

Territorial Impact of EU Transport and TEN Policies

**Proposal for a Research Project
for Action 2.1.1 of the
European Spatial Planning Observatory Network
ESPON 2006**

24 May 2002

**Institute of Regional Research
Christian-Albrechts University of Kiel**

Contents

1.	The Consortium.....	3
1.1	The Tenderer	3
1.2	The Contractors	4
1.3	Conditions of Exclusion	6
1.4	Selection Criteria	6
1.5	Researchers	9
1.6	Projects	14
1.7	Project Organisation and Management	21
2.	Objectives	24
2.1	Overall Goal	24
2.2	Specific Objectives	25
2.3	Expected Results	26
3.	Policy Analysis of EU Transport and TEN Policies	28
3.1	Policies and Impacts to be Assessed	28
3.2	Assessment of Territorial Impacts: State of the Art	30
3.3	Innovation of the Proposed Methodology	32
4.	The Proposed Methodology	33
4.1	Spatial Monitoring	33
4.2	Spatial Forecasting	37
4.3	Institutional Issues	39
4.4	Policy Recommendations	40
5.	Project Work Plan	42
5.1	Project Structure	42
5.2	Work Packages	44
	- WP 1: Project Planning	45
	- WP 2: Indicators, Databases and Mapping	46
	- WP 3: Cohesion Indicators	47
	- WP 4: Forecasting Methods	48
	- WP 5: Forecasting	49
	- WP 6: Institutional Issues	50
	- WP 7: Recommendations	51
	- WP 8: Project Co-ordination	52
5.3	Interaction with other ESPON Projects	53
5.4	Project Planning and Time Table	54
6.	Project Costs	56
7.	References	58
8.	Appendix: Letters of Commitment and Absence of Conflict	60

2. Objectives

This section summarises the overall goals of ESPON and the specific objectives and expected results of ESPON 2.1.1 based on the Terms of Reference of ESPON 2.1.1.

2.1 Overall Goal of ESPON

According to the Terms of Reference of ESPON 2.1.1, the projects launched under the ESPON programme shall follow an integrated approach and, seen together,

- identify the *decisive factors relevant for a more polycentric European territory*, such as accessibility of a wide range of services in the context of enlargement, integration of wider trans-national spaces, promotion of dynamic urban growth centres, linking peripheral and disadvantaged areas with those centres, etc.,
- 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,
- develop *tools supporting diagnoses of principal structural difficulties as well as potentialities*, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at trans-national, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy, etc.,
- investigate *territorial impacts of sectoral and structural policies* in order to enhance synergy and well co-ordinated decisions relevant for territorial development within policy fields, such as Structural Funds, agriculture, transport, environment, research and development, and develop methods for measuring the territorial impact of sectoral and structural policies, etc.,
- develop *integrated tools in support of a balanced and polycentric territorial development*, such as approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: *a diagnosis of the principal territorial trends* at EU scale as well as the difficulties and potentialities within the European territory as a whole, *a cartographic picture of the major territorial disparities* and of their respective intensity, a number of *territorial indicators and typologies assisting a setting of European priorities* for a balanced and polycentric enlarged European territory and some *integrated tools and appropriate instruments* (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

2.2 Specific Objectives of ESPON 2.1.1

According to Section (ii) of the Terms of Reference, ESPON 2.1.1 concentrates on the evaluation of territorial effects of the trans-European transport, energy and telecommunication networks (TEN).

The major questions under this action is how far the TENs provide the right answers for a territorial development as described in the European Spatial Development Perspective (ESDP). The measures proposed in the White Paper "European Transport Policy for 2010: Time to Decide" (COM 2001/370) should provide the framework for the subject investigated under this action. Reference has to be made to the policy options developed in the cross-sectoral approach of the ESDP. The ESDP stresses the need for an integrated approach for improved transport links, makes reference to the polycentric development model, highlights the efficient and sustainable use of infrastructure and refers to the importance of the diffusion of innovation and knowledge. This integrated approach should be followed in analysing transport and telecommunication networks. Any analysis should take into account the principle of territorial balance, the particular problems of peripheral regions and the improvement of secondary networks.

According to Section (iii) of the Terms of Reference, ESPON 2.1.1 is to:

- develop *methods for the assessment of territorial impacts* of EU transport and TEN policies;
- develop *territorial indicators, typologies and concepts*, establish *database and map-making facilities* and conduct *empirical statistical data analyses*,
- analyse *territorial trends, potentials and problems* deriving from EU transport and TEN policies at different scales and in different parts of an enlarged European territory,
- show the *influence of transport, telecommunications and energy 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,
- find *appropriate instruments to improve the spatial co-ordination of EU and national sector policies and the ESDP*,
- provide *input for the achievement of the horizontal projects* under ESPON Priority 3 (in particular ESPON 3.1).

To meet these objectives the project shall make best use of existing research and relevant studies. Any overlap to ESPON project 1.2.1. and 1.2.2. concerning infrastructure and telecommunication access, as well as policy impacts addressed under measure 2.1., have to be avoided by a strong co-ordination of the projects.

2.3 Expected Results

According to Section (v) of the terms of Reference, ESPON 2.1.1 is expected to produce four reports: three interim reports and one final report, with the following contents:

First Interim Report

The First Interim Report (Project Month 3) will contain the following information:

- (a) Consensus on indicators and necessary data after analysis of the availability and comparability of data at Community level. For this analysis, the results of the Study Programme on European Spatial Planning (SPESP) and the expected results of other ESPON projects, in particular ESPON 3.1, should be taken into account. The report should also define the appropriate geographical level for data collection taking into account the availability of data. A first list of statistical and geographical data to be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies should be provided.
- (b) First outline of the methodology of the impact analysis and the EU transport and TEN policies to be assessed.

Second Interim Report

The Second Interim Report (Project Month 8) will contain the following information:

- (c) Development of the database, indicators and map-making considering the progress of the other ESPON projects.
- (d) A second revised and extended list of data to be collected from Eurostat and the EEA.
- (e) Presentation of the methods for the assessment of territorial impacts.
- (f) Definition of appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information.
- (g) Presentation of hypotheses on the territorial effects of relevant measures of EU transport and TEN policies.

Third Interim Report

The Third Interim Report (Project Month 14) will contain the following information:

- (h) Application of the methods for the assessment of territorial impacts and analysis of the hypotheses previously developed.
- (i) Presentation of tentative results of the research undertaken so far giving a first analysis and diagnosis of the transport sector in Europe and the existing territorial imbalances and regional disparities in transport infrastructure as well as tentative results on the spatial effects at EU level and in Member States in terms of economic development and other spatial criteria (including databases, indicators and maps).

- (j) First propositions on improvement of EU transport and TEN policies and related instruments,
- (k) First proposition on the institutional aspects of the spatial co-ordination between EU transport and TEN policies and other EU sector policies and for a better co-operation between EU transport and TEN policies at the EU, national and regional level.

Final Report

The Final Report (Project Month 26) will contain the following information:

- (l) Improvement of the methodology and the analysis taking into account the results of the Third Interim Reports of the other ESPON projects in particular with regard to the candidate countries.
- (m) Comprehensive presentation of territorial impacts related to the enlarged European Union (27 countries).
- (n) Formulation of conclusions and proposition of possible thematic policy adjustments regarding EU transport and TEN policies in order to avoid unintended spatial effects in relation to the ESDP and the Structural Funds.
- (o) Definition of institutional settings and instruments, which could support a better co-ordination of EU transport and TEN policies towards spatial concerns.
- (p) Presentation of new territorial indicators and EU databases including candidate and possibly neighbouring countries.
- (q) Formulation of further research necessary in the policy field.

3. Policy Analysis of EU Transport and TEN Policies

This chapter presents the scope, methodology and innovation of the proposed project. It starts with a definition of the policies and impacts to be assessed, outlines the proposed methodology and compares it to existing methods of assessment of spatial impacts of EU transport and TEN policies and points out in which aspects the proposed methodology is innovative.

3.1 Policies and Impacts to be Assessed

The objectives and expected results indicated in Sections (ii), (iii) and (v) of the Terms of Reference of ESPON 2.1.1, identify ESPON 2.1.1 as an effort to establish a system for monitoring and forecasting spatial impacts of EU transport and TEN policies.

However, Section (vi) of the Terms of Reference refers to many aspects beyond the scope of a spatial monitoring system, such as policy levels, actors, institutions, organisations and political processes, or which require a spatial resolution below NUTS-3 regions, such as polycentric structure, urban-rural relations, development corridors or 'sustainable' regions. Section (vi) also demands the collection of indicators which are not territorial impacts and which are to be collected in ESPON Action 1.2.1, such as freight and passenger transport and vehicles and infrastructure used, freight transport by road, rail, inland waterways and maritime shipping, national freight and passenger transport statistics (road, rail, air), national car ownership statistics, national traffic safety statistics, regional transport infrastructure supply and road freight transport within and between the regions in the EU. Another area of overlap with Action 1.2.1 are transport system output indicators, such as accessibility, connectivity, inter- and multi-modality or sustainable use of infrastructure. Moreover, Section (vi) demands an analysis of the interactions between EU transport and TEN policies and other territorially relevant Community policies, which is a major effort of qualitative policy-science research.

A complete coverage of all the aspects referred to in Section (vi) of the Terms of Reference would by far exceed the given limits of project duration and project budget and would lead to unacceptable overlap with other ESPON projects. One important step towards a feasible work programme is therefore a concrete and precise definition of the *scope* of the indicators, databases and mapping and modelling tools to be developed. The following paragraphs distinguish between *core* elements, which will be treated with certainty in the project and *additional* elements, which will be addressed in qualitative terms as permitted by time and budget constraints.

Policies

The European Spatial Development Perspective (ESDP) links the three goals economic and social cohesion, conservation of natural resources and cultural heritage, and a more balanced competitiveness of the European territory (ESDP, 1999, 10). Spatial development policies should promote sustainable development of the EU through a "balanced spatial structure" by "development of a balanced and polycentric urban system and a new urban-rural relationship", "securing parity of access to infrastructure and knowledge" and "sustainable development, prudent management and protection of nature and cultural heritage".

With these objectives in mind, in the proposed project, the term "EU transport and TEN policies" will be interpreted as comprising

- all EU transport policies, including both spatial policies, such as investment or subsidy decisions directly affecting European transport networks (in particular the trans-European transport networks or TEN-T) and non-spatial transport policies, such as agreements or regulations on transport standards, taxation or pricing, and
- policies affecting the trans-European networks (TEN) in the fields of telecommunications and energy.

Non-spatial policies in the fields of telecommunications and energy, such as deregulation of telecommunications and energy markets, or policies aiming at securing the long-term energy supply of Europe as laid down in the Green Paper "Towards a European Strategy for the Security of Energy Supply" (COM 2000/769) will be dealt with as additional aspects.

Transport modes considered will be road, rail, air and inland waterways. Mainly long-distance travel and goods transport will be studied; the linkages with intraregional travel and goods transport will be dealt with as additional aspects where possible. Telecommunication infrastructure will be analysed in terms of supply of ISDN, broadband and Internet services.

The assessment tools to be developed will be able to assess the territorial impacts of following types of EU transport policies:

- investment or subsidy policies affecting the sequence and time schedule of implementation of individual projects of the trans-European transport networks, such as
 - the *Business-As-Usual Scenario*: only projects already underway are implemented
 - *TEN Scenario*: all links specified in the TEN/TINA masterplans are implemented
 - *Priority Projects Scenario*: all TEN priority projects (Essen+6) are implemented
 - *High-Speed Rail Scenario*: only high-speed rail links are implemented
 - *Cohesion TEN Scenario*: only TEN/TINA projects in cohesion/candidate countries
- non-spatial transport policies, such as regulatory, fiscal or pricing policies affecting the use of the trans-European and other transport networks, e.g.
 - changes in speed limits, fuel prices or car ownership/purchase taxes
 - changes in rail fares or rail travel times
 - changes in air fares or air travel times or the number of daily flight connections
 - changes in ferry fares or waiting times at ferry ports
 - changes in toll charges between EU and non-EU countries
 - changes in border waiting times and cultural barriers
 - changes in statutory rest periods for drivers

Other more complex transport pricing projects, such as the ones studied in projects of the Transport RTD Programme, e.g. PETS and TRENEN and their 5th RTD Framework Programme derivatives, and the ones suggested in the White Paper "European Transport Policy for 2010: Time to Decide" may also be examined. The policy scenarios to be studied in the project will be selected in close consultation with the ESPON Co-ordination Unit.

Impacts

The term "territorial impacts" will be interpreted as *effects on regional socio-economic development*, such as effects on the distribution and location of economic activities, on regional labour markets and trade flows as well as effects on the distribution of population and migration flows. Indicators used to express such effects will include

- *economic indicators*: GDP per capita in Euro or PPP, trade flows, equivalent income measures of user benefits
- *population indicators*: population age, poverty rate, migration flows
- *labour market indicators*: employment, labour force participation, unemployment

Where appropriate, rates of change, such as change in population or change in GDP per capita in a certain period, will be calculated.

Other territorial impacts of transport investments, such as noise, congestion, air quality or CO₂ emissions, would require (a) the application of a full-scale European transport model and (b) a higher spatial resolution than used in this project (see Section 4.1). However, relevant work done in these areas, such as the SEA project and the reports of the EEA, will be reviewed. These impacts may be considered in approximate ways as additional aspects.

All indicators will be calculated at the level of *regions* (for the planned geographical scope and spatial resolution see Section 4.1). This will preclude the calculation of *intra-regional* effects, such as, for instance, changes in land price near high-speed rail stations; however, the results of existing case studies on such effects may be included in the analysis.

No efforts will be made to aggregate the socio-economic effects by a comprehensive cost-benefit analysis or multicriteria evaluation, because this has been dealt with in other EU projects (e.g. IASON). However, the indicators of territorial effects calculated will be aggregated to *cohesion* indicators measuring the degree of similarity or disparity between the regions and their convergence or divergence over time. Following the Second Report on Economic and Social Cohesion (European Commission, 2001), cohesion will be measured in terms of GDP per capita, but more sophisticated methods will be explored (see Section 4.1).

3.2 Assessment of Territorial Impacts: State of the Art

There exists a broad spectrum of approaches to explain and forecast the impacts of transport infrastructure investments on regional socio-economic development. Here three methods of increasing complexity are summarised (for a more complete presentation see Wegener and Böckermann, 2000, and Bröcker et al., 2001):

- *Production function approaches* model economic activity in a region as a function of production factors. The classical production factors are capital, labour and land. In modern production function approaches infrastructure is added as a public input used by firms within the region (Jochimsen, 1966). The assumption behind this expanded production function is that regions with higher levels of infrastructure provision will have higher output levels and that in regions with cheap and abundant transport infrastructure more transport-intensive goods will be produced. The main problem of regional production functions is that their

econometric estimation tends to confound rather than clarify the complex causal relationships and substitution effects between production factors. This holds equally for production function approaches including measures of regional transport infrastructure endowment (e.g. Biehl, 1986; 1991). In addition the latter suffer from the fact that they disregard the network quality of transport infrastructure, i.e. treat a kilometre of motorway or railway the same everywhere, irrespective of where they lead to.

- *Accessibility approaches* attempt to respond to the latter criticism by substituting more complex accessibility indicators for the simple infrastructure endowment in the regional production function. Accessibility indicators can be any of the indicators discussed in Schürmann et al. (1997), but in most cases are some form of population or economic potential. In that respect they are the operationalisation of the concept of 'economic potential' which is based on the assumption that regions with better access to markets have a higher probability of being economically successful. Pioneering examples of empirical potential studies for Europe are Keeble et al. (1982; 1988). Today approaches relying only on accessibility or potential measures have been replaced by hybrid approaches where accessibility is but one of several explanatory factors of regional economic growth. Also the accessibility indicators used have become much more diversified by type, industry and mode (see Schürmann et al., 1997). The SASI model (see Section 4.2) is a model of this type incorporating accessibility as one explanatory variable among other explanatory factors.
- *Trade integration approaches* model interregional trade flows as a function of interregional transport and regional product prices. Peschel (1981) and Bröcker and Peschel (1988) estimated a trade model for several European countries as a doubly-constrained spatial interaction model with fixed supply and demand in each region in order to assess the impact of the economic integration of Europe in terms of reduced tariff barriers and border delays between European countries. Their model could have been used to forecast the impacts of transport infrastructure improvements on interregional trade flows. If the origin constraint of fixed regional supply were relaxed, the model could have been used also for predicting regional economic development. Krugman (1991) and Krugman and Venables (1995) extended this simple model of trade flows by the introduction of economies of scale and labour mobility. The CGEurope (see Section 4.2) is a model of this type.

The territorial impacts of transport investments and policies have been the topic of several research projects for the European Union before and during the 4th and 5th RTD Framework Programmes. The pioneering early studies by Biehl (1986, 1991) and Keeble (1982, 1988) were already mentioned. In 1991-1992 a major study for DG Regio analysed the expected regional impacts of the Channel Tunnel throughout the Community (Fayman et al., 1995). In the 4th RTD Framework Programme, the EUNET/SASI project (ME&P et al., 2001) developed regional economic models for the simulation of socio-economic and spatial impacts of transport infrastructure investments and improvements. In the 5th RTD Framework Programme, the ongoing IASON Project further develops and evaluates such models as components of a comprehensive assessment framework (Bröcker et al., 2001).

Compared with spatial impacts of transport, only little research exists on the spatial effects of telecommunication and energy infrastructure. In general it has been found that, at least in the present European Union, telecommunication infrastructure tends to become ubiquitously available and so to lose its role as a relevant location factor (Capello, 1994). However, for a transition period, this may not be so in the candidate countries.

3.2 Innovation of the Proposed Methodology

The research proposed for ESPON 2.1.1 and presented in the following Section 4 will be innovative in the following respects:

- It will build on the research projects summarised in the previous sub-section utilising the data and models and extending and refining the methods developed in them.
- It will go beyond the work performed in the Study Programme on European Spatial Planning (SPESP) by establishing a unified database and system of indicators of territorial effects of EU transport and TEN policies at the level of NUTS-3 regions for the present EU Member States and the candidate countries.
- It will define a standard set of reference indicators of territorial effects of EU transport and TEN policies and propose procedures for periodically updating the necessary databases and re-calculating the indicators as part of a European system of spatial monitoring.
- It will develop methods and tools for forecasting territorial effects of EU transport and TEN policies with different levels of complexity for different policy analysis needs, including the necessary mapping tools to visualise these effects.
- It will develop indicators of cohesion between the regions in the enlarged Community which include but also go beyond the standard cohesion indicators in the Second Report on Economic and Social Cohesion.
- It will analyse the interactions between EU transport and TEN policies and other spatially relevant Community policies and their institutional context and relate the findings to the indicators developed integrating qualitative and quantitative research approaches.
- It will draw conclusions from the findings of the project and make recommendations for integrating them into a European system of spatial monitoring and for a better co-ordination of EU transport and TEN policies with other spatially relevant Community policies.

4. The Proposed Methodology

The proposed methodology consists of four parts: Spatial Monitoring, Spatial Forecasting, Institutional Issues and Policy Recommendations. These four parts will be presented in this Section.

4.1 Spatial Monitoring

Spatial monitoring serves to establish the database necessary to measure and/or calculate the indicators identified in Section 3.1 as relevant for assessing territorial effects of EU transport and TEN policies. This database consists of two parts:

The Impact Database

The *impact* database contains the regional data necessary to calculate the regional indicators identified in Section 3.1:

- *economic data*: GDP in Euro and PPP, trade flows
- *population data*: population by age group, poverty, migration flows
- *labour market data*: employment, labour force, unemployment

These data will be requested from Eurostat or collected from other sources for the present fifteen EU Member States (EU-15) and the twelve candidate countries (EU-27). Basic spatial units will be Level 3 of the Nomenclature of Territorial Units for Statistics (NUTS) for EU member states (Eurostat, 1999a) and equivalent regions for the candidate countries (Eurostat, 1999b) consisting of 1,083 NUTS-3 regions in the present EU and 162 equivalent regions in the twelve candidate countries. Table 4 shows the resulting system of regions. In addition also Norway (19 regions) and Switzerland (26 regions) will be included.

For all NUTS-3 data also aggregates to NUTS-2, NUTS-1 and NUTS-0 regions will be provided. Where harmonised (Eurostat) data sources do not provide the data for the indicators at the NUTS-3 level, national and possibly regional data sources will be accessed to try to complete the data sets. Where this is not successful, data collection and indicator analysis will be conducted for NUTS-2 regions. The collection of data will be performed in co-ordination with data collection conducted in ESPON Priority 4.

In the limited time available in this project it will not be feasible to collect data for territorial units smaller than NUTS-3 regions, such as NUTS-4 and NUTS-5 regions, for all parts of Europe. This precludes the analysis of *intra-regional* impacts of EU transport and TEN policies, such as, for instance, the analysis of land price changes near high-speed rail stations. However, the results of existing case studies on such effects may be included in the analysis.

Data collection and calculation of indicators will be performed for the most recent year for which data are available. However, in order to analyse developments over time (see Section 4.2), data will also be collected for earlier years, e.g. since 1981 in five-year intervals.

Table 4. Number of regions

Region	Country	Number of regions
EU member states	Österreich	35
	Belgique/Belgie	43
	Deutschland	441
	Danmark	15
	Espania	48
	Suomi/Finnland	20
	France	96
	Ellada	51
	Ireland	8
	Italia	103
	Luxembourg	1
	Nederland	40
	Portugal	28
	Sverige	21
	United Kingdom	133
<i>Total EU Member States</i>		<i>1,083</i>
EU candidate countries	Balgarij	28
	Cyprus	1
	Cesko	14
	Eesti	5
	Magyarország	20
	Lietuva	10
	Latvija	5
	Malta	1
	Polska	16
	Romania	42
	Slovenija	12
	Slovensko	8
<i>Total EU candidate countries</i>		<i>162</i>
Other European countries	Norway	19
	Switzerland	26
<i>Total other European countries</i>		<i>45</i>
<i>Total regions</i>		<i>1,290</i>

The Policy Database

The *policy* database contains the data describing the EU transport and TEN policies to be assessed as identified in Section 3.1:

- investment or subsidy policies affecting the sequence and time schedule of implementation of individual projects of the trans-European transport networks (for examples of network infrastructure scenarios, see Section 3.1),
- non-spatial transport policies, such as regulatory, fiscal or pricing policies affecting the use of the trans-European and other transport networks, e.g.
 - changes in speed limits, fuel prices or car ownership/purchase taxes
 - changes in rail fares or rail travel times
 - changes in air fares or air travel times or the number of daily flight connections
 - changes in ferry fares or waiting times at ferry ports
 - changes in toll charges between EU and non-EU countries
 - changes in border waiting times and cultural barriers

- changes in statutory rest periods for drivers

This information can be provided in four different ways:

- as network topology by mode (e.g. in a GIS)
- as transport costs between regions (by mode, commodity type, etc.)
- as regional accessibility indicators (by mode, trip purpose, etc.)
- as regional supply indicators (e.g. number of motorway exits)

To avoid duplication of work with ESPON 1.2.1 and ESPON 1.2.2, it will be examined which kind of information can be obtained from them. In the ideal case, transport and TEN base networks and policies will be defined and processed only once in ESPON and shared by all ESPON projects dealing with transport and TEN policy (i.e. ESPON 1.2.1, 1.2.2 and 2.1.1). This would imply, for example, that the base transport networks by mode and information on basic transport infrastructure in the regions will be supplied by ESPON 1.2.1, whereas ESPON 2.1.1 will (in consultation with the ESPON Co-ordination Unit) define the EU transport and TEN policies to be assessed. It will be a matter of negotiation in which of the above forms (as networks, cost matrices or accessibility indicators) the information will be transferred between the projects.

As an alternative, the European transport networks developed by IRPUD and used in the IA-SON project (see Section 3.2) could be adopted. The road and rail networks of the IRPUD networks are topologically identical with the road and rail networks maintained by GISCO but have been continuously updated and refined in recent years to include the latest TEN and TINA masterplans. The partners of S&W have extensive experience in calculating accessibility indicators using these networks from the SASI project (Schürmann et al., 1999), the 'Study on Peripherality' for DG Regio (Schürmann and Talaat, 2000), the project VASAB 2000+ (Hanell et al., 2000) and the Working Group 'Geographical Position' of SPESP (Wegener et al., 2002). If the IRPUD networks are to be used, special arrangements with IRPUD about the permission to use the networks will be made.

Spatial Typologies

The empirically derived territorial indicators will be analysed with the aim to identify types of regions which are homogenous with respect to the territorial effects of EU transport and TEN policies. Cluster analysis will be the main tool for the identification of policy-relevant typologies, but also qualitative methods will be used. In addition the results of statistical correlations between accessibility indicators selected and the spatial impact indicators over time will be analysed. The analysis and mapping of residuals will give important information on the development over time and be an important contribution to spatial monitoring.

The typologies developed will take into account the territorial typologies developed in other ESPON projects, in particular the typologies based on differences in accessibility developed in ESPON 1.2.1, the typologies based on differences in settlement structure (polycentrism, corridors) developed in ESPON 1.1.1 and the typologies based on differences in urban-rural relations developed in ESPON 1.1.2.

However, the main objective of developing typologies will be the identification of groups of regions with similar needs of transport and TEN infrastructure development and/or similar

expected responses to EU transport and TEN policies in the light of policy goals such as territorial cohesion and regional sustainability. These groups of regions will be used as the main targets of EU transport and TEN policies in the recommendations to be developed.

Cohesion Indicators

The territorial indicators will be further analysed by the calculation of cohesion indicators expressing economic disparities between the regions.

The literature on normative theory of income distribution will be screened to find out which concepts can be transferred to the evaluation of regional inequality or equality. One strand of theory is starting from axiomatics, usually leading to incomplete orderings of distributions. Another starts from social welfare functions and leads to measures expressing the welfare loss due to inequality by equivalent average income amounts (e.g. Atkinson et al., 2002). Three questions have to be answered in this context: (i) Are the concepts applicable to regional distributions instead of personal distributions? (ii) How are the orderings obtained influenced by the size and aggregation of regions? (iii) How can the concepts be applied with multidimensional regional welfare indicators, i.e. how do they work if not just income per capita, but also unemployment, environmental quality and other indicators are considered? The theoretical problems related to these questions will be studied, experience from the IASON project utilised and suggestions how the concepts can be implemented empirically and communicated to practitioners will be made.

In addition, traditional indicators of cohesion with respect to GDP per capita (in PPS) and accessibility, such as the coefficient of variation and the GINI coefficient will be calculated. It has been shown in the work for SPESP (Wegener et al., 2002) that even here serious methodological problems, e.g. with respect to the level of spatial aggregation and the choice of indicator (relative v. absolute) need to be solved.

Mapping

GIS-based mapping tools taking account of the map design specification to be issued for ESPON will be developed and demonstrated in the Deliverables.

Maps that will be applied include maps of spatial distributions of indicators by NUTS-3 region, maps of spatial distributions of changes of indicator values over time by NUTS-3 region. In addition, more sophisticated mapping and visualisation techniques, such as time-space maps (Spiekermann and Wegener, 1994) and 3D surfaces of indicator values by raster cell (Spiekermann and Wegener, 1996) will be applied and further explored.

The mapping and visualisation tools developed for spatial monitoring will also be used for Spatial Forecasting (see next section) as the indicators presented are the same. An import function of mapping and visualisation in spatial forecasting is to show differences in indicator values by NUTS-3 region between EU transport and TEN policy scenarios and the changes of such differences, i.e. spatial convergence or divergence.

4.2 Spatial Forecasting

Spatial forecasting serves to link the information on EU transport and TEN policies contained in the policy database and the information on territorial impacts contained in the impact database described in Section 4.1.

For the past, this link is established by trying to identify causal chains between the EU transport and TEN policies that were implemented in the past and the territorial indicator values that were observed after their implementation, for instance by statistical estimation. The statistical parameters estimated can then be used to forecast the likely effects of policies implemented in the future, i.e. answer the question: "What territorial impacts are to be expected if this policy is implemented?"

The idea is to propose a 'toolbox' of forecasting tools of different complexity responding to different policy analysis needs and involving different effort of analysis. Three levels of complexity are envisaged:

(1) Simple methods for forecasting spatial impacts

This tool to be developed will calculate regional indicators allowing for a rough estimate of the effects of a change in costs in the transport network. The indicators have their roots in accessibility ideas as well as in economic price and index number theory. The spatial patterns predicted by the indicators should roughly reproduce what comes out from fully specified and calibrated accessibility or spatial-equilibrium models. Another example of a simple method is the estimation of a dynamic reduced form model where changes in regional economic activity are explained by changes in infrastructure related variables such as accessibility (with statistical tests for causality in both directions and with various lags). Another method is the use of a control group approach to investigate impacts of major infrastructure improvements in regions.

(2) Quasi-production function model with accessibility

This model will be based on the extended SASI model presently being developed, tested and applied in the IASON project (Fürst et al., 2000, Bröcker et al., 2001). The SASI model predicts spatial impacts of European transport policies in terms of GDP, employment and population in the NUTS-3 regions in the EU and the candidate countries until the year 2020.

(3) Spatial-equilibrium model of trade and passenger flows

This model will be based on the extended CGEurope model presently being developed, tested and applied in the IASON project (Bröcker et al., 2001). The CGEurope model predicts the territorial impacts of EU transport policies in terms of welfare indicators for NUTS-3 regions in the EU and the candidate countries for 1997 and 2020.

All three tools will use the same system of regions and the same common spatial database and will assess the same set of policies. The validity of the three tools will be examined by comparing the spatial patterns predicted by each of them. A point of theoretical interest will be to explore to what degree approaches based on accessibility and approaches based on regional equilibrium prices are equivalent.

Depending on their degree of complexity, the three forecasting tools will be able to answer all or some of the research questions listed in Section (iv) of the Terms of Reference:

- Are all transport modes included in the EU transport and TEN policies to achieve a long-term sustainable mobility of goods and persons and a polycentric spatial development?
- Do EU transport and TEN policies address the emerging border and integration problems taking into account the variety of regions and the arriving enlargement?
- Do EU transport and TEN policies provide adequate accessibility and connectivity in the regions of the EU and in Europe (in particular in peripheral and ultra-peripheral regions)?
- Are the TEN contributing to the reduction of spatial disparities?
- What spatial effects are expected from transport and TEN policies in terms of present and future congestion?
- How far do transport and TEN policies support the concentration of development corridors and polycentric development, and which further spatial effects are emerging?
- How far do transport and TEN policies affect the spatial diffusion of innovation and knowledge in Europe?

Particular attention will be given to the contribution of telecommunication infrastructure to regional development. There exists only little research on this topic. Moreover, at least in the current EU Member States, telecommunication infrastructure tends to be come ubiquitous and looses its role as a location factor. However, this may not be the case in the candidate countries, at least for a transition period, and therefore the issue remains of great policy interest.

In addition, a number of smaller studies on issues of current interest will be conducted. One study will look at the specific contribution of regional airports to regional economic development. Another category of studies will explore territorial impacts of key links in the European transport infrastructure at a regional scale, such as the impact of the Öresund Link.

As indicated in Section 3.1, no efforts will be made to aggregate the predicted socio-economic effects by a comprehensive cost-benefit analysis or multicriteria evaluation, as this has been dealt with in other EU projects, (e.g. IASON). However, the predicted indicators of territorial effects will be aggregated to cohesion indicators in order to assess effects of convergence or divergence caused by the policies (see Section 3.1).

The territorial indicators and cohesion indicators predicted by the three forecasting tools will be presented in maps and related to each other and illustrated in trade-off tables and diagrams. How do different scenarios compare with respect to efficiency (economic development) and equity (cohesion), and what kind of conflicts emerge between these two indicator dimensions? For a given set of policy scenarios the most equitable scenario (for a certain average level of a socio-economic indicator) can be found (Anderstig and Mattsson, 1989). Finally, it may be suggested how this approach can be further developed in future research to systematically analyse trade-offs and conflicts between indicators by automatic searches among a wider set of feasible policies.

4.3 Institutional Issues

In addition to monitoring and forecasting territorial effects, also the interactions between EU transport and TEN policies and other Community policies and the institutional context in which these policies are designed and implemented will be examined.

This task addresses therefore issues of *horizontal co-ordination* between different sectoral policies and issues of *vertical co-ordination* between different policy levels. Sectoral policies of potential importance in this context are regional and cohesion policy, in particular the Structural Funds, environmental policy, research policy, agriculture and internal market and competition policy. Particular attention will have to be paid to the principles laid down in the European Spatial Development Perspective (ESDP). Improved transport also has a role in promoting mobility which would lead to greater efficiency in the operation of European labour markets, a concern of great importance to macroeconomic stabilisation policy within the Eurozone. Policy levels to be addressed include the European, national and regional levels.

Horizontal co-ordination has two dimensions: the co-ordination of policy measures between different government departments and agencies at any given level of government and the co-ordination of policies implemented by the private sector with those of the public sector. The increasing use of the private sector in the finance and provision of both infrastructure and services in the transport sector implies the need for a careful analysis of the way in which the stated aims of public policy can be realised. The analysis has three main elements:

- The identification of horizontal spillovers between policy areas by analysis of policy documents
- The analysis of how policy responds to the evidence of horizontal spillovers
- The analysis of the organisational structures put in place to implement policy

A key to understanding horizontal co-ordination is the distinction between identifying spillovers between policy areas or establishing co-ordination between them as an *aim of policy* and the implementation of detailed *policy objectives and measures* to address such matters. Thus there will be a need to examine both the extent to which spillovers are recognised in key policy documents and the way this has shaped the policy design and its implementation. A particular interest is in the ways in which the private sector has been used as a means of implementing policy, through privatisation, public-private partnerships etc and the institutional arrangements which have been introduced to facilitate this. This leads to an assessment of the relative transactions costs of organising transport investment and provision in different structures. These can range from a highly integrated public sector provision, where transactions costs may be hidden in a structure which is perceived not to be efficient, to a highly disaggregated, though often regulated, private sector provision in which transactions costs are more transparent, allowing for greater efficiency through competition, but may be higher due to the contractual structure which needs to be established.

Vertical co-ordination involves the relationships between different levels of government and decision making. This addresses the question as to how higher levels of government establish a policy environment within which lower levels operate. This has three main dimensions:

- The way in which policy is framed to establish the goals which need to be addressed by the lower levels of decision making (top-down policy formation)
- The extent to which the formation of policy by higher level bodies is informed by and takes cognisance of the views and needs of lower level bodies (bottom-up policy formation)
- The way in which high levels of government monitor and police decisions by lower level bodies

It is clear that where there are strong financial/fiscal links between different levels of decision making, both policy formation and monitoring will involve more intense vertical relationships than in cases which just involve exhortation, e.g. the direct provision of transport subsidies will involve a different set of relationships from a general desire to promote sustainable mobility. It will be of particular interest to identify in the case of TENs where the exhortation comes from the European level, but the finance is more likely to come from the national and regional level, how this has affected the shape of the network.

In both horizontal and vertical co-ordination, it will be necessary to select a series of case studies of both policy initiatives and projects to examine these relationships. The proposal is to use the same set of cases as in the monitoring and forecasting. It will be established how far policies, and which policies, were invoked and became instrumental in a final decision and how far objective indicators were used as a means of making policy aims more specific and effective.

4.4 Policy Recommendations

The conclusions and policy recommendations in the Final Report will address all three previous parts of ESPON 2.1.1:

Spatial Monitoring

Based on the review of existing and operational indicators, a set of reference indicators of territorial impacts of EU transport and TEN policies as well as a set of cohesion indicators sufficient for answering the most pertinent policy questions of the European Commission in the context of regional, transport, economic, agricultural and environmental policy will be proposed.

Recommendations will be made for procedures for maintaining the regional and network databases necessary for calculating indicators of territorial impacts of EU transport and TEN policies and their periodical re-calculation. This will require consultations with Eurostat and the other ESPON projects.

Recommendations will also be made for the development of a manual for the calculation of indicators of territorial impacts of EU and TEN policies. The manual should contain for each reference indicator the exact definition and operational specification of how the indicator is to be calculated, including the necessary model parameters, a test data set and the correct results to be obtained as well as a sample software code needed to produce those results.

Spatial Forecasting

The main body of recommendations will consist of suggestions for adjustments or improvement of EU transport and TEN policies derived from the results of the application of the three policy impact forecasting tools. These recommendations will be derived from the systematic comparison of the territorial impacts predicted for the selected policy scenarios (see Section 3.1), both in terms of socio-economic indicators and cohesion indicators, for the present EU as well as the candidate countries. The recommendations will be specific as to the impacts of specific types of EU transport and TEN policies, such as infrastructure, regulatory, fiscal or pricing and/or specific policies, or with respect to specific transport and TEN infrastructure modes or major projects.

Recommendations will also be made for the application of the three forecasting tools developed and the risks and problems of their application. While the application of the two models may require the involvement of their authors, the simple tool for calculating expected impacts may be suitable for application by other researchers. In this case, recommendations for the routine application of the simple tool may be made.

In addition, recommendations will be made for further research needs in the area of modelling territorial impacts of EU transport and TEN policies.

Institutional Issues

Based on the results of the analysis of interactions between EU transport and TEN policies and other spatially relevant Community policies and of their institutional context, deficiencies and bottlenecks with respect to horizontal co-ordination between EU transport and TEN policies and other Community policies and with respect to vertical co-ordination between EU, national and sub-nation policy levels will be identified and recommendations for the improvement of horizontal and vertical co-ordination will be made.

5. Project Work Plan

This Section presents the work plan of ESPON 2.1.1 as well as its interactions with the other ESPON Projects.

5.1 Project Structure

Figure 1 below shows the eight work packages of the project and their main interactions. The four project parts indicated in Section 4 can be distinguished: Spatial Monitoring (WP 2 and 3), Spatial Forecasting (WP 4 and 5), Institutional Issues (WP 6) and Policy Recommendations (WP 8). One work package accompanies the project work during its whole duration: Project Co-ordination (WP 8).

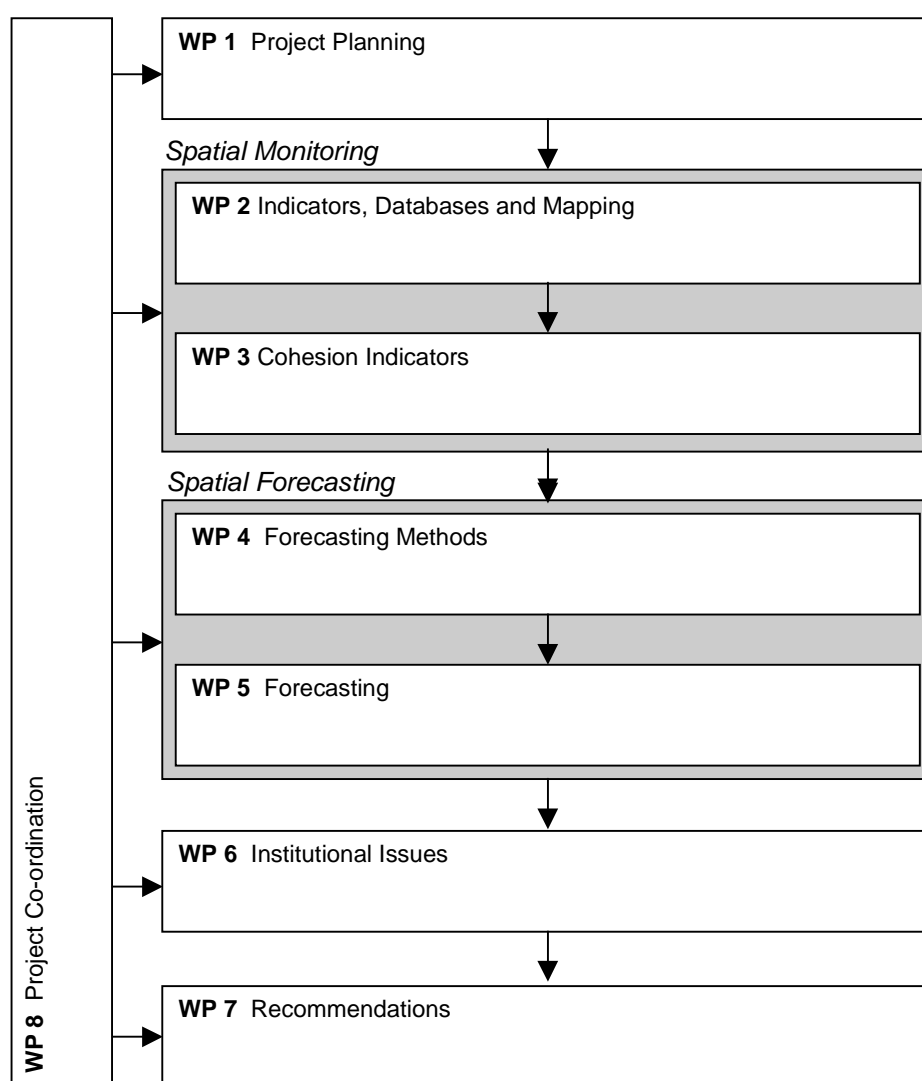


Figure 1. Project structure

WP 1: Project Planning

Work package number : 1								
Start date or starting event: 1								
Participant:		CAU	S&W	VUA	KTH	BBR	MIL	CER
Person-months:		1	1	0.2	0.2	0.2	0.2	02.
								Σ
1	Objectives The task of this work package is to develop a detailed work plan for all work packages of the project.							
2	Methodology / work description The work will start from the work programme and specify the scope of work in more detail. The plan will define in detail the objectives of each work package, the time schedule for each work package and deliverable, the responsibilities of each project participants, the interactions between work packages and the internal procedures for project communication. The work of the work package will consist of two parts: (i) to review existing indicators for measuring territorial impacts of EU transport and TEN policies and contact existing data source required for calculating these indicators for NUTS-3 regions in EU-27, such as Eurostat, the EEA, national statistical institutes and national mapping agencies, and (ii) to outline a methodology for the impact analysis and the analysis of European transport and TEN policy for NUTS-3 regions in EU-27.							
3	Deliverables (6.7%) The work package will provide the contents of the First Interim Report (Deliverable D1, see Section 2.3): (a) Consensus on indicators and necessary data (b) First outline of the methodology							
4	Milestones The detailed work plan (Deliverable D1) will be presented at the end of Month 3.							

WP 2: Indicators, Databases and Mapping

Work package number :									2
Start date or starting event:									4
Participant:		CAU	S&W	VUA	KTH	BBR	MIL	CER	Σ
Person-months:		1	2	1	2	2	0.5	0.5	9
1	Objectives This work package will develop a standard set of indicators of territorial impacts of EU transport and TEN policies and procedures for setting up and maintaining the regional and network data-bases required for periodically re-calculating and presenting these indicators in diagrams and maps and for integrating or linking these databases and mapping tools with the databases and mapping tools existing at Eurostat.								
2	Methodology / work description The work package will start from the preliminary catalogue of indicators and data requirements developed in Work Package 1 and reviews them in the light of the analysis of EU transport and TEN policies and other spatially relevant Community policies. The <i>Impact</i> database will consist of economic data, population data and labour market data (see Section 4.1). A major focus of the work will be on the exploration and exploitation of existing regional data at the NUTS-3 level in the EU Member States and equivalent regions in the candidate countries existing at Eurostat, the EEA, national statistical agencies or databases generated in recent EU projects, such as IASON. Where harmonised European data sources do not provide the data for the indicators at the NUTS-3 level, national and possibly regional data sources will be accessed to try to complete the data sets. Where this is not successful, data collection and indicator analysis will be conducted for NUTS-2 regions. Data collection and calculation of indicators will be performed for the most recent year for which data are available. However, in order to analyse developments over time, (see Section 4.2), data will also be collected for earlier years, e.g. since 1981 in five-year intervals. The empirically derived indicators will be analysed with the aim to identify types of regions which are homogenous with respect to the territorial effects of EU transport and TEN policies, i.e. with similar needs of transport and TEN infrastructure development and/or similar expected responses to EU transport and TEN policies. The indicators and typologies will be presented using GIS-based mapping tools taking account of the map design specification to be issued for ESPON. Maps that will be applied include maps of spatial distributions of indicators by NUTS-3 regions, maps of spatial distributions of changes of indicator values over time by NUTS-3 region. In addition, more sophisticated mapping and visualisation techniques, such as time-space maps and 3D surfaces of indicator values cell will be applied and further explored.								
3	Deliverables (20.0%) The work package will contribute the following items to the Second Interim Report (Deliverable D2, see Section 2.3): (c) Development of the database, indicators and map-making (d) A second revised and extended list of data to be collected								
4	Milestones The work package will establish the impact and policy parts of the common spatial database needed for the work in work packages 3 and 4. Deliverable D2 containing the information on the common spatial database will be delivered at the end of Month 8.								

WP 3: Cohesion Indicators

Work package number :		3							
Start date or starting event:		4							
Participant:		CAU	S&W	VUA	KTH	BBR	MIL	CER	Σ
Person-months:		1	1	2					4
1	Objectives This work package reviews existing indicators of cohesion (equity) between regions in Europe and (f) develop a set of robust and policy-relevant cohesion indicators with respect to regional socio-economic development.								
2	Methodology / work description The literature on normative theory of income distribution will be screened to find out which concepts can be transferred to the evaluation of regional inequality or equality. Three questions have to be answered in this context: (i) Are the concepts applicable to regional distributions instead of personal distributions? (ii) How are the orderings obtained influenced by the size and aggregation of regions? (iii) How can the concepts be applied with multidimensional regional welfare indicators, i.e. how do they work if not just income per capita, but also unemployment, environmental quality and other indicators are considered? The theoretical problems related to these questions will be studied and suggestions how the concepts can be implemented empirically and communicated to practitioners will be made. In addition, traditional indicators of cohesion with respect to GDP per capita (in PPS) and accessibility, such as the coefficient of variation and the GINI coefficient will be calculated. Methodological problems of these cohesion indicators, e.g. with respect to the level of spatial aggregation and the choice of indicator (relative v. absolute) detected in during the work for SPESP will be examined and suggestions how to overcome them will be made.								
3	Deliverables (8.9%) The work package will contribute the following item to the Second Interim Report (Deliverable D2, see Section 2.3): (f) the definition of cohesion indicators								
4	Milestones The results of the work package are needed only in the later phase of Work Package 5.								

WP 4: Forecasting Methods

Work package number : 4								
Start date or starting event: 4								
Participant:		CAU	S&W	VUA	KTH	BBR	MIL	CER Σ
Person-months:		2	1	1	1		2	7
1	Objectives This work package reviews existing methods of strategic assessment of territorial impacts of transport policies used in EU Member States and at the European level for forecasting the territorial impacts of trans-European transport policies and develops a 'toolbox' of forecasting tools of different complexity for different policy analysis needs.							
2	Methodology / work description The 'toolbox' of forecasting tools will contain three tools of increasing complexity: (1) Simple method for forecasting spatial impacts allowing for a rough estimate of the effects of a change in costs in the transport network. (2) Quasi-production function model with accessibility based on the extended SASI model being developed, tested and applied in the IASON project. (3) Spatial-equilibrium model of trade and passenger flows based on the extended CGEurope model presently being developed, tested and applied in the IASON project. Particular attention will be given to methods to analyse and forecast the contribution of telecommunication infrastructure to regional development, especially in the candidate countries. In order to analyse the territorial impacts of EU transport and TEN policies, a database of EU transport and TEN policies, the <i>Policy</i> database will be established (see Section 4.1). The Policy database contains the data describing the EU transport and TEN policies to be assessed (see Section 3.1): investment or subsidy policies affecting the sequence and time schedule of implementation of individual projects of the trans-European transport networks and non-spatial policies, such as regulatory, fiscal or pricing policies affecting the use of the trans-European and other transport networks. Particular attention will be given to data on telecommunication infrastructure, such as ISDN, broadband or Internet access especially in the candidate countries In addition, a number of smaller studies on issues of current interest will be conducted. One study will look at the contribution of regional airports to regional economic development. Another category of studies will explore territorial impacts of key links in the European transport infrastructure at a regional scale, such as the impact of the Öresund Link.							
3	Deliverables (15.6%) The work package will contribute the following items to the Second Interim Report (Deliverable D2, see Section 2.3): (e) Presentation of the methods for the assessment of territorial impacts. (g) Presentation of hypotheses on territorial effects of relevant policies							
4	Milestones The forecasting methods developed in the work package will be needed for Work Package 8 starting in Month 9. Deliverable D2 containing a description of the forecasting methods will be delivered at the end of Month 8.							

WP 5: Forecasting

Work package number :		5						
Start date or starting event:		9						
Participant:		CAU	S&W	VUA	KTH	BBR	MIL	CER Σ
Person-months:		3	3	2	1		2	11
1	Objectives This work package applies, tests and compares the three forecasting tools developed in Work Package 4.							
2	Methodology / work description The work will start with the definition of a number of scenarios of EU transport and TEN policies (see the list of policies identified in Section 3.1). Particular attention will be given to scenarios including a combination of transport and telecommunications infrastructure policies in the candidate countries. The selected policies will be simulated using the three modelling tools developed or adopted in Work Package 4. All three tools will use the same system of regions and the same common spatial database and will assess the same set of policies. The validity of the three tools will be examined by comparing the spatial patterns predicted by each of them. A point of theoretical interest will be to explore to what degree approaches based on accessibility and approaches based on regional equilibrium prices are equivalent. The territorial indicators and cohesion indicators predicted with the three tools will be presented in maps and related to each other and illustrated in trade-off tables and diagrams. How do different scenarios compare with respect to efficiency (economic development) and equity (cohesion) and what types of conflict emerge between these two indicator dimension? In addition, a number of smaller studies on issues of current interest will be conducted. One study will look at the specific contribution of regional airports to regional economic development. Another category of studies will explore territorial impacts of key links in the European transport infrastructure at a regional scale, such as the impact of the Öresund Link on Denmark and Sweden.							
3	Deliverables (24.4%) The work package will contribute the following items to the Third Interim Report (Deliverable D3, see Section 2.3): (h) Application of the methods for the assessment of territorial impacts (i) Presentation of tentative results of the research undertaken so far (j) First propositions on improvement of EU transport and TEN policies							
4	Milestones First forecasting results will be presented in Deliverable D3 to be completed at the end of Month 14 and presented at the workshop scheduled for Month 19.							

WP 6: Institutional Issues

Work package number : 6	
Start date or starting event: 9	
Participant:	CAU S&W VUA KTH BBR MIL CER Σ
Person-months:	0.5 0.5 4 5
1	<p>Objectives</p> <p>This work package analyses the interactions between EU transport and TEN policies and other spatially relevant Community policies and the institutional context in which such policies are designed and implemented.</p>
2	<p>Methodology / work description</p> <p>The work package will look into the mechanisms, i.e. communication and co-ordination processes and institutional and legal instruments by which EU transport and TEN policies are brought about and the institutional barriers that delay or inhibit their implementation. It will address issues of <i>horizontal co-ordination</i> between different sectoral policies, such as regional policy, environmental policy, research policy, agriculture and internal market and competition policy, and issues of <i>vertical co-ordination</i> between different policy levels, such as EU, national and regional policies.</p> <p>A series of case studies of both policy initiatives and projects to examine both horizontal and vertical co-ordination will be conducted. The case studies will examine horizontal co-ordination by exploring horizontal spillover between policy areas (by analysis of policy documents), policy responses to horizontal spillover and the organisational structures put in place to implement policy. The case studies will examine vertical co-ordination by analysing how higher levels of government establish a policy environment within which the lower level operates, the extent to which policy making at higher levels is informed by and takes account of the views and needs of lower levels, and the way in which higher levels of government monitor and policy decisions by lower-level bodies.</p> <p>All case studies will use the same set of cases as in the monitoring and forecasting work packages. It will be established how far policies, and which policies, were invoked and became instrumental in a final decision and how far objective indicators were used as a means of making policy aims more specific and effective.</p>
3	<p>Deliverables (11.1%)</p> <p>The work package will contribute the following items to the Third Interim Report (Deliverable D3, see Section 2.3):</p> <p>(k) first proposition on institutional aspects</p> <p>and to the Final Report (Deliverable D4, see Section 2.3):</p> <p>(o) recommendations for a better horizontal and vertical co-ordination</p>
4	<p>Milestones</p> <p>First results of the analysis of institutional issues will be presented in Deliverable D3 to be completed at the end of Month 14 and presented at the workshop scheduled for Month 19.</p>

WP 7: Recommendations

Work package number : 7									
Start date or starting event: 24									
Participant:		CAU	S&W	VUA	KTH	BBR	MIL	CER	Σ
Person-months:		1	1	0.3	0.3	0.8	0.3	0.3	4
1	Objectives This work package makes recommendations for improvements of the methodology to assess the territorial impacts of EU transport and TEN policies and for better horizontal and vertical co-ordination in the design and implementation of such policies.								
2	Methodology / work description Recommendations will be made for - a set of reference indicators of territorial impacts of EU transport and TEN policies, - a set of cohesion indicators, - procedures for maintaining the databases necessary for calculating indicators of territorial impacts of EU transport and TEN policies and their periodical re-calculation, - for the development of a manual for the calculation of indicators of territorial impacts, - for the application of the three forecasting tools developed, - for further research needs in the area of modelling territorial impacts of EU transport and TEN policies, - for the improvement of horizontal and vertical co-ordination of EU transport and TEN policies with other spatially relevant Community policies and between spatial planning levels.								
3	Deliverables (8.9%) This work package will produce the Final Report (Deliverable D4, see Section 2.3): (l) Improvement of the methodology (m) Presentation of territorial impacts in EU-27 (n) Recommