hardly possible. It would be necessary to do some thorough sensitivity analysis in order to detect the problem behind this phenomenon. We have therefore done some computation on the stability intervals of this current ranking (with this set of equal weights) which showed the following results:



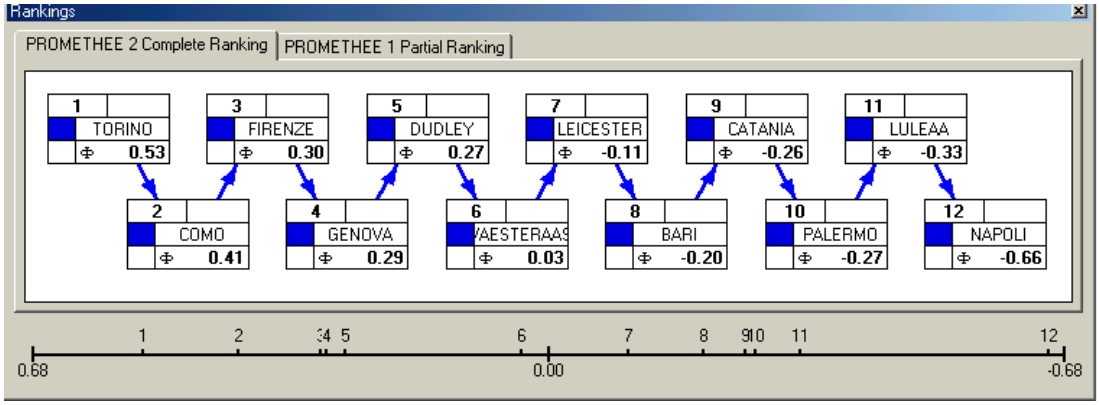
	Weight	Interval		% Weight	% Interval	
		Min	Max		Min	Max
Economic performance	1.0000	0.9787	1.3817	25.00%	24.60%	31.53%
Spatial disparities (unempl)	1.0000	0.6504	1.2200	25.00%	17.82%	28.91%
Qualification	1.0000	0.9136	1.0217	25.00%	23.34%	25.40%
Health	1.0000	0.8330	1.0856	25.00%	21.73%	26.57%

The stability intervals offer a first tool of sensitivity analysis by examining how much the weight on the single criterion would have to be changed in order to change the ranking of the alternatives. The close intervals for the criterion “Qualification” (25.4% on the max.) and “economic performance” (24.6% on the min) give some hints that it would be useful to change parameters of the evaluation at hand.

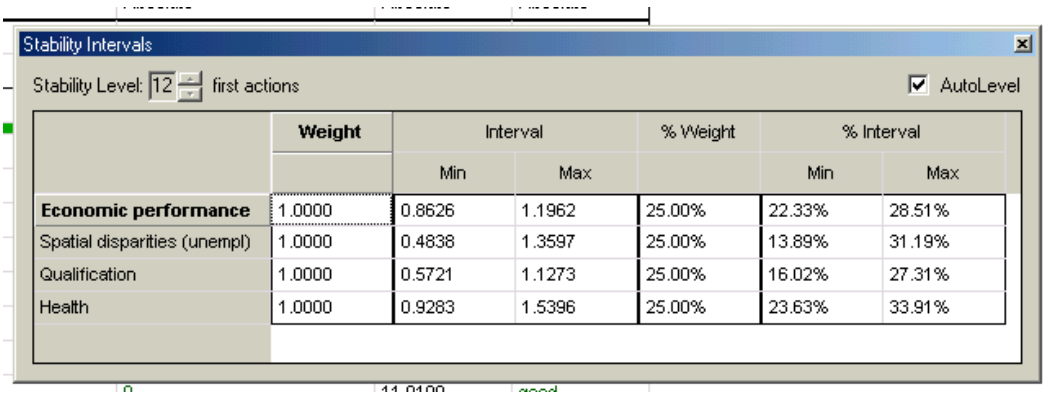
We have altered the preference functions of these two criteria and achieved after a second calculation the following incomplete pre-order:



It might be confusing on the first sight that incomparabilities are still to be found but a look at the complete order shows that we have gained a higher stability of the results.



The distances between the alternatives has increased thus simplifying a differentiation. This is underlined as well by the results of the stability intervals:



	Weight	Interval		% Weight	% Interval	
		Min	Max		Min	Max
Economic performance	1.0000	0.8626	1.1962	25.00%	22.33%	28.51%
Spatial disparities (unempl)	1.0000	0.4838	1.3597	25.00%	13.89%	31.19%
Qualification	1.0000	0.5721	1.1273	25.00%	16.02%	27.31%
Health	1.0000	0.9283	1.5396	25.00%	23.63%	33.91%

The stability intervals have also increased and thus the ranking (with equal weights on the criteria) seems to be rather robust.

What kind of information could be drawn from this result?

1. Apparently the British cities have to have something in common which somehow separates them from the rest of the FUAs at hand – a short glimpse at the matrix reveals that their condition of health seems to be bad but their economic performance outstanding. This simple statement does not surprise anyone when looking at such a simple indicator set. But would the same hold true for a matrix where 20 performance indicators will be included and 100 FUAs considered?

2. It will be necessary to have a closer look at the single profiles of the alternatives in order to identify some more detailed information on correlations between the single indicators – if and how they are conflicting and why the incomparabilities occurred.

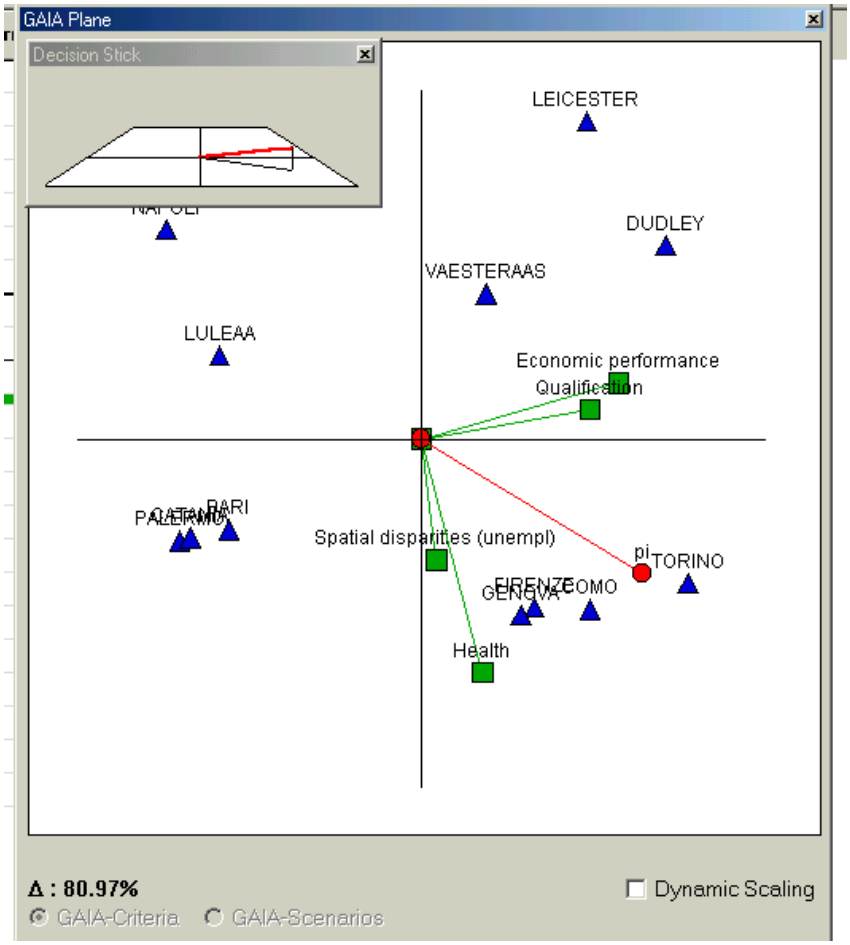
7.5.3. Additional features of the software and method:

Within the limited capacity of this report we would like to point out some additional features of the method at hand which could not be shown now but would certainly be included if the methodology is applied:

Introduction of weights:
This feature allows for a modification of weights on the single criteria. This modification has two basic benefits to the overall information gained on the evaluation problem:

1. Reflection of the political will of the decision maker – or of any other stakeholder to the problem. Different set of weights will show which consequences a strategic re-orientation would have on the ranking (i.e. the performance of the urban areas in the eye of the political decision maker).
2. Sensitivity analysis of the ranking of alternatives in general – shading some light on the quality of the criteria and allowing for some modifications of the focus of observation.

The "GAIA (Geometrical Analysis for Interactive Aid) – plane":
This feature will transfer the information of the evaluation (building an n-dimensional evaluation space) into a three-dimensional space – thus allowing for a geometrical picture of the analysis problem. We have calculated such a GAIA plane for our evaluation at hand:



This picture gives –amongst others - important information about the focus of the evaluation: in our case this focus seems to be rather one-sided (all the criteria rather bundled in two sectors of the graph). This should not be a surprise as the selection of the criteria at hand has been determined by the simple fact of availability. The full set of performance indicators – as suggested earlier would certainly offer a more balanced picture thus facilitating the comparison.

Although this contribution can only provide a rough idea of the methodology we would suggest for a classification of the FUAs – in order to improve and facilitate the efficient allocation of sectoral and structural policies in Europe – we think the method and typology shows the following benefits for a wide application:

- Simple procedure and method
- Reduction of the effort to collect data in high detailed manner
- Transparency of the political will behind the decisions and the option to include stakeholders to the problem (e.g. city councils) in the procedure
- Good compromise between highly aggregated decision aid and bulks of information providing good information but being too complex to be captured

8. DIAGNOSIS OF URBAN AREAS IN EUROPE

Using the data sources identified above the study assesses the strengths and weaknesses of the NUTS 3 areas, firstly using common European data and then national datasets where available. The analysis is bounded by the nature of the indicators identified in previous sections and cannot provide a comprehensive assessment of the strengths and weaknesses of all urban areas in the European territory. In the following section we merely summarise some of the key findings in relation to the performance of the range of areas assessed. We do not attempt to provide a statement which details the performance of each area, this is merely summarized for some indicators in the attached maps (Maps 8 to 10) .

Diagnosis of structural difficulties and risks (movements in industries and services, globalisation and enlargement) has been requested as part of this analysis. This has proved difficult in the light of the information available at appropriate scales instead we have focused on attempting to identify areas that are dependent upon a single economic activity. Even this has proved to be of limited value though.

The following section examines the identified areas at NUTS 3 level against a series of broad indicators, in comparison to European wide conditions. We examine the EU 15 and Accession/Candidate Countries separately owing to the different issues prevailing. As previously explained, data at a NUTS 3 level is being used as a proxy for data for the Functional Urban Areas identified by TPG 1.1.1.

The principle variables considered are:

- Population growth from 1994-2000
- Employment growth from 1995-1999
- Unemployment in 2000 and change from 1995
- GDP per Capita in 1999
- Manufacturing Output as a percentage of total output in 1999

8.1. Broad Characteristics of FUAs

EU 15

Table 8.1 below shows the differences between FUAs (at NUTS 3 level) in the EU and the relevant EU averages against population growth, employment growth, manufacturing output as a percentage of GDP, unemployment rates, and GDP per capita. The table also shows the number of FUAs for which we had valid data, against each variable.

The table shows that there are some important differences between FUAs as a group against the EU average. Population in FUAs has contracted while growing across the EU15 as whole, while employment growth has been slower than average. FUAs are also significantly more dependent on manufacturing than average.

These differences are accentuated when looking at FUAs with more than 8% and 25% discontinuous urban fabric. There is also an additional difference that GDP per Capita was 30% higher than the European average amongst those with 8% discontinuous urban fabric and higher still amongst those with at least 25% discontinuous urban fabric.

Table 8.1 – Broad Characteristics of FUAs in the EU15

Area	Average Population Growth (%)	Average Employment Growth (%)	Av. Manuf, Output % of GDP	Average Unemployment Rate (%)	Av. Change in Unem.	Average GDP / Capita (Euros)
EU15	1.4	4.8	20.6*	7.5	-28.3	22,577
EU15 FUAs	0.7	3.4	24.5**	7.8	-27.9	22,385
EU15 FUAs (more than 8% Discontinuous Urban Fabric)	-0.8	0.5	27.7**	7.8	-19.2	29,475
EU15 FUAs (more than 25% Discontinuous Urban Fabric)	-1.0	0.2	27.3**	8.1	-13.0	32,662

* Estimated on the basis of all EU nations apart from UK
** Estimated as by projecting Manufacturing output from NUTSII to NUTSIII level by the share of total output accounted for by the NUTSIII area.

Accession States

Table 8.2 shows the same characteristics for FUAs in the 12 Accession Countries. There was limited available data for employment growth amongst the Accession Countries at a NUTSIII level, with statistics available for just 1 FUA at this level.

There are also differences between AC12 FUAs and the AC12 area as a whole. GDP per capita tends to be higher within FUAs, suggesting higher standards of living, while there is greater population loss within FUAs than across the AC12 area.

Greater differences were seen within FUAs with more than 8% discontinuous urban fabric, with lower unemployment rates, less dependency on the manufacturing sector, and higher GDP per capita.

Table 8.2 – Broad Characteristics of FUAs in the Accession Countries

Area	Average Population Growth (%)	Av. Manuf, Output % of GDP	Average Unemployment Rate (%)	Av. Change in Unem.	Average GDP / Capita (Euros)
AC12	-1.1	22.4	13.1	309.3	5,597
AC12 FUAs	-1. 4	20.7*	13.4	187.7	3,500
AC12 FUAs (more than 8% Discontinuous Urban Fabric)	-2.0	16.9*	7.2	-32.9	6,987
AC12 FUAs	-3.7	16.5*	6.6	-42.2	7770.44

(more than 25% Discontinuous Urban Fabric)					

** Estimated as by projecting Manufacturing output from NUTSII to NUTSIII level by the share of total output accounted for by the NUTSIII area for available areas.*

8.2. Variation within FUAs

EU15

Table 8.3 below shows that there is considerable variation within FUAs. Less than 50% of all FUAs within the European Union have higher than average population growth, employment growth, unemployment rates or GDP per Capita. More than 50% of FUAs have a greater than average dependency on the manufacturing sector.

There are also interesting variations by the proportion of the NUTS 3 area covered by discontinuous urban fabric. Areas with greater proportion of discontinuous urban fabric tend to be characterised by lower than average levels of employment and population growth, higher unemployment rates, greater levels of GDP per Capita, and greater dependency on the manufacturing sector.

The table also shows the difference in the averages of those FUAs underperforming against the EU average and those outperforming the EU average. The table shows that more urbanized FUAs (at NUTS 3 level) have more homogenous characteristics, with smaller differences in unemployment rates, employment growth, and dependency on manufacturing. However, disparities in GDP per capita grow in more urbanized areas.

On the whole, the more urbanized areas tend to have a wider spread in some indicators than less urbanized areas, particularly GDP and manufacturing output, a similar experience in others and more homogenous performance in indicators such as unemployment.

Table 8.3 Differential performance of FUAs (EU15)

	% of FUAs outperforming EU, and difference between average of those outperforming and underperforming					
Indicator	**All FUAs**		**FUAs > 8%**		**FUAs > 25%**	
	% > EU	Diff.	% > EU	Diff.	% > EU	Diff.
Population Growth	38.3	4.9	25.2	5.2	17.3	4.8
Employment Growth	36.5	9.8	17.1	8.8	6.4	7.2
Unemployment	46.3	8.0	44.8	6.4	53.1	5.3
GDP per Capita	41.3	59.1	71.0	65.2	79.0	71.5
Manufacturing Output as % of Total Output	61.3	19.7	70.1	17.4	48.1	73.5

There are also variations within the Accession Countries. Fewer than half of FUAs experience higher than average unemployment rates and are more dependent on manufacturing than average. In addition, standards of living tend to be lower, with only just over 1 in 10 FUAs with a greater than average GDP per capita.

There are also greater disparities between FUAs in the AC12 area than across the EU. The difference between the average of the 10% outperforming the AC12 and the 90% underperforming in terms of GDP per capita is almost 6000 Euros, equal to the overall average across the AC12 area. There are also similarly wide differences between unemployment rates, with a difference of 15% between the 57% with greater than average unemployment and the 43% with lower than average unemployment. In Accession and Candidate Countries, based upon the data available, the spread of experiences of NUTS 3 areas is not greatly different, although in the case of GDP per capita, more urbanized regions tend to exhibit wider differentials than less urbanized regions.

Table 8.4 Differential performance of FUAs (AC12)

	% of FUAs outperforming AC, and difference between average of those outperforming and underperforming					
Indicator	**All FUAs**		**FUAs > 8%**		**FUAs > 25%**	
	% > AC	Diff.	% > AC	Diff.	% > AC	Diff.
Population Growth	51.6	4.9	55.6	5.2	20.0	4.8
Unemployment	42.9	15.0	11.1	10.0	80.0	11.9
GDP per Capita**	11.2	106.7	77.8	97.1	80.0	114.4
Manufacturing Output as % of Total Output	38.7	6.4	14.3	12.4	0.0	-

* NB. Employment growth omitted due to limited data availability. The statistics presented for FUAs with greater than 8% and 25% discontinuous urban fabric should be treated with caution as they are based on small numbers of areas.
** Difference calculated as a % of AC12 Average

Variations within and across Member States

There are also variations across and within member states. Table 8.5 below shows the percentage of all FUAs with greater than average population growth, employment, unemployment, manufacturing output as a percentage of total output, and GDP per capita; where data is available. In addition, the figures also include the difference between the average of those areas outperforming the EU or Accession area average and those underperforming against the EU average. It is clear that some countries experience wider differentials than others.

Table 8.5 Variations between States

	Population		Employment		Unemployment		Man. As % of Tot. Output		GDP/Capita	
Nation	% > EU/AC	Disp.	% > EU/AC	Disp.	% > EU/AC	Disp.	% > EU/AC	Disp	% > EU/AC	Disp,
EU 15										
AT	38	2.8	0.0		0.0		0.0	-	56.3	9378
BE	33	2.2			38.1	7.8	57.1	11.4	33.3	11019
DE	28	6.7	14.8	8.2	52.5	6.7	79.0	20.7	65.0	16132
DK	33	2.6	25.0	5.6	0.0		41.7	9.2	100.0	
ES	35	5.4	87.0		87.5	8.6	28.3	12.8	4.2	
FI	33	7.1	72.2	9.2	83.3	7.4	77.8	13.7	38.9	7897
FR	49	3.5	52.8	4.6	57.3	3.6			13.5	8983
GR	47	3.7			100.0				2.6	13329

IE	83	2.8	100.0		0.0		100.0		50.0	9715
IT	26	2.7	34.0	7.1	37.9	12.8	49.5	15.0	30.1	7744
LU	100		100.0		0.0		0.0		100.0	
NL	82	5.4	100.0		0.0		35.7	11.2	42.9	7217
PT	42	5.8			87.5				0.0	
SE	15	3.6	0.0		10.0	3.4	75.0	9.9	95.0	2927
UK	47	4.5			18.3	5.0			56.9	8840
AC 12										
BG	12	4.3			92.3	17.3	19.2	15.0	0.0	
CZ	92	2.4	100.0		8.3	7.8	91.7	24.5	8.3	6932
EE	0								50.0	3170
HU	25	4.4			5.0				20.0	3273
LT	50	2.5			75.0	8.3	12.5	7.7	0.0	
LV	0				60.0	9.8	0.0	3.2	0.0	
PL	94	2.8			84.4	10.4	46.9	7.1	15.6	3720
RO	40				0.0				0.0	
SI	83	2.5			0.0				100.0	
SK	100				100.0		57.1	6.3	0.0	

In Table 8.6 we illustrate the total number of FUAs in the EU15, and whether they are performing better or worse than the EU average on a range of indicators. FUAs in the EU15 tend to be more likely to have lower population growth, lower employment growth, lower GDP per Capita, and be more dependent on the Manufacturing sector. Some strong patterns stand out:

- It is clear that Germany contains the greatest number of FUAs, with the greatest concentrations of areas with higher than average GDP per capita and higher than average unemployment rates. Germany also accounts for the majority of FUAs with greater than average dependancy on manufacturing, the areas with the lower than average employment and population growth.

- Italy accounts for the greatest number of FUAs with lower than average dependency on the manufacturing sector. The UK accounts for high proportions of FUAs with low unemployment rates. France accounts for the most FUAs with greater than average employment growth, and the largest number of FUAs with lower than average GDP per capita.

Table 8.6 – Number of FUAs outperforming or underperforming against the EU average, by Member State

		Population Growth 1994-00		Employment Growth 1995-99		Unemployment Rates, 2000		Manufacturing* Output as % of total		GDP per Capita, 1999	
	No of FUAs	Worse	Better	Worse	Better	Worse	Better	Less Dep.	More. Dep.	Worse	Better
Total Number	**710**	**438**	**272**	**301**	**173**	**329**	**381**	**167**	**265**	**417**	**293**
AT	16	2.3	2.2	0.3	0.0	0.0	4.2	0.6	0.0	1.7	3.1
BE	21	3.2	2.6			2.4	3.4	5.4	4.5	3.4	2.4
DE	177	29.0	18.4	49.8	15.0	28.3	22.0	22.2	52.5	14.9	39.2
DK	12	1.8	1.5	3.0	1.7	0.0	3.1	4.2	1.9	0.0	4.1
ES	48	7.1	6.3	2.0	23.1	12.8	1.6	19.8	4.9	11.0	0.7
FI	18	2.7	2.2	1.7	7.5	4.6	0.8	2.4	5.3	2.6	2.4
FR	89	10.3	16.2	14.0	27.2	15.5	10.0			18.5	4.1
GR	38	4.6	6.6			11.6	0.0			8.9	0.3
IE	6	0.2	1.8	0.0	3.5	0.0	1.6	0.0	2.3	0.7	1.0
IT	103	17.4	9.9	22.6	20.2	11.9	16.8	31.1	19.2	17.3	10.6
LU	1	0.0	0.4	0.0	0.6	0.0	0.3	0.6	0.0	0.0	0.3
NL	28	1.1	8.5	0.0	1.2	0.0	7.3	10.8	3.8	3.8	4.1
PT	24	3.2	3.7			6.4	0.8			5.8	0.0
SE	20	3.9	1.1	6.6	0.0	0.6	4.7	3.0	5.7	0.2	6.5
UK	109	13.2	18.8			6.1	23.4			11.3	21.2
	710.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

** Not all FUAs have been included in this analysis, due to limited data availability.*

In Table 8.7 we illustrate the number of FUAs in the Accession area outperforming and underperforming against the accession area average in terms of population growth, unemployment, manufacturing output as a percentage of total output, and GDP per capita.

The majority of FUAs were behind the Accession area average in terms of GDP per Capita and were less dependent on the manufacturing sector. Slovenia, Hungary and Poland accounted for the greatest number of FUAs with higher than average GDP per capita, while Romania and Bulgaria accounted for the majority of those lagging behind the Accession average. Bulgaria also accounted for more than a third of areas less dependent on manufacturing output than average.

In terms of unemployment and population change, over half of the FUAs in the Accession area performed better than average, with the Czech Republic, Poland, and Romania accounting for the majority of areas performing well. Bulgaria and Romania also accounted for majority of areas seeing less than average population change. Bulgaria and Poland accounted for almost three quarters of the FUAs with higher than average unemployment rates, with FUAs in Romania and Hungary doing well on this count.

Examining the distribution of NUTS 3 areas containing Functional Urban Areas by type (Table 8.8) we find that there is no systematic pattern between different levels of urbanization. On the whole there tends to be a higher proportion of the most strongly urbanized areas in the least disadvantaged categories. In contrast it is the regions which fall into the semi-urban category which tend to have the highest incidence of social and economic difficulties.

Table 8.8 Urban Types (A,B,C), by percentage of NUTSIII area covered by discontinuous urban fabric

Urban type (A,B,C)	< 8%	%	8% to 25%	%	25% +	%	Total
AA	4	0.33	6	3.64	3	3.33	13
AB	19	1.59	14	8.48	8	8.89	41
AC	119	9.93	13	7.88	4	4.44	136
AD	55	4.59	16	9.70	14	15.56	85
AE	384	32.05	37	22.42	14	15.56	435
BA	21	1.75	5	3.03	3	3.33	29
BB	138	11.52	7	4.24	5	5.56	150
C	458	38.23	67	40.61	39	43.33	700*
Total	1198		165		90		1589

* 566 + 134 with no info. on discontinuous urban fabric

Table 8.7– Number of FUAs outperforming or underperformning against the AC12 average, by Nation

		Population Growth 1994-00		Unemployment Rates, 2000		Manufacturing* Output as % of total		GDP per Capita, 1999	
	No of FUAs	Worse	Better	Worse	Better	Less Dep.	More. Dep.	Worse	Better
Total	**161**	**78**	**83**	**69**	**92**	**57**	**36**	**143**	**18**
BG	26	29.5	3.6	34.8	2.2	36.8	13.9	18.2	0.0
CY	1	0.0	1.2	0.0	1.1	1.8	0.0	0.0	5.6
CZ	12	1.3	13.3	1.4	12.0	1.8	30.6	7.7	5.6
EE	2	2.6	0.0	0.0	2.2	3.5	0.0	0.7	5.6
HU	20	19.2	6.0	1.4	20.7			11.2	22.2
LT	8	5.1	4.8	8.7	2.2	12.3	2.8	5.6	0.0
LV	5	6.4	0.0	4.3	2.2	8.8	0.0	3.5	0.0
PL	32	2.6	36.1	39.1	5.4	29.8	41.7	18.9	27.8
RO	42	32.1	20.5	0.0	45.7			29.4	0.0
SI	6	1.3	6.0	0.0	6.5			0.0	33.3
SK	7	0.0	8.4	10.1	0.0	5.3	11.1	4.9	0.0
	710.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

** Not all FUAs have been included in this analysis, due to limited data availability. No data was available for Malta.*

8.3. Disparities within FUAs - National Data

Whilst the preceding analysis enables the broad patterns of strengths and weaknesses to be observed, these are at a level that is too coarse to pick up many individual urban areas, or disparities within urban areas. The analysis has thus been extended to consider data at levels below NUTS 3 for a selection of potentially useful indicators, identified in the earlier sections of this work, namely:

- Unemployment
- Household income
- Economic activity
- Health (life expectancy)
- Environmental quality

Unemployment

An examination of unemployment rates with FUAs at a sub-NUTS 3 level reveals that there is significant variation within FUAs. We explored national data from Denmark, Finland, Italy and Sweden.

Data available within FUAs in these four nations suggested that there was some variation in unemployment rates within the urban areas. Disparities in unemployment rates were most pronounced in Finland; there was an average difference between the maximum and minimum unemployment rate within FUAs of 7.0%.

In Sweden, Italy and Denmark, these differences were less pronounced. In particular, FUAs in Sweden saw the lowest levels of disparity in unemployment rates. In 2001, the average difference between the maximum and minimum unemployment rates was 1.1%.

There is also evidence to suggest that disparities in unemployment rates are becoming less stark. We obtained data from 1996 and 2001 from Sweden, Denmark and Finland. In each of these countries, the average difference between maximum and minimum unemployment rates fell over the period.

Household Income

Household income within FUAs at sub-NUTSIII level also reveals considerable variation. Data was available at this level from Denmark, Finland, Germany and Sweden.

The data from these three countries showed that there was a range of disparities between the maximum and minimum average household income. In Denmark, the difference between the lowest and highest household incomes ranged from 8% to 20% of the

average household income across FUA's, in Sweden from 0% to 20% and in Finland from 4% to 43%.

There was also evidence suggest that these disparities are getting wider. In 1995, the maximum disparity between the highest and lowest average incomes in Finnish FUAs was 36%, rising to 43% in 2001. The areas with the highest disparities also tended to be those with the highest average incomes when compared to other FUAs.

Economic Activity

Variations in economic activity rates (as a percentage of working age population) differed between nation states. Data was available from the UK, Sweden, Spain, Portugal, Italy, Germany, Finland, Denmark and Sweden.

Some member states had a high variation of economic activity rates across FUAs, in particular the UK and Italy. The maximum economic activity rates in the UK in 1997 was 89.3% (amongst FUAs), while the minimum was 62.5, with an average of 77.9%. Similarly in Italy, economic activity rates ranged from 45% to 69%. The highest economic activity rates were experienced by the UK.

However, other nations, in particular Sweden, Finland and Denmark saw very little variation in economic activity rates. In Sweden, rates varied from 43% to 48%, in Finland from 51% to 56% and in Denmark from 68% to 74%.

Life Expectancy

There was very little variation in life expectancies between FUAs for both male and female population. Data was available for the UK, Sweden, Spain, Italy, Denmark, Finland, and Belgium.

Environmental Indicators

There was very limited data available on environmental quality for FUAs at a national level. We obtained data from Belgium and limited data from the UK (for 3 FUAs).

The data did indicate that there were differences in air quality between areas in Belgium. Levels of ozone varied from 32 $\mu g/m^3$ to 56 $\mu g/m^3$ across Belgian FUAs. In the UK, concentrations of Carbon Monoxide also varied, although for all three FUAs, the concentrations stayed within the 'low' band.

Identifying urban conditions

The indicator analysis undertaken above demonstrates the limited amount of data that is available across the European territory which can inform decisions as to the conditions of different urban areas. In part this relates to limitations of many of the indicators that are

commonly available. Of those which are available and have been considered at a national level only household income levels appear to have any currency. In the near future it is likely that additional data will be available at an urban level for a number of the leading urban areas of the EU through a specific study: the Urban Audit. The indicators in the Urban Audit study are set out in Annex 1. It is clear that once this information becomes available there will be a far greater level of comparison possible between different urban areas.

Identifying vulnerable urban areas

TPG 2.2.3 has been asked to identify those urban areas that might be vulnerable to industrial sectoral change in the future. We have been provided with x reports by the European Commission to assist with this process and have souorced a number of documents ourselves that relate to changing industrial distributions across the EU over time.

The exercise is complicated by the level of data availability. Most studies have been undertaken at a national level where the level of disaggregation for industry classifications is greatest. At a NUTS II level a 17-sector breakdown is available using the following NACE codes. At a NUTS III level this is reduced to a 3 setor breakdown only. More comprehensive coverage is available from some national statistical sources for some classifications (where confidentiality restrictions are not triggered).

NACE classification	***Title***
A	Agriculture, hunting and forestry
B	Fishing
C	Mining and quarrying
D	Manufacturing
E	Electricity, gas and water supply
F	Construction
G	Wholesale and retail trade
H	Hotels and restaurants
I	Transport, storage and communication
J	Financial intermediation
K	Real estate, renting and business activities
L	Public administration and defense
M	Education
N	Health and social work
O	Other community, social and personal services
P	Private household with employed persons
Q	Extra-territorial organizations and bodies

The 17-sector breakdown is of only limited assistance in assessing the likely impact of industrial change as many of the changes occur within the D classification. Consequently we have attempted to examine subsidiary classifications for this class.

In the following we review the work undertaken to date – and stress that there is no common view on future patterns of industrial activity and propose a means of identifying those regions that might be vulnerable to future change.

The effects of enlargement

A study undertaken by Prof K. Gretschmann for RETI[16] has identified the following industry effects following enlargement of the Union, based upon an analysis of 6 regions. It's general conclusion is that the greatest effects will be felt in those regions bordering the new Accession States. From Table 8.9 it is clear that only 2 industrial sectors might be adversely affected: electro-technical and textiles (indeterminate effect). We have added the closest equivalent NACE code.

Table 8.9 Predicted effects of enlargement

NACE equivalent	Sectors	Sub-sectors	Prognosis	*WHY?*
C	**Coalmines and mining technologies**	**Coalmines**	↓	Reduction of state aid in the EU and eastern coalmines more competitive
D		**Mining technologies exportations**	↑	
		Coal imports	↑	
D	**Steel**		↑	Thanks to the new technologies, development of new high tech products
D	**Chemical industry**		↑	More advanced technologies in the EU and eastern industries not adapted to environmental standards will need to close down.
D	**Automobile industry**		↑	Demand will increase in the eastern countries
D	**Engineering**		↑	Specialised SMEs in advanced technologies and new partnerships
D	**Electro technical industry**		↓	More pressures on competitiveness

[16] Gerér le changement industriel après l'an 2000 (1999) RETI

	Energy	**Nuclear power plants**	↑	Eastern plants must adapt to security standards, leaving room for EU-15 to export their design and construction technologies
E		**Power stations**		
		Gas		More attractive and efficient than coal
D	**Textile industry**	**Mode and design**	↕	Quality improvement thanks to computer assisted design methods, but still employment decreases
A	**Agriculture**	**Conventional handicraft**	↓	Increased competitiveness
		Processing of agricultural products	↓	

NACE equivalent	SERVICES	Prognosis and explanations	
K	**Environmental Technology**	↑	Increased exports
O	**Media and information industries**	No real changes expected since they are not located in the industrial regions of the EU.	
J	**Banking and insurance companies**		
L	**Public administration**	↑	Transfer of knowledge and expertise, training of Eastern European civil servants, modernisation of public administrations
D	**Transborder Trade cooperation between industrial regions**	↑	Cooperation and investment mainly in the following sectors: electronic industry, medical industry, motor vehicles production, engineering and metal industry, food industry, environmental protection and technology, telecoms, textile industry, wood processing industry, trade and financial services
K	**Consultancy**	↑	Information on markets, companies and potential partnerships, increased cooperation, market and economic analyses, seminars, etc…

Source:K Gretschmann (1999)

A Commission staff working paper (SEC(2003) 234) examining the impact of enlargement on industry echoes some of these points, repeating the assertion that the risks to EU countries in non-border regions from enlargement were 'expected to be very limited' (p.13). Equally, the paper reports that there is no reason to believe that there will

be massive dislocations of industry following enlargement, and that most relocations due to lower costs and wages have already taken place. Competition from low wage, high skill economies in Asia are seen to be as much of a threat to industrial dislocation as the CEECs. Whilst the paper acknowledges that there may be some locally painful adjustments under pressure from cheaper Eastern European products there is no conclusions drawn as to what sectors these might be found in.

Industrial development trends in the EU

Other studies have taken a different approach and have considered the general pattern of changes in industrial location over time across the EU. This is perhaps more informative in that it is not based upon a single shock. However, the level of detail reported does not always assist in identifying individual sectors. Three studies have been carried out in this area for the Commission.

Aiginger (1999): This uses data for manufacturing value added and exports for EU Member States between 1988 and 1998. It argues that highly concentrated industries tending to be spreading across countries with the strongest structural changes witnessed in Portugal and Ireland. The geographical concentration of labour-intensive industries has increased.

Midelfart-Knarvik et al (2000): Based on production data for 14 EU Member States and 36 manufacturing industries between 1970 and 1997, this study confirmed many of the findings of Aiginger. It found that specialization decreased in the 1970s, increased in the 1980s but was decreasing again in the 1990s. Patterns are not uniform across industries and some that were originally concentrated have dispersed, particularly medium and high technology industries, and others have increased concentration. The latter are mainly slow-growing and unskilled labour intensive industries which have become relatively more concentrated in southern Europe. The analysis was undertaken at a Member State level but some of the findings may be usefully applied at a regional scale (see later).

Hallett (2000): This study used data for Gross Value Added of 17 sectors for 119 regions in the EU between 1980 and 1995. He found that regions had increasingly similar patterns of specialization, although as this reflected structural changes towards service industries it might be a statistical effect. However, in so far as this reduces the probability of region-specific shocks it is important for the present study. The location of most branches was correlated to regional GDP-levels rather than any other variable, apart from some traditional industrial sectors.

In the EU Economy 2000 Review DG Economy and Financial Affairs suggests that, based on this work, “European integration catching-up will not have dramatic spatial effects in terms of concentration and specialization of industrial activity”. It cites as reasons for this the following:

- The location and relocation of production of production involves high-level investment which means that this is a long-term process. Significant changes are difficult to detect over 20-30 year time-horizons
- The general process of change from manufacturing to services is acting to reduce levels of differentiation in specialization
- The importance of market access and human capital endowments are outweighing economy of scale effects.

Based on this analysis it seems fair to suggest that contrary to first appearances the industrial structure of a region is a less robust indicator of vulnerability than indicators relating to, for example, human capital. This is partly a consequence of the level of disaggregation of available information, but also reflects conflicting messages within particular sectors. For example, Midelfart-Knarvik identifies that the centralization of the automobile industry in Germany has been balanced by increasing production in peripheral regions and a reduction in production in previous locations in the UK. This demonstrates the difficulty of making simple predictions based upon industry share.

Based on the work of Hallett and Midelfart-Knarvik et al. the following categorisation of industries has been identified (Table 8.10) Although this does not indicate whether particular regions are vulnerable to industrial location changes it does suggest that a dependency on certain sectors may make a region more vulnerable to sectoral changes.

However, from this analysis it is not clear that this pattern will be maintained in future years. Midelfart-Knarvik et al argue that industries that are high-tech, have high-medium returns to scale and capital intensive tend to locate in the core. Over time concentrated industries (CC and CD) have started to move out of the core towards the periphery whilst dispersed industries (DD and DC) have moved towards locations with a higher market potential. Industries with low to medium returns to scale tend to be biased towards low wage economies rather than peripheral countries. Based upon econometric analysis they argue that:

- The location of R&D intensive industries has become increasingly responsive to countries' endowments of researchers, with industries moving in to researcher abundant locations
- The location of non-manual labour-intensive industries was, and remains, sensitive to the proportion of countries' labour forces with secondary and higher education
- The location of industries with strong forward and backward linkages has become increasingly sensitive to the centrality/peripherality of countries. With central countries attracting industries that are higher up the value chain and industries that sell a lot of output to industry locating in areas with high market potential.
- Industries that have a high degree of increasing returns to scale tend to locate in central regions, but that this effect is diminishing.

Table 8.10 Concentration effects

Concentrated industries that have remained concentrated over time (CC)	**Concentrated industries that have become less concentrated (CD)**
Motor vehicles Motor cycles Aircraft Electrical apparatus Chemical products NEC Petroleum and coal products	Beverages Tobacco Office and computing machinery] Machinery and equipment Radio-TV and communications Professional instruments
Dispersed industries that have become more concentrated over time (DC)	**Dispersed industries that have remained dispersed (DD)**
Textiles Wearing apparel Leather and products Furniture Transport equipment NEC	Food Wood products Paper and products Printing and publishing Metal products Non-metallic minerals NEC shipbuilding
Residual Group (R)	
Footwear Industrial chemicals Drugs and medicines Petroleum refineries Rubber products Plastic products Pottery and china Glass and products Iron and steel Non-ferrous metals Railroad equipment Other manufacturing	

The work of Hallett suggests that a focus on the traded goods sector is appropriate in that these are characterized by spatial concentration that is much higher than simple GDP concentration (unlike non-traded goods). Here he reports a strong trend of deconcentration in the chemical products and metal products. He finds that textiles and clothing, rubber and plastic, mineral products and food, beverages and tobacco are more likely to be located in peripheral regions. However in terms of changing patterns of concentration and dispersion Hallett argues that there has been a high degree of stability between 1980 and 1995 (perhaps contrary to what many observers might think) in the 17 branches. Although he suggests that this period might be too short to see any major trends.

The analysis undertaken for this study demonstrates some strong patterns, although we have data available for only 9 countries. Maps 11 and 12 illustrate different aspects of

regional ‘dependency’ based upon the proportion of the workforce recorded as working in a particular NACE class sector (NACE 17) or sub-class of class D. These suggest that on the whole patterns of dependency are concentrated in a small number of areas of the European territory, although isolated ‘hotspots’ are also clearly visible.

8.4. Looking forwards

Although there has a paucity of comparable data sets available at the urban level this is gradually being rectified through projects such as the Urban Audit, supported by the Member States. The indicators being collected for this exercise are broadly similar as those identified in this study, albeit at a greater level of disaggregation (see Annex 1). The study team intend to analyse the data provided by the Urban Audit, once completed, to undertake a stronger analysis of urban level issues.

9. ANALYSIS OF STRUCTURAL FUNDS AND URBAN AREAS

Structural Fund programmes have often had an impact on the spatial distribution of economic development resources - not just within the Member States, but also within regions, as resources are channelled to the needier areas. Indeed, Northrhein Westphalia is a good example, as the Objective 2 designation of the worst-off areas has focused regional development expenditure in these areas at a higher level than might otherwise have been the case.

One of the principle aims of the study is to examine the territorial effects of the Structural Funds in urban areas. This constitutes two principle components.

- An assessment of the extent to which Structural Fund activity is targeted on urban areas and
- An assessment of the manner in which locally-based institution make use of the Structural Funds through a number of case studies of urban areas

The analysis of both of these elements remains on-going. In the former case final data remains to be validated by TPG 2.2.1 and in the latter the case studies have now been completed and their analysis is ongoing. We set out below initial results from the assessment of the extent to which Structural Funds are targeted on urban areas.

Based on the empirical work carried out by ESPON 2.2.1, an assessment has been made as to how much Structural Funds assistance the various types of urban areas in difficulties have received during the 1994-99 period. This work relies on preliminary NUTS III data indicating a proxy.

Funding by area

Applying the spending typology and data compiled by ESPON 2.2.1 to the classification of urban areas in difficulties, it becomes obvious that almost half of the Structural Funds assistance (Objective 1, 2, 3, 5b and 6 plus Cohesion Funds) of the 1994-99 period fell to urban areas that are classified as not being in difficulties. Considering that this type of urban areas represents only 42% of the urban areas classified, urban areas not in difficulties receive relatively more funding than those in difficulties.

170 regions, i.e. approx. 23 percent of the urban areas, are classified as fragile. These received 30 percent of the Structural Fund assistance going to urban areas. Urban areas in absolute difficulties and urban areas in relative difficulties received approx. 10 percent each. It has to be kept in mind that about 20% of the urban areas are in absolute difficulties whereas only about 13 percent are classified as in relative difficulties. Consequently, the assistance per region appears to be lowest in urban areas in absolute difficulties.

Indeed this picture is confirmed by the figures on the absolute spending per region. For regions in absolute difficulties the assistance varies between below 200,000 Euro and almost 800,000,000 Euro. For the other types of urban areas the highest amounts of spending lie between 2,000,000,000 and 3,000,000,000 Euro.

Table 9.1 Structural Fund assistance in urban areas in difficulties 1994-99

	Absolute (AA-AD)	Fragile (AE)	Relative (BA-BB)	Not (C)
SF per capita (in Euro)	275	530	275	365
No of region	149	170	96	300
SF spending on regional development and productive infrastructure (in percent of total)	6	18	7	25
SF spending on agriculture, fishery, rural development (in percent of total)	1	4	1	5
SF spending on social integration and human resources (in percent of total)	2	6	3	15
Cohesion Funds (in percent of total)	0	1	0	5
SUM	9	30	12	49

Source: ESPON 2.2.3 using the spending typology of ESPON 2.2.1.

The figures show a different picture when taking into account the number of inhabitants in the various types of regions. Fragile regions have the highest assistance per capita, 530 Euro between 1994-99, followed by areas not being in difficulties, 300 Euro, and areas in relative and absolute difficulties with 275 Euro per capita. It has however, to be taken into account that this are average values and there are considerable disparities between the regions coming together in one type of urban areas.

Typologies

The question is, however, not only as to whether different types of urban areas in difficulties receive different amounts of funding, but also what more can be said about the characteristics of these areas. For this we have cross-analysed the urban areas in difficulties identified in this project with the typology of functional urban areas provided by ESPON 1.1.1 and the typology of rural-urban population provided by ESPON 1.1.2.

Functional urban areas:

Referring to the discussion on polycentric development in Europe, the typology of NUTS III regions provided by ESPON 1.1.1 has been used to assess which kind of functional

urban area is predominant. This typology allows to identify for each NUTS III region whether it contains one or several functional urban areas of local/regional, national or international importance.

Following the typology provided by ESPON 1.1.1, almost 80% of the urban areas identified are categorised as local or regional functional urban areas. About 16% categorise as national functional urban areas and only less than four are of international character.

Looking deeper into this, we find that approx. 30 percent of the identified urban areas are local/regional functional areas that are not in difficulties, around 20 percent are fragile local/regional functional urban areas, ca. 17 percent are local/regional functional urban areas that are in absolute difficulty and 11 percent are local/regional functional urban areas that are in relative difficulties.

Less than 4 percent of the identified urban areas classify as national functional urban areas in difficulty.

Thus, we may conclude, that in particular local and regional functional urban areas are in difficulties and most of those that are in difficulties are either fragile or in absolute difficulty. This is also reflected in terms of Structural Funds assistance that these areas received between 1994-99. Taking into account Objective 1, 2, 3, 5b and 6 plus Cohesion Funds, local/regional functional urban areas that are not in difficulties received altogether approx. one third of the total funding. Approx. one quarter of the total assistance went to fragile local/regional functional urban areas. This two are by far the largest shares. Concentrating on areas in absolute difficulties, we find that local and regional function urban areas in absolute difficulties received approx. 8 percent of the total assistance.

Table 9.2 Structural Fund assistance in functional urban regions in difficulties 1994-99

	Absolute	Fragile	Relative	No
no fua (in %)	0	0,1	0	1
local/regional (in %)	8	26	7	34
National (in %)	2	2	1	9
International (in %)	0	3	5	3

Source: ESPON 2.2.3 using the spending typology of ESPON 2.2.1 and the functional urban areas typology of ESPON 1.1.1.

Rural-urban division

Local/regional functional urban areas can be of very diverse nature, especially as regards their degree of urbanisation. In order to achieve a better picture on the type of urban areas that are in difficulties, the urban-rural typology developed by ESPON 1.1.2 has been employed. Based on national definitions and population density, nine classes of rural-urban regions have been identified: densely populated predominantly urban areas,

predominantly urban areas with medium population density, sparsely populated predominantly urban areas, densely populated intermediate areas, intermediate areas with medium population density, sparsely populated intermediate areas, densely populated rural areas, rural areas with medium population density and sparsely populated rural areas. For reasons of readability, we use the names of the different categories without mentioning predominately every time.

The findings of the correlation of this typology to the typology developed by the present project correspond largely to the findings presented in the Second Interim Report of ESPON 2.2.1. As regards all identified urban areas, approx. 45% are classified as densely populated predominantly urban areas and about one-third are sparsely or intermediate populated rural areas.

Looking at densely populated urban areas, approx. 15% of all urban areas identified, fall into the category densely populated urban areas in absolute difficulty and approx. 18% of all areas are densely populated urban areas which are not in difficulties. These are the two largest groups.

At the other end of the rural-urban scale we find rural areas with medium and sparsely population density. Approx. 11 percent of all urban areas identified classify as fragile rural areas with medium and sparsely population density. Whereas approx.15 percent of all urban areas are rural areas with medium and sparsely population density that do not have difficulties.

Focusing on areas in absolute difficulties, approx. two-third of those are densely populated urban areas. Despite the huge number of areas, the assistance per capita between 1994-99 is relatively modest, with an average of approx160 Euro. As regards areas in relative difficulties and not in difficulties approx. 40 percent are densely populated urban areas. About 30 percent of the fragile areas are densely populated urban areas. In this case the assistance lies around 390 Euro per capita between 1994-99.

Looking on the Structural Funds assistance per capita in 1994-99, urban areas with medium population density which are in relative difficulties received the highest values (approx. 1000 Euro) whereas densely populated urban areas which are in relative difficulties received the lowest average amount (71 Euro).

Table 9.3 Structural Fund assistance in rural-urban regions in difficulties 1994-99

	Absolute	Fragile	Relative	No
(Predominantly) urban, densely pop	7	7	8	27
(Predominantly) urban, medium density	0,4	1	2	3
(Predominantly) urban, sparsely pop	0	0,1	0,1	0,3
Intermediate, densely pop	0	1	1	3
Intermediate, medium density	0,1	1	1	1
Intermediate, sparsely pop	0	0	0,2	1
(Predominantly) rural, densely pop	1	2	1	6
(Predominantly) rural, medium density	2	5	2	7

(Predominantly) rural, sparsely pop	1	4	2	3

Source: ESPON 2.2.3 using the spending typology of ESPON 2.2.1 and the rural-urban population typology of ESPON 1.1.2.

In terms of Structural Funds assistance to urban areas in difficulties between 1994-99. (taking into account Objective 1, 2, 3, 5b and 6 plus Cohesion Funds) densely populated urban areas that have no difficulties received 27 percent of the total assistance. Whereas densely populated urban areas that are in absolute or relative difficulties or fragile, received between 7-8 percent each of the total assistance. Rural areas that are either densely or medium populated and have no difficulties received between 6 and 7 percent. Fragile areas which classify as rural areas with medium population density received approx. 5 percent and in case they are sparsely populated approx. 4 percent. All other types received less than 2 percent of the total assistance that could be located at NUTS III level.

Current programming

The ESPON 2.2.1 review of programming documents gave some interesting results regarding urban areas in difficulties, in particular as regards Objective 2.

For the 2000-06 period, a high degree of policy continuity is evident in the Objective 2 strategies, with shifts generally reinforcing trends already underway or reflecting the nature of the 'new' Objective 2. Strong links to wider national/regional economic development strategies were emerging, and strategic thinking introduced some changes, including an increased focus on soft aid, new technologies and innovative methods of financing. More flexible programmes emerged in many regions, mainly as a response to the seven-year programming period and rapidly changing economic framework conditions.

Many regions have made strategic commitments in relation to the horizontal themes. More so than in the previous programming periods, programmes from across the EU make reference to the horizontal themes at the level of the strategic objectives. This is backed up by various forms of action to address the horizontal themes through the priorities and measures.

The strategic balancing of differing regional problems has continued to be a major challenge for strategy definition in many regions, and many of the 2000-06 Objective 2 programme strategies are very wide ranging, with measures encompassing a broad combination of traditional and modern interventions. In part, this reflects the coverage of the new Objective 2 regions which include both urban and rural areas and designated and transitional areas. For some regions, the eligible area is highly fragmented, requiring a multiplicity of separate, targeted initiatives.

One response has been the more widespread appearance of spatial/territorial development elements among programmes. While most strategies have priorities and measures that apply to the eligible area as a whole (distinguishing between designated and transitional

areas in many cases), there is also a significant degree of geographical targeting. Several programmes have an explicit strategic commitment to balanced territorial or spatial development, especially in the Benelux countries, France, Spain and the UK (eg. Alsace, Aquitaine, Basse-Normandie, Bremen, Cataluñya, East Midlands, Kempen/Antwerpen, Limburg, North-East of England, Sachsen-Anhalt, Western Scotland). In part, this takes the form of spatially targeted measures, focusing on urban, industrial, mining, fishing or rural areas or communities. As examples:

- The Alsace programme has a series of territorial actions focused on selected districts of Mulhouse and urban regeneration in the potash mining areas.
- The Kempen/Antwerpen programme has specific urban development support measures concerned with urban infrastructure, sustainable transport and socio-cultural facilities.
- The Bremen programme has a measure for the development of certain city quarters.
- The West Finland programme has a measure for the 'activation of sub-regional and local communities' to develop the social environment and support the balanced development of towns and sub-regions in the Objective 2 area.
- The West of Scotland SPD, contrasts geographical concentration of high levels of deprivation, long-term unemployment and low skill levels - multiple deprivation has a strong spatial aspect in the Programme area. The city of Glasgow and the local authority areas of North and South Lanarkshire and Renfrewshire are considered the key territories in this context.

The West of Scotland SPD also represents one of the few examples of inclusion of strategies for polycentric development: it articulates its strategy around areas of need and opportunity and sets out to address the poor transport infrastructure links between such areas, whose nature and scope have so far limited access to new employment and development opportunities. Many key strategic sites in the region have a geographical proximity to deprived areas and there is a cross-agency commitment to secure the benefits of such economic development for all in the region. Among others, the programme includes an intervention for the development of the region's 'competitive locations' to support the needs of indigenous businesses seeking to expand, or SMEs looking to locate into the region, and which can lead to significant opportunities for job creation. The measure also aims to improve the image and accessibility of the area, particularly through urban regeneration plans. Funding is available for projects which support the development of specific strategic sites and urban regeneration areas consistent with the approach to strategic spatial development of the region, complementing the development of specific clusters and growth sectors.

10. RECOMMENDATIONS

10.1. First recommendations for the present programming period to enhance the territorial approach as well as management and implementation of interventions under Objectives 1, 2 and 3 in urban and urban industrial areas, in particular in the context of the mid-term review in 2003.

This section is unable to be completed at this stage as the analysis of the territorial effects of the Structural Funds has not yet been completed, for reasons previously set out. However, it can reasonably said at this stage that from the typology analysis already undertaken urban areas form strong clusters of similar types, suggesting the need to consider the role of urban areas within a wider regional context. This context may not, and probably does not, accord to the NUTS 2 and 3 boundaries that are typically used for Structural Fund programming purposes.

Analysis of the territorial effects of the Structural Funds within urban areas, particularly actions at the local level, on which this study has been focused, will follow in the forthcoming months.

10.2. Policy recommendations which provide the basis for the future focus of the Structural Funds interventions post 2006, both in the present Member States and the Candidate Countries, including institutional settings and instruments

The following recommendations are preliminary conclusions based upon the assessment of the information analysed to date. This naturally limits the scope of the potential recommendations.

Urban NUTS 3 areas do tend to perform least well against all the common indicators identified, bar GDP per capita, at least in the current EU 15. Performance seems to worsen as a region becomes more urbanised. The same is not true in the Accession and Candidate Countries, where urban areas tend to have a better performance in terms of unemployment for example. This suggests that a common policy approach across the whole of the EU will not be appropriate. The greater concentration of social and economic difficulties in urban areas in the EU-15 does suggest, though, that a greater focus on urban areas is merited in the future.

As regards the current EU Member States, there is likely to be an environment of reduced funding during the next period. Accordingly, the Structural Funds need either to focus more efficiently or to employ their indirect influences better (agenda setting etc.).

Initial analysis of the distribution of the Structural Funds suggests that the bulk of spending did not go to areas in difficulties. This confirms the findings presented in the 2nd

Cohesion Report that disparities within Member States increase. Thus aiming at cohesion, more specific measures and area delimitation addressing areas in difficulties might be recommended. This would support a focus on urban areas in difficulty.

Proportionately, local/regional functional urban areas appear to be most likely to exhibit signs of absolute difficulty. Equally, these areas may have the best potentials. However, areas in absolute difficulties seem to be currently underrepresented in the funding schemes. This may be due to their location within more general regional or national programmes, which are not tuned to their particular needs. This is a situation that requires further exploration. We would recommend developing the Structural Funds to support urban areas in absolute difficulties more adequately. The urban areas Objective 2 Programme in the Netherlands may be an example of such an action.

In order to develop an effective approach to targeting such urban areas it is necessary to formulate an adequate mechanism to identify potential urban areas. The initial methodology developed in this study has some strengths in that it is based upon consistent and comparable datasets. This has enabled a European wide typology to be developed. However, it suffers in that it relies upon a limited number of indicators, analysed at a scale somewhat greater than most urban areas.

To undertake more detailed analysis it is necessary to utilise nationally available statistics. These are not comparable between countries, nor are they consistently available. We found that figures for unemployment and household incomes were the most commonly available and useful for analytical purposes. These are particularly valuable for identifying spatial disparities in well-being within urban areas. Economic activity rates did not exhibit strong disparities between urban areas and there was a paucity of urban environmental indicators collected on a regular basis. Similarly, health indicators were found to be rare. It appears that specific, urban-level data will need to be provided if urban assessments are to be made in any detail.

The Urban Audit 2 data exercise demonstrates one approach towards identifying specific urban level data for selected indicators. This can be an important contribution to the process and we recommend that the indicators that it is based upon are taken into consideration when assessing the strengths and weaknesses of urban areas. This is an approach that we recommend, as it maintains the role of local partners in contributing to the development of appropriate programmes; an important element in conforming to the principle of subsidiarity. If such information were to be available then our suggested typology based upon multicriteria analysis techniques might prove an appropriate analysis tool.

We recommend one approach which might be adopted; that is to use NUTS 3 data analysis to identify areas of difficulty at the NUTS 3 level and then to use urban level statistics to assess the detailed nature of the urban problems, and potential, within the area. Levels of funding and the actions supported can then be based upon this information. Further light may be shed on the latter as the analysis of Structural Fund

actions at a local scale is undertaken by this study. This is not necessarily to suggest that individual Structural Fund programmes should be established for such areas.

However, we recognise that this approach will underplay the situation of small urban areas in more prosperous areas. We have no recommendation as to how to overcome this situation as to the lack of consistent available data by which to make such an analysis at a European scale.

11. PROPOSAL OF A METHODOLOGY FOR THE TERRITORIAL IMPACT ASSESSMENT OF STRUCTURAL FUNDS POLICIES AND APPROPRIATE INSTRUMENTS TO IMPROVE THE SPATIAL CO-ORDINATION OF STRUCTURAL FUNDS INTERVENTIONS AND EU SECTOR POLICES WITH IMPLICATIONS FOR SPATIAL DEVELOPMENT

The work undertaken to date has focused on identifying consistent indicators and methods for identifying those urban areas that might be eligible for Objective 2 style programmes in the future. The potential criteria are wide ranging but the availability of consistent and comparable data is much more limited.

The criteria that have been selected do not in themselves constitute a methodology for assessing the territorial impact of Structural Fund policies. Rather they constitute a means for identifying the nature of urban areas and for assessing their eligibility for Objective 2 style programmes. Clearly though this depends upon the nature of the policy approach adopted by the Structural Funds in the future. In this respect, the study has been making judgements that are beyond its scope in terms of the objectives that Structural Fund policies will attempt to tackle in the future.

The approach that the study has taken so far might be considered as an assessment method for determining the eligibility of areas for Structural Fund assistance, and the nature of the assistance required. In this respect it might be seen as a contribution to the ex-ante assessment methodologies developed through the Structural Funds. This is particularly the case in terms of the extended methodology piloted. However, in so far as the criteria identified are used to determine which areas might be eligible for Structural Fund assistance in the future it will be difficult to then apply this same approach to assess the territorial impact of that assistance.

In terms of assessing the territorial effects of the Structural Funds in urban areas to date it is a little too soon to tell. This element of the study will be completed in the Autumn. For this impact assessment exercise the method set out in the 2nd Interim Report (p.10) remains valid. We are not able to propose appropriate instruments to improve the spatial co-ordination of Structural Fund interventions and EU sector policies until that work has been completed.

From the analysis undertaken the typology developed using comparable European indicators is flawed in two ways. It is based upon a limited number of indicators using NUTS 3 level data. This is neither comprehensive enough, nor at a fine enough scale to make robust urban-level analysis possible. Yet it is the best that is possible with the data that is presently available. The analysis of this data demonstrates some interesting patterns, although this would benefit from a stronger analysis.

In contrast we have proposed a methodology based upon multicriteria analysis that would enable a much fuller assessment of the nature of urban areas and the potential role of the Structural Funds in supporting sustainable development in these areas. Unfortunately,

data availability is so poor that a pilot analysis using a limited number of indicators is all that has been possible so far. Once the data becomes available from the 2nd Urban Audit some of the data issues will be solved for 160 urban areas. This represents a very small proportion of the urban areas identified by TPG 1.1.1 but, arguably, includes a high proportion of the most significant urban areas in Europe.

We propose that the multicriteria analysis approach be adopted and that it's introduction is based upon the two stage process identified in the preceding section, unless a limited number of urban areas are pre-identified for comparable analysis.

Annex 1 Urban Audit Indicators

Field	Domain	Variable
Demography	1.1 Population	Total Resident Population (estimation between census years)
	1.1 Population	Resident Population Male (estimation between census years)
	1.1 Population	Resident Population Female (estimation between census years)
	1.1 Population	Total Resident Population 0-4
	1.1 Population	Resident Population 0-4 Male
	1.1 Population	Resident Population 0-4 Female
	1.1 Population	Total Resident Population 5-15
	1.1 Population	Resident Population 5-15 Male
	1.1 Population	Resident Population 5-15 Female
	1.1 Population	Total Resident Population 16-19
	1.1 Population	Resident Population 16-19 Male
	1.1 Population	Resident Population 16-19 Female
	1.1 Population	Total Resident Population 20-24
	1.1 Population	Resident Population 20-24 Male
	1.1 Population	Resident Population 20-24 Female
	1.1 Population	Total Resident Population 25-54
	1.1 Population	Resident Population 25-54 Male
	1.1 Population	Resident Population 25-54 Female
	1.1 Population	Total Resident Population 55-64
	1.1 Population	Resident Population 55-64 Male
	1.1 Population	Resident Population 55-64 Female
	1.1 Population	Total Resident Population 65-74
	1.1 Population	Resident Population 65-74 Male
	1.1 Population	Resident Population 65-74 Female
	1.1 Population	Total Resident Population 75 and over
	1.1 Population	Resident Population 75 and over Male
	1.1 Population	Resident Population 75 and over Female
Demography	1.2 Nationality	Residents who are Nationals
	1.2 Nationality	Residents who are Nationals of other EU Member State
	1.2 Nationality	Residents who are not EU Nationals
	1.2 Nationality	Nationals born abroad
Demography	1.3 Household structure	Total Number of Households
	1.3 Household structure	One person households Total
	1.3 Household structure	Lone parent households Total
	1.3 Household structure	Lone parent households Male
	1.3 Household structure	Lone parent households Female
	1.3 Household structure	Lone pensioner (above retirement age) households Total
	1.3 Household structure	Lone pensioner (above retirement age) households Male
	1.3 Household structure	Lone pensioner (above retirement age) households Female
	1.3 Household structure	Households with children aged 0 to under 18
	1.3 Household structure	Nationals that have moved into the city during the last two years
	1.3 Household structure	EU Nationals that have moved into the city during the last two years
	1.3 Household structure	Non-EU Nationals that have moved into the city during the last two years

Social aspects	2.1 Housing	Number of dwellings
	2.1 Housing	Number of houses
	2.1 Housing	Number of apartments
	2.1 Housing	Number of households living in houses
	2.1 Housing	Number of households living in apartments
	2.1 Housing	Households owning their own dwelling
	2.1 Housing	Households in Social housing (Only those households that rent social housing)
	2.1 Housing	Households in Private Rented housing (Includes housing provided by the employer)
	2.1 Housing	Number of Homeless persons
	2.1 Housing	Average price for an apartment per m2
	2.1 Housing	Average price for a house per m2
	2.1 Housing	Annual rent for social housing per m2
	2.1 Housing	Average annual rent for an apartment per m2
	2.1 Housing	Average annual rent for a house per m2
	2.1 Housing	Dwellings lacking basic amenities (see def. doc)
	2.1 Housing	Average occupancy per occupied dwelling
	2.1 Housing	Empty conventional dwellings
	2.1 Housing	Non-conventional dwellings
	2.1 Housing	Average area of living accommodation, m2 per person (occupied dwellings only)
Social aspects	2.2 Health	Life expectancy at birth (years)
	2.2 Health	Male life expectancy at birth (years)
	2.2 Health	Female life expectancy at birth (years)
	2.2 Health	Infant Mortality per year- total number of deaths of children aged less than 1 year
	2.2 Health	Male Infant Mortality per year
	2.2 Health	Female Infant Mortality per year
	2.2 Health	Number of live births per year
	2.2 Health	Number of live births per year Male
	2.2 Health	Number of live births per year Female
	2.2 Health	Number of deaths per year under 65 due to heart diseases and respiratory illness
	2.2 Health	Number of deaths per year under 65 due to heart diseases and respiratory illness Male
	2.2 Health	Number of deaths per year under 65 due to heart diseases and respiratory illness Female
	2.2 Health	Total deaths under 65 per year
	2.2 Health	Total deaths under 65 per year Male
	2.2 Health	Total deaths under 65 per year Female
	2.2 Health	Total deaths per year
	2.2 Health	Total deaths per year Male
	2.2 Health	Total deaths per year Female
	2.2 Health	Number of hospital beds within specified boundary
	2.2 Health	Number of hospital patients within specified boundary
	2.2 Health	Number of doctors within specified boundary (FTE)
	2.2 Health	Number of dentists within specified boundary (FTE)

Social aspects	2.3 Crime	Total number of recorded crimes within city (per year)
	2.3 Crime	Number of murders and violent deaths (per year)
	2.3 Crime	Number of car thefts (per year)
Economic aspects	3.1 Labour market	Total Economically Active Population (number) [use ILO definition, age 15-64 in accordance with LFS methodology]
	3.1 Labour market	Economically Active Population Male (number)
	3.1 Labour market	Economically Active Population Female (number)
	3.1 Labour market	Total Economically Active Population 15-24 (number)
	3.1 Labour market	Economically Active Population 15-24 Male (number)
	3.1 Labour market	Economically Active Population 15-24 Female (number)
	3.1 Labour market	Total Economically Active Population 55-64 (number)
	3.1 Labour market	Economically Active Population 55-64 Male (number)
	3.1 Labour market	Economically Active Population 55-64 Female (number)
	3.1 Labour market	Residents Unemployed (ILO Definition) for reference period
	3.1 Labour market	Residents Unemployed Male (ILO Definition) for reference period
	3.1 Labour market	Residents Unemployed Female (ILO Def.) for reference period
	3.1 Labour market	Residents Unemployed 15-24 (ILO Definition), for reference period
	3.1 Labour market	Residents Unemployed 15-24 Male (ILO Definition), for reference period
	3.1 Labour market	Residents Unemployed 15-24 Female (ILO Definition), for reference period
	3.1 Labour market	Residents Unemployed 55-64 (ILO Definition), for reference period
	3.1 Labour market	Residents Unemployed 55-64 Male (ILO Definition), for reference period
	3.1 Labour market	Residents Unemployed 55-64 Female (ILO Definition), for reference period
	3.1 Labour market	Unemployed continuously for more than six months, 15-24
	3.1 Labour market	Unemployed continuously for more than six months, 15-24 Male
	3.1 Labour market	Unemployed continuously for more than six months, 15-24 Female
	3.1 Labour market	Unemployed continuously for more than one year, 55-64
	3.1 Labour market	Unemployed continuously for more than one year, 55-64 Male
	3.1 Labour market	Unemployed continuously for more than one year, 55-64 Female
	3.1 Labour market	Residents in Self Employment
	3.1 Labour market	Residents in Self Employment Male
	3.1 Labour market	Residents in Self Employment Female
	3.1 Labour market	Residents in Paid Employment
	3.1 Labour market	Residents in Paid Employment Male
	3.1 Labour market	Residents in Paid Employment Female
	3.1 Labour market	Total Full-Time Employment (number)
	3.1 Labour market	Male Full-Time Employment (number)
	3.1 Labour market	Female Full-Time Employment (number)
	3.1 Labour market	Total Part-Time Employment (number)
	3.1 Labour market	Male Part-Time Employment (number)
	3.1 Labour market	Female Part-Time Employment (number)
	3.1 Labour market	Total Full-Time Employment 15-24 (number)
	3.1 Labour market	Full-Time Employment 15-24 Male (number)
	3.1 Labour market	Full-Time Employment 15-24 Female (number)
	3.1 Labour market	Total Full-Time Employment 55-64 (number)
	3.1 Labour market	Full-Time Employment 55-64 Male (number)
	3.1 Labour market	Full-Time Employment 55-64 Female (number)
	3.1 Labour market	Total Part-Time Employment 15-24 (number)

	3.1 Labour market	Part-Time Employment 15-24 Male (number)
	3.1 Labour market	Part-Time Employment 15-24 Female (number)
	3.1 Labour market	Total Part-Time Employment 55-64 (number)
	3.1 Labour market	Part-Time Employment 55-64 Male (number)
		Part-Time Employment 55-64 Female (number)
Economic aspects	3.2 Economic activity	GDP (report regional figure if city figures not available)
	3.2 Economic activity	Total resident population of area relating to reported GDP
	3.2 Economic activity	Total employment (work place based) of area relating to reported GDP
	3.2 Economic activity	Companies (with headquarter within the city) quoted on national stock exchange
	3.2 Economic activity	New business registered in reference year
	3.2 Economic activity	Companies gone bankrupt in reference year (number)
	3.2 Economic activity	Total net office floorspace within specified boundary on first day of reference year
	3.2 Economic activity	Vacant net office floorspace within specified boundary on first day of reference year
	3.2 Economic activity	Employment (jobs) in sectors A-B (NACE Rev. 1) NA TA3
	3.2 Economic activity	Employment (jobs) in sectors C-E (NACE Rev. 1)
	3.2 Economic activity	Employment (jobs) in sector F (NACE Rev. 1)
	3.2 Economic activity	Employment (jobs) in sectors G-H (NACE Rev. 1)
	3.2 Economic activity	Employment (jobs) in sector I (NACE Rev. 1)
	3.2 Economic activity	Employment (jobs) in sectors J-K (NACE Rev. 1)
	3.2 Economic activity	Employment (jobs) in sectors L-Q (NACE Rev. 1)
	3.2 Economic activity	Employment (job) in sectors C-F (Nace Rev. 1) NA TA3
	3.2 Economic activity	Employment (job) in sectors G-P (Nace Rev. 1) NA TA3
	3.2 Economic activity	Employment (job) - only employees
	3.2 Economic activity	Employment (job) - only self employed
Economic aspects	3.3 Income disparities and poverty	Median disposable annual household income
	3.3 Income disparities and poverty	Household Income: Highest Quintile 5
	3.3 Income disparities and poverty	Household Income: Quintile 4
	3.3 Income disparities and poverty	Household Income: Quintile 3
	3.3 Income disparities and poverty	Household Income: Quintile 2
	3.3 Income disparities and poverty	Household Income: Lowest Quintile 1
	3.3 Income disparities and poverty	Total Number of Households with less than half of the national average income
	3.3 Income disparities and poverty	Total Number of Households reliant on social security benefits (>50%)
	3.3 Income disparities and poverty	Individuals reliant on social security benefits (>50%)
Civic involvement	4.1 Civic involvement	European Elections: Total electorate (eligible)
	4.1 Civic involvement	European Elections: Total electorate (registered)
	4.1 Civic involvement	European Elections: Total votes counted
	4.1 Civic involvement	National Elections: Total electorate (eligible)

	4.1 Civic involvement	National Elections: Total electorate (registered)
	4.1 Civic involvement	National Elections: Total votes counted
	4.1 Civic involvement	City Elections: Total electorate (eligible)
	4.1 Civic involvement	City Elections: Total electorate (registered)
	4.1 Civic involvement	City Elections: Total votes counted
	4.1 Civic involvement	City Elections: Electorate aged less than 25
	4.1 Civic involvement	City Elections: Total votes counted by voters aged less than 25
	4.1 Civic involvement	Total number of elected city representatives
	4.1 Civic involvement	Number of Male elected city representatives
		Number of Female elected city representatives
Civic involvement	4.2 Local administration	Total Municipality Authority Income
	4.2 Local administration	Municipality Authority Income derived from local taxation
	4.2 Local administration	Municipality Authority Income derived from transfers from national, state, regional or provincial government (total)
	4.2 Local administration	Municipality Authority Income derived from charges for services
	4.2 Local administration	Municipality Authority Income derived from "other" sources, (e.g. sale of assets, etc)
	4.2 Local administration	Total Municipality Authority Expenditure (excl. central or regional government, outsourced tasks
	4.2 Local administration	Total number of persons directly employed by the local administration (excl. central or regional government, outsourced tasks
	4.2 Local administration	Number of persons directly employed by the local administration in central administration
	4.2 Local administration	Number of persons directly employed by the local administration in education
	4.2 Local administration	Number of persons directly employed by the local administration in health and social services
	4.2 Local administration	Number of persons directly employed by the local administration in public transport
	4.2 Local administration	Number of persons directly employed by the local administration in other
Training and education	5.1 Education and training provision	Number of children 0-4 in day care
	5.1 Education and training provision	Number of children 0-4 in private day care
	5.1 Education and training provision	Number of children 0-4 in public day care
	provision	Number of children 0-4 in other day care e.g. Church
	5.1 Education and training provision	Students leaving compulsory education without having a diploma or other qualification of ISCED level 2
	5.1 Education and training provision	Students continuing education and training (in the reference year) after completing compulsory education
	5.1 Education and training provision	Male students continuing education and training (in the reference year) after completing compulsory education

	5.1 Education and training provision	Female students continuing education and training (in the reference year) after completing compulsory education
	5.1 Education and training provision	Students in upper and further education (ISCED level 3-4) (in the reference year)
	5.1 Education and training provision	Male students in upper and further education (ISCED level 3-4) (in the reference year)
	5.1 Education and training provision	Female students in upper and further education (ISCED level 3-4) (in the reference year)
	5.1 Education and training provision	Students in higher education (ISCED level 5-6) (in the reference year)
	5.1 Education and training provision	Male students in higher education (ISCED level 5-6) (in the reference year)
	5.1 Education and training provision	Female students in higher education (ISCED level 5-6) (in the reference year)
Training and education	5.2 Educational qualifications	Total number of residents qualified at ISCED level 1
	5.2 Educational qualifications	Number of Male residents qualified at ISCED level 1
		Number of Female residents qualified at ISCED level 1
	5.2 Educational qualifications	
	5.2 Educational qualifications	Number of male residents qualified at ISCED level 2
	5.2 Educational qualifications	Number of female residents qualified at ISCED level 2
	5.2 Educational qualifications	Total number of residents qualified at ISCED levels (3-4)
	5.2 Educational qualifications	Number of male residents qualified at ISCED levels (3-4)
	5.2 Educational qualifications	Number of female residents qualified at ISCED levels (3-4)
	5.2 Educational qualifications	Total number of residents qualified at ISCED levels (5-6)
	5.2 Educational qualifications	Number of male residents qualified at ISCED levels (5-6)
	5.2 Educational qualifications	Number of female residents qualified at ISCED levels (5-6)
Environment	6.1 Climate / geography	Average temperature of warmest month (oC) (in the reference year)
	6.1 Climate / geography	Average temperature of coldest month (oC) (in the reference year)
	6.1 Climate / geography	Rainfall (litre/m2) in the reference year
	6.1 Climate / geography	Number of days of rain per annum in the reference year
	6.1 Climate / geography	Total number of hours of sunshine per day in the reference year
Environment	6.2 Air quality and noise	Winter Smog: Number of days per year sulphur dioxide SO2 concentrations exceed 125 µg/m3 (24 hours averaging time)
	6.2 Air quality and noise	Summer Smog: Number of days per year ozone O3 concentrations exceed 120 µg/m3 (8 hours averaging time)
	6.2 Air quality and noise	Number of days per year nitrogen dioxide NO2 concentrations exceed 200 µg/m3 (1 hour averaging time)
	6.2 Air quality and noise	Number of days per year particulate matter PM10 concentrations exceed 50 µg/m3 (24 hour averaging time)
		Concentration of lead Pb in ambient air in µg/m3 (1 year averaging time)
	6.2 Air quality and noise	Number of residents exposed to outdoor day noise levels above 55 dB(A) (12 hour day, normally 07-19)

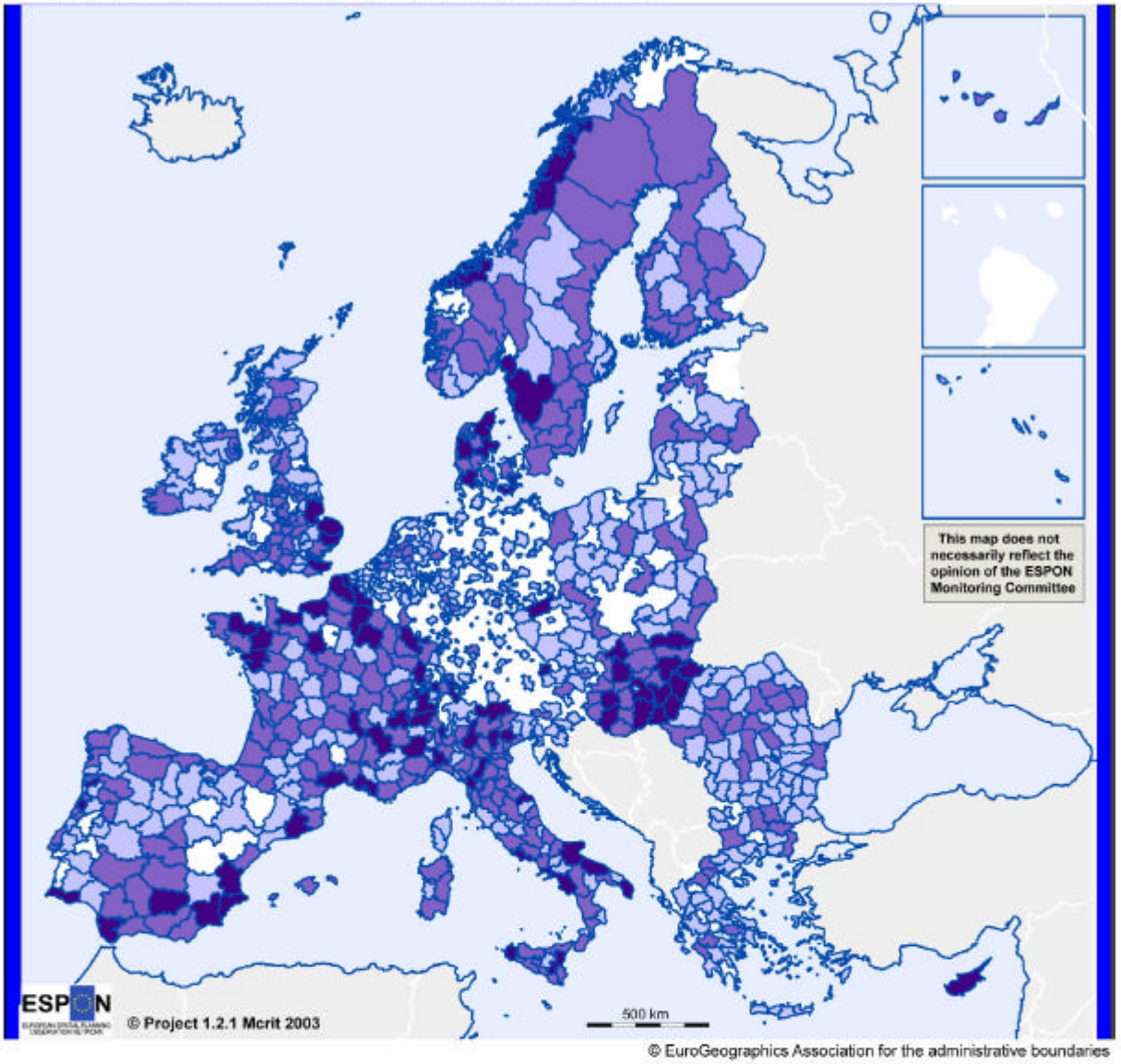
	6.2 Air quality and noise	Number of residents exposed to sleep disturbing outdoor night noise levels above 45 dB(A) (8 hours night, normally 23-07)
	6.2 Air quality and noise	Total carbon dioxide CO2 emissions (tonnes)
	6.2 Air quality and noise	Total carbon monoxide CO emissions (tonnes)
	6.2 Air quality and noise	Total methane CH4 emissions (tonnes)
	6.2 Air quality and noise	Total non-methane volatile organic compounds NVOC emissions (tonnes)
	6.2 Air quality and noise	Total sulphur dioxide SO2 emissions (tonnes)
		Total nitrogen dioxide NO2 emissions (tonnes)
Environment	6.3 Water	Total number of annual tests (on all parameters) on drinking water quality samples taken from within the specified boundary in the reference year
	6.3 Water	Number of annual determinations which exceed the prescribed concentration values (Directive 80/778/EEC)
	6.3 Water	Total consumption of water (cubic meters per annum) by all users
	6.3 Water	
	6.3 Water	Number of dwellings connected to sewerage treatment system, excluding individual cesspools
	6.3 Water	
	6.3 Water	Number of scheduled water cuts, days per year (in reference year)
Environment	6.4 Waste management	the designated boundary
	6.4 Waste management	Annual amount of solid waste (domestic and commercial) arising within the boundary that is processed by landfill.
	6.4 Waste management	Annual amount of solid waste (domestic and commercial) arising within the boundary that is processed by incinerator
	6.4 Waste management	Annual amount of solid waste (domestic and commercial) that is recycled
	6.4 Waste management	Annual amount of solid waste (domestic and commercial) given to other disposal
	6.4 Waste management	Annual amount of toxic waste produced within the boundaries
Environment	6.5 Land use	Total urban area (km2), sum of the LUCAS Land cover categories A+B+C+D+E+F+G
	6.5 Land use	Water and wetland, LUCAS land cover category G
	6.5 Land use	Green space area, Sum of the LUCAS land cover categories B, C, D, E
	6.5 Land use	Land used for agricultural purposes, LUCAS land use category U11
	6.5 Land use	Land area in mineral extraction, LUCAS Land use category U14
	6.5 Land use	Land area in industrial and manufactory use, LUCAS Land use category U22
	6.5 Land use	Land area in road network use, LUCAS Land use category U31.11
	6.5 Land use	Land area in rail network use, LUCAS Land use category U31.12
	6.5 Land use	Land area in ports use, LUCAS Land use category U31.13
	6.5 Land use	Land area in airports use, LUCAS Land use category U31.14
		Land area in water treatment use, LUCAS Land use category U32.1
	6.5 Land use	Land area in waste disposal use, LUCAS Land use category U32.2
	6.5 Land use	Land area in commerce, finance and business use, LUCAS Land use category U34
	6.5 Land use	Land area in recreational, sports and leisure use, LUCAS Land use category U36
		Land area in housing/residential use, LUCAS Land use category U37

	6.5 Land use	Unused areas, including contaminated or derelict land areas, LUCAS Land use category U40
	6.5 Land use	Urban area subject to special /physical planning conservation measures
	6.5 Land use	Green space to which the public has access (hectares), Public parks and gardens, open-air sports facilities, and private agricultural areas and parks accessible free of charge
		Population within 15 minutes walking distance of urban green areas
Environment	6.6 Energy use	Total petrol and gaz use for private heating, Mtoe (estimate)
		Total petrol use for private and commercial transport, Mtoe (estimate)
	6.6 Energy use	Total electricity use (1000 kWh)
	6.6 Energy use	Total electricity use by the transport sector
	6.6 Energy use	Total electricity use by the industrial sector
	6.6 Energy use	Total electricity use by the domestic sector
	6.6 Energy use	Total electricity use by the commercial (service) sector
	6.6 Energy use	Total natural gas use (Mtoe)
Travel & Transport	7.1 Travel patterns	Percentage of journeys to work by rail/metro (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by car (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by bus (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by tram (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by motor cycle (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by bicycle (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by foot (per year) of people working in reference area
	7.1 Travel patterns	Percentage of journeys to work by other modes (per year) of people working in reference area
	7.1 Travel patterns	Average time of journey to work (minutes)
	7.1 Travel patterns	Average speed of inner-city traffic (km/hour)
	7.1 Travel patterns	Average waiting time for a bus (minutes) in the rush hour
	7.1 Travel patterns	People commuting into the city
	7.1 Travel patterns	People commuting out of the city
	7.1 Travel patterns	
	7.1 Travel patterns	Public transport supply: Number of places times kilometre driven
	7.1 Travel patterns	Number of private cars registered within the specified boundary
	7.1 Travel patterns	Road accidents resulting in death or serious injury (Number)
	7.1 Travel patterns	Average number of occupants of motor cars
Information society	8.1 Users & Infrastructure	Number of households with a PC
	8.1 Users & Infrastructure	Percent of population over 15 years who regularly (at least weekly) use the Internet
	8.1 Users & Infrastructure	Number of telephony main lines within the city
	8.1 Users & Infrastructure	Households with broad band access
	8.1 Users & Infrastructure	Percentage of households with Internet access at home

	8.1 Users & Infrastructure	Computers per 100 pupils at primary education level (ISCED level 1)
	8.1 Users & Infrastructure	
	8.1 Users & Infrastructure	Number of students of ICT at university level or equivalent (ISCED levels 5 and 6)
		Number of public Internet access points (PIAPs)
Information society	8.2 Local e-Government	Official city Internet web site (Yes/No)
	8.2 Local e-Government	Number of visits to official city Internet web site
	8.2 Local e-Government	Number of administrative forms available for download from official web site
	8.2 Local e-Government	Number of administrative forms which can be submitted electronically
Information society	8.3 ICT sector	Number of local units manufacturing ICT products
	8.3 ICT sector	Number of persons employed in manufacture of ICT products
	8.3 ICT sector	
	8.3 ICT sector	Number of persons employed in provision of ICT services
	8.3 ICT sector	Number of local units producing content for the Information Society
	8.3 ICT sector	Number of persons employed in production of content for the Information Society
Culture and recreation	9.1 Culture and recreation	Concerts (per year), Includes all concerts in buildings or open-air areas, for which tickets are sold.
	9.1 Culture and recreation	Concert attendance (per year),Includes all concerts in buildings or open-air areas, for which tickets are sold.
	9.1 Culture and recreation	
	9.1 Culture and recreation	Number of cinema seats (total capacity)
	9.1 Culture and recreation	Cinema attendance (per year)
	9.1 Culture and recreation	Number of museums
	9.1 Culture and recreation	Number of museum visitors (per year)
	9.1 Culture and recreation	Number of theatres
	9.1 Culture and recreation	Number of theatre seats
	9.1 Culture and recreation	Theatre attendance (per year)
	9.1 Culture and recreation	Number of public libraries (all distribution points)
	9.1 Culture and recreation	Number of books and other media loaned from public libraries (per year)
Culture and recreation	9.2 Tourism	Total annual tourist overnight stays in registered accommodation, located within specified boundary, in reference year
	9.2 Tourism	Number of available beds
	9.2 Tourism	Annual number of air passengers using nearest airport
	9.2 Tourism	Annual number of air passengers using nearest airport: Total arrivals (excluding in-transit)
		Annual number of air passengers using nearest airport: Domestic arrivals
	9.2 Tourism	Annual number of air passengers using nearest airport: Total departures (excluding in-transit)
	9.2 Tourism	Annual number of air passengers using nearest airport: Domestic departures

MAPS

Number of Functional Urban Areas in each NUTS3



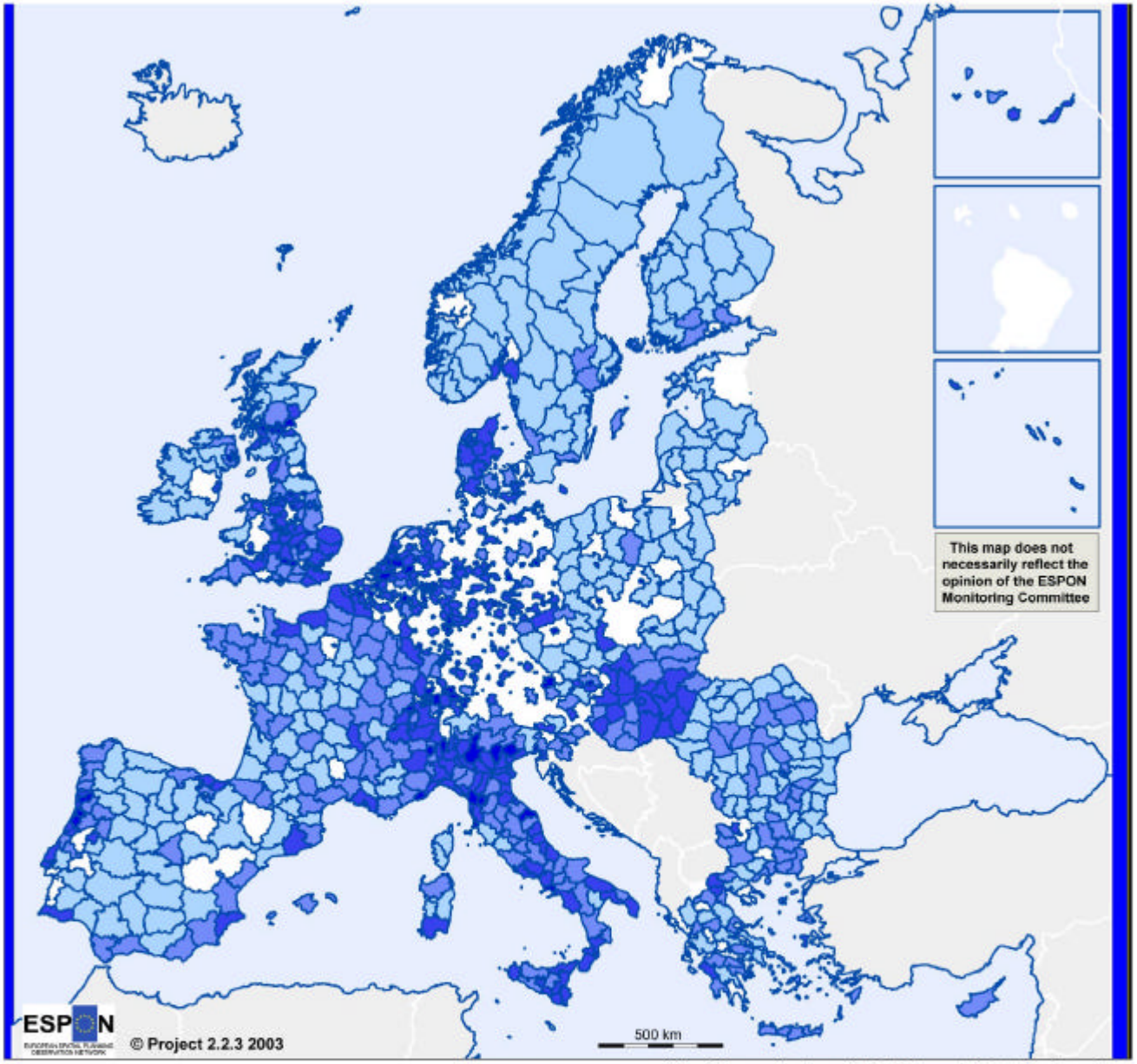
Number of FUAs

- 1
- 2-3
- 4-11

Origin of data: ESPON Data Base

Source: ESPON Data Base

Functional Urban Areas Density: number of FUAs per NUTS3 surface



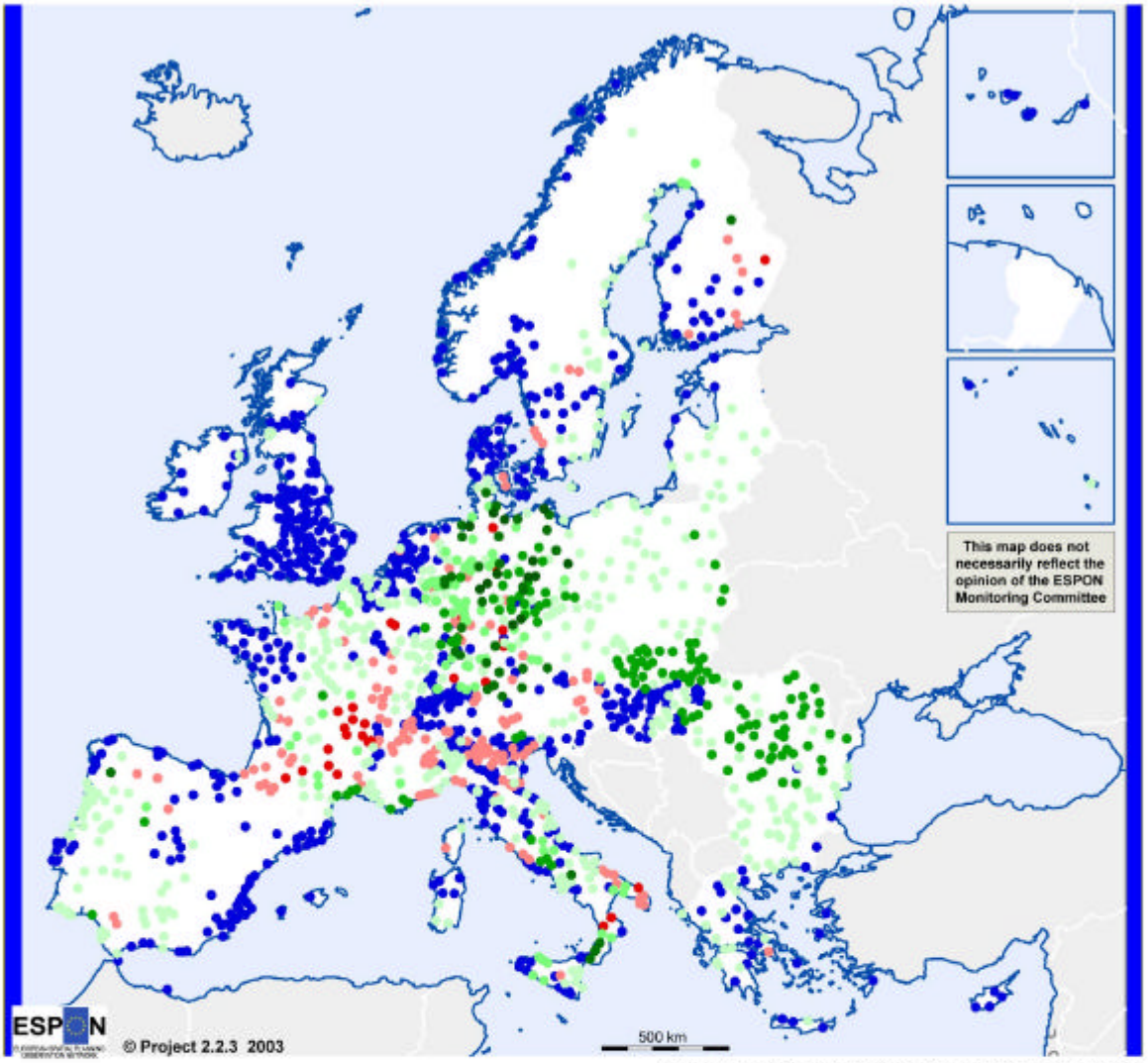
Density (1000*number of FUAs/km2)

- Very high density (84)
- High density (2)
- Average density (0,7)
- Low density (0,3)
- Very low density (0,02)

Origin of data: ESPON Data Base

Source: ESPON Data Base

Project 2.2.3. Typology of Urban Areas



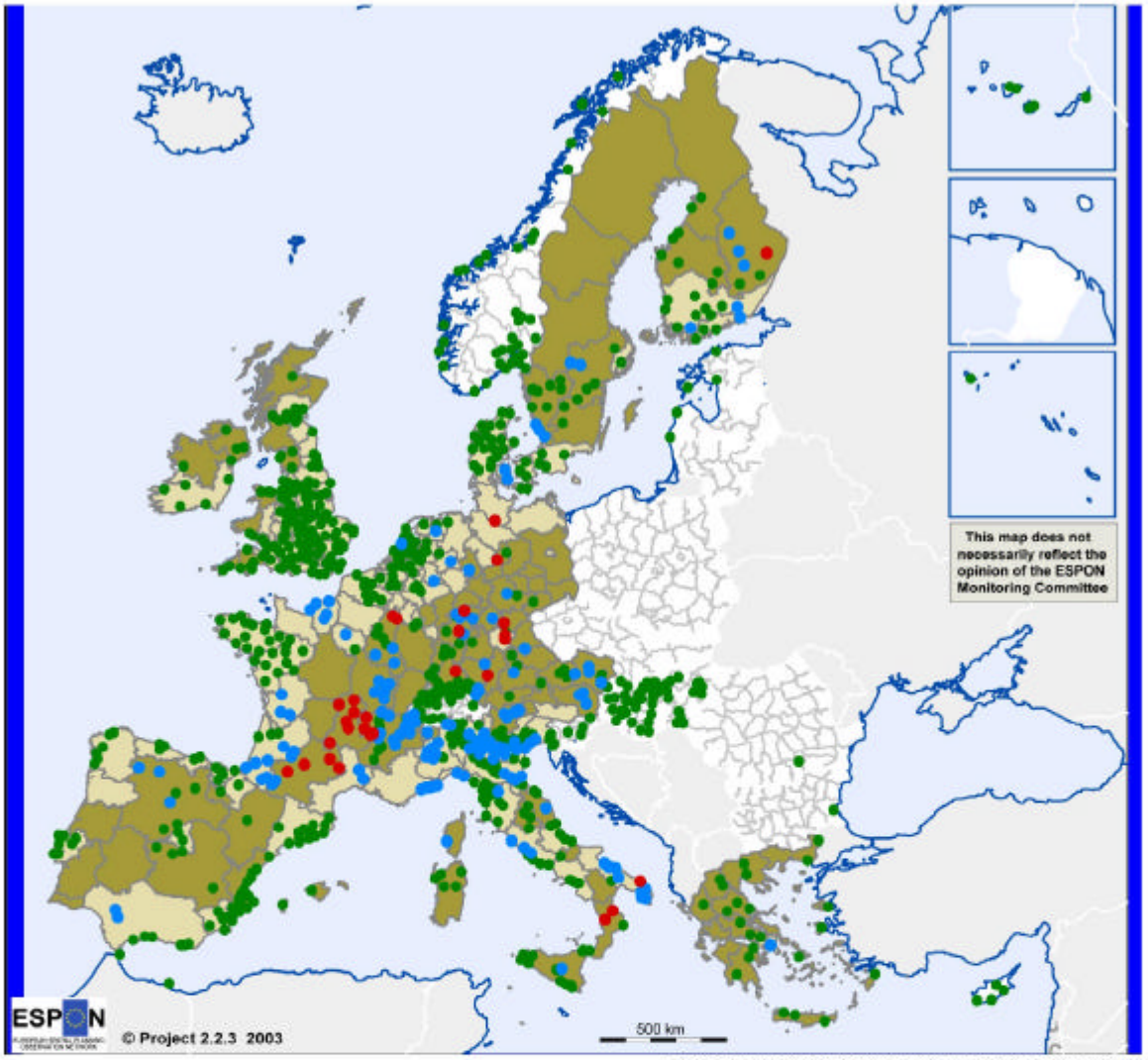
Project 2.2.3 Typology Urban Areas

- AA
- AB
- AC
- AD
- AE
- BA
- BB
- C

Origin of data: ESPON Data Base

Source: ESPON Data Base

FUAs in relative or no difficulty in relation to connectivity to transport networks



Connectivity to Transport Networks

Origin of data: ESPON Data Base

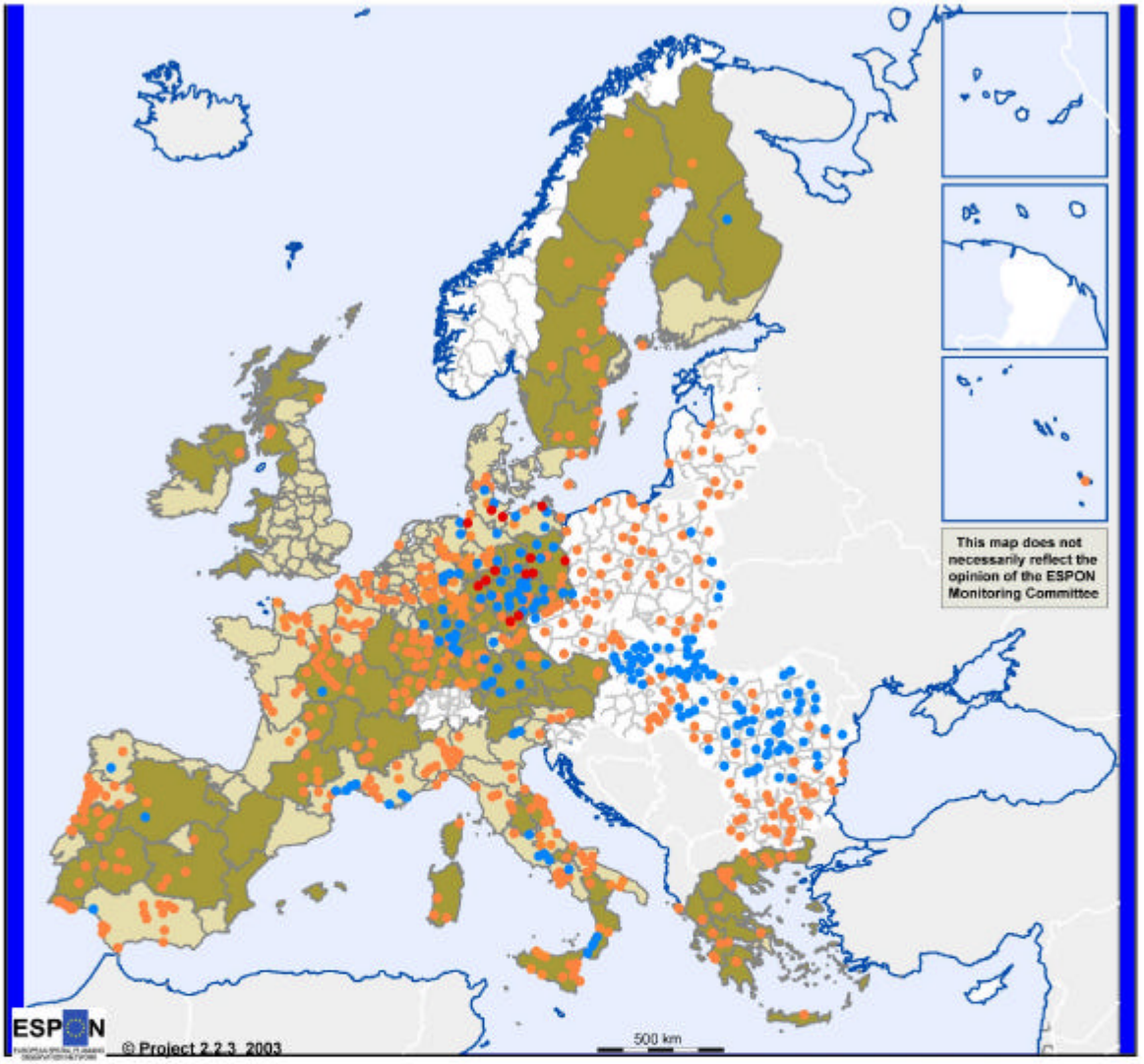
Source: ESPON Data Base

- 0 to 0,50 hours
- 0,51 hours and more

Urban type according to project 2.2.3 typology

- BA
- BB
- C

FUAs in absolute difficulty in relation to connectivity to transport networks



Regional SF spending per capita (1994-1999)

Origin of data: ESPON Data Base

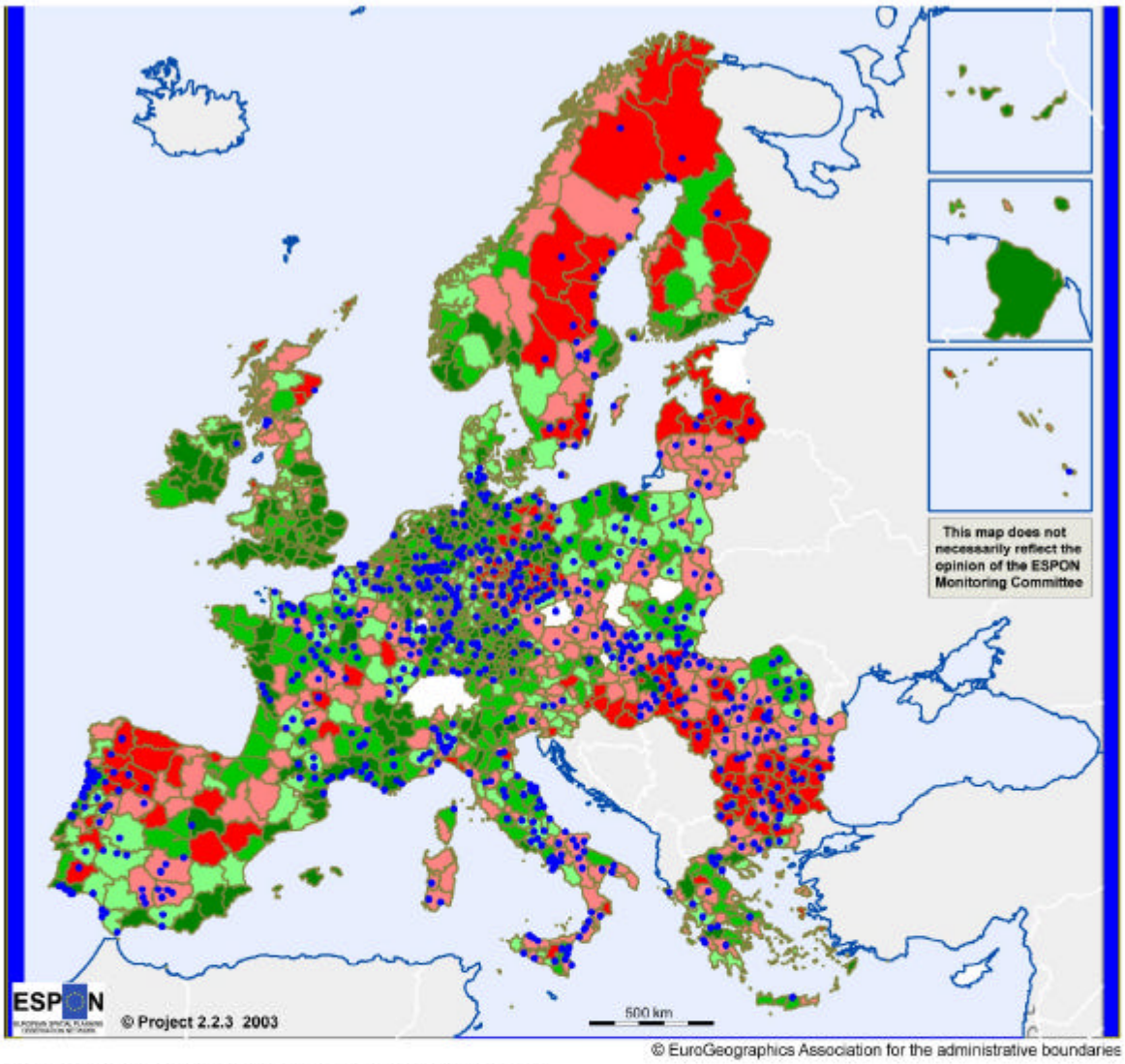
Source: ESPON Data Base

- 0 to 0,50 hours
- 0,51 hours or more

Urban type according to project 2.2.3 typology

- AA
- AB and AC
- AD and AE

Urban areas in absolute difficulty in relation to regional percentage population growth (1994-1999)



Percentage population growth 1994-1999

- -35 to -1.5
- -1.5 to 0
- 0 to 1.0
- 1.0 to 2.5
- 2.5 to 35

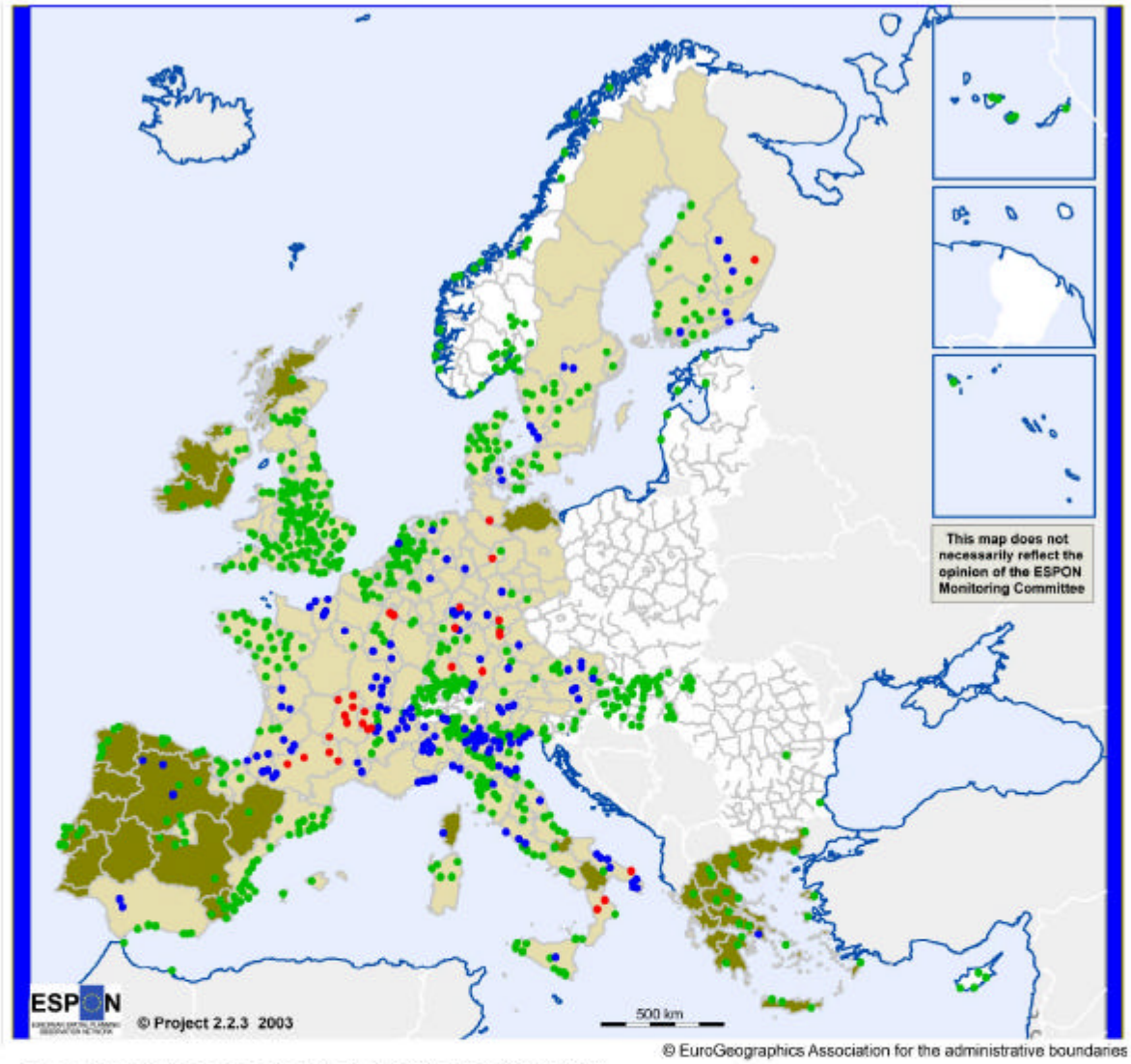
Origin of data: ESPON Data Base

Source: ESPON Data Base

Urban type according to project 2.2.3 typology

- Urban areas in absolute difficulty

FUAs in relative or no difficulty in relation to SF spending per capita (1994-1999)



Regional SF spending per capita (1994-1999)

- 0 to 900 EURO
- >900 EURO

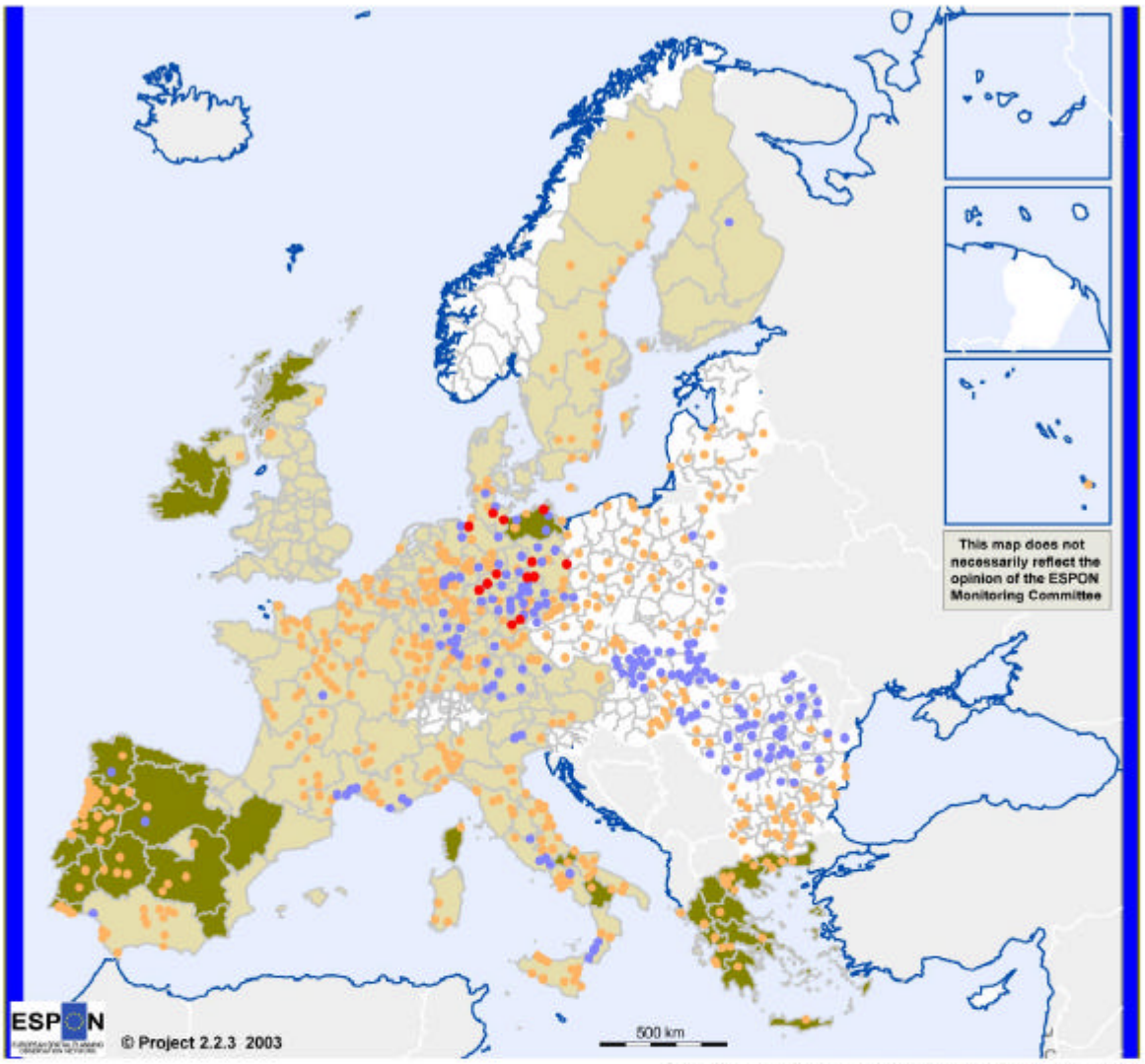
Origin of data: ESPON Data Base

Source: ESPON Data Base

Urban type according to project 2.2.3 typology

- BA
- BB
- C

FUAs in absolute difficulty in relation to SF spending per capita (1994-1999)



Regional SF spending per capita (1994-1999)

Origin of data: ESPON Data Base

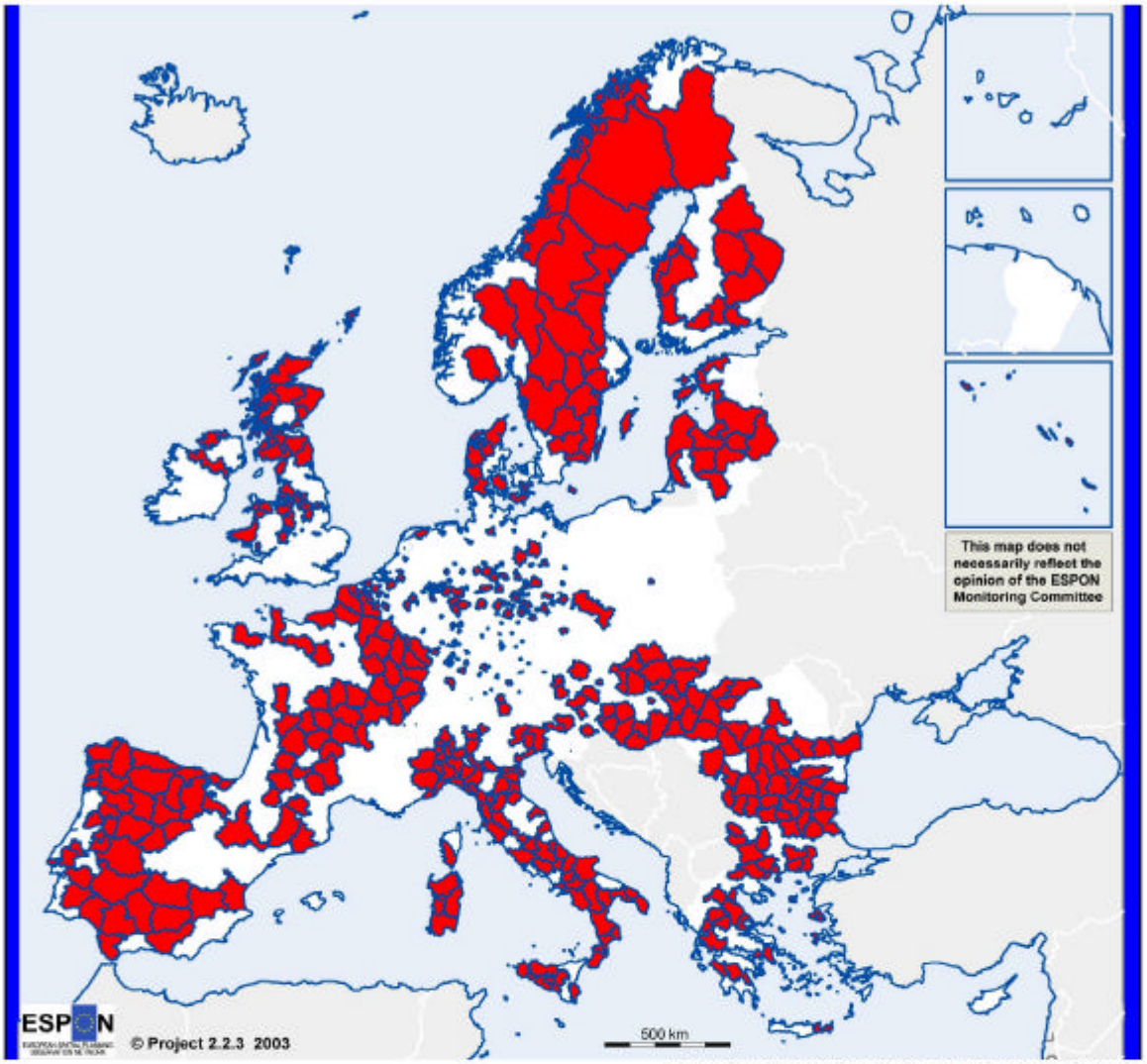
Source: ESPON Data Base

- 0 to 900 EURO
- >900 EURO

Urban type according to project 2.2.3 typology

- AA
- AB and AC
- AD and AE

Population Index



Population Index

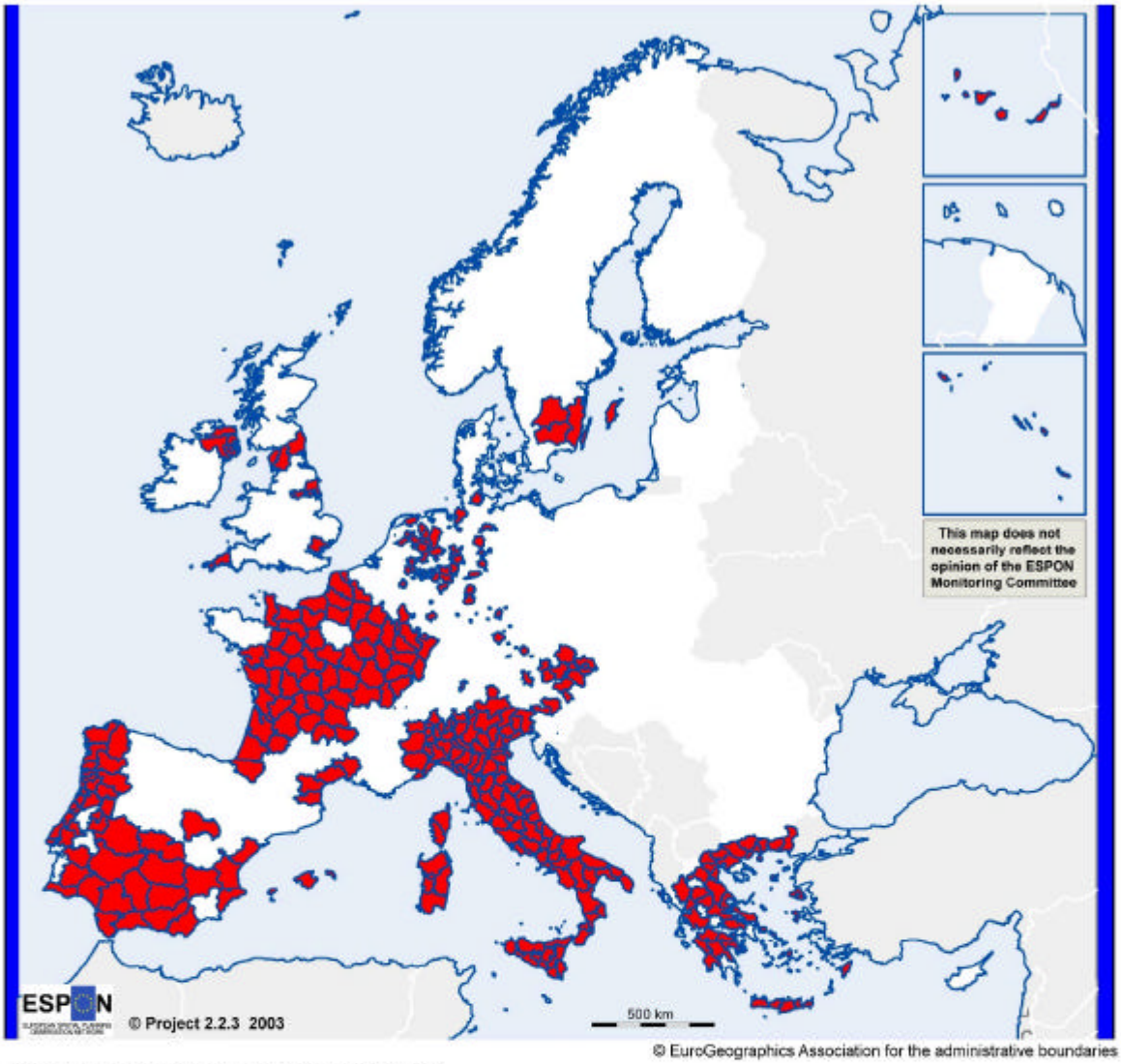
Origin of data: ESPON Data Base

Changes are lower than or equal to the transnational average

Other and non valid data index

Source: ESPON Data Base

Social Indicator: Education



Social Indicator: Education Index

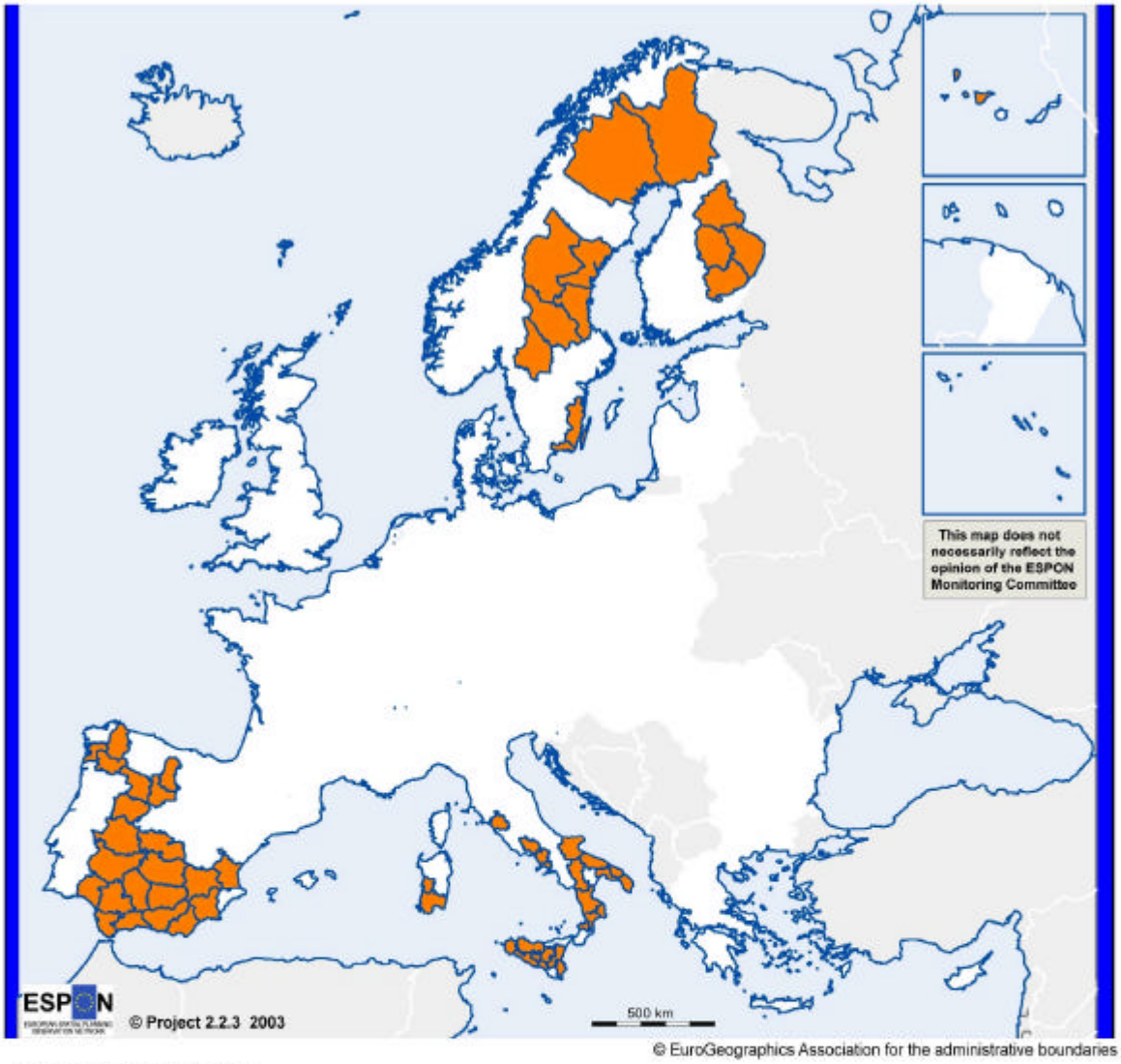
Below average

Other and non valid data index

Origin of data: ESPON Data Base

Source: ESPON Data Base

Economic Activity



Economic Activity

Origin of data: ESPON Data Base

Below 90% of national average

Other and non valid data index

Source: ESPON Data Base

Regions with dependency on manufacturing based on NACE codes

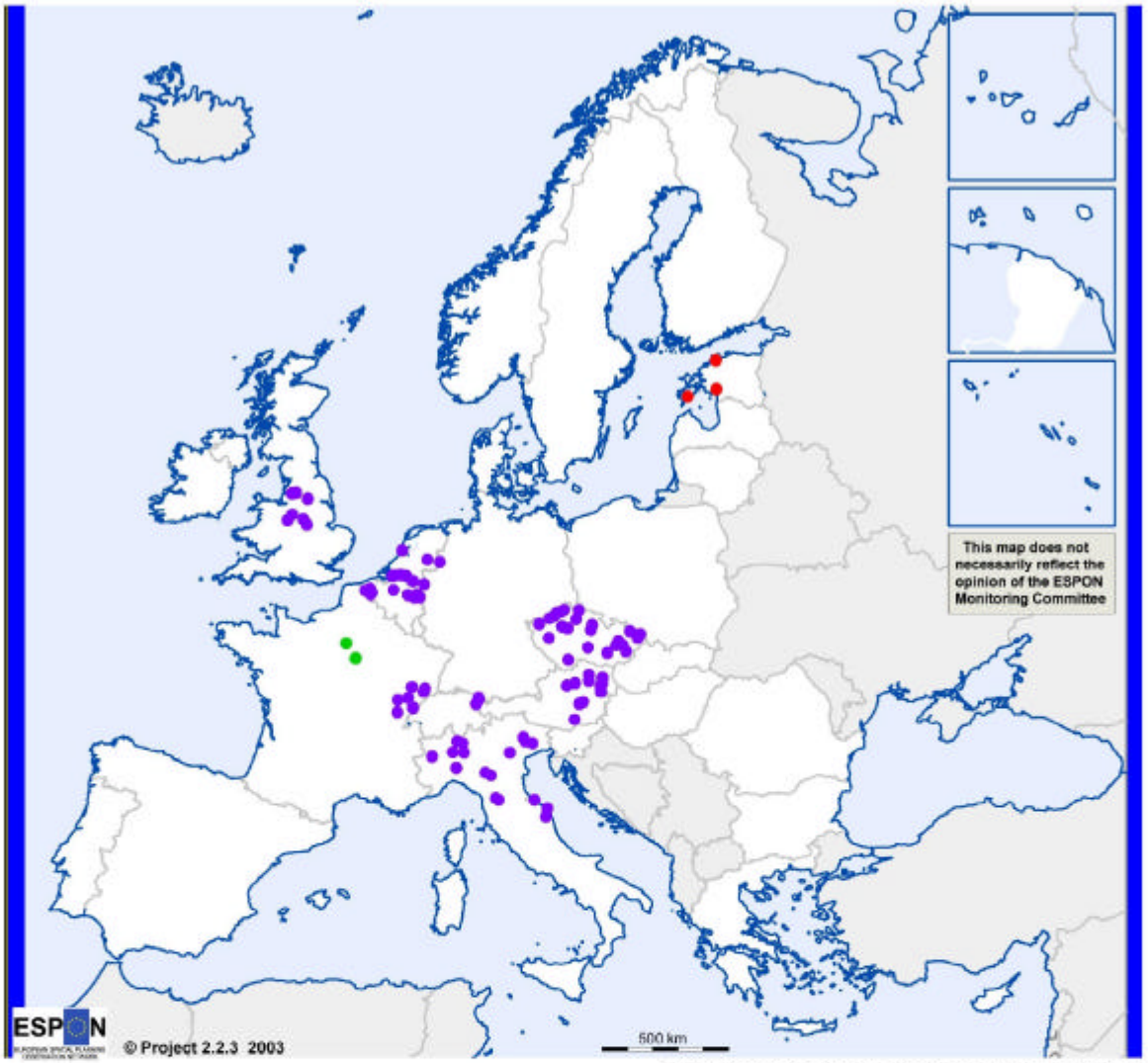
Regions with dependency on manufacturing

Origin of data: ESPON Data Base

Source: ESPON Data Base

- Medium reliance
- High reliance

High reliance on industry by subsector based on NACE codes



Reliance on industry by NACE subsector

Origin of data: ESPON Data Base

Source: ESPON Data Base

- Manufacturing
- Trade repair and consumer articles
- Renting and business activities
- Space with non-reliant urban areas in other NACE sectors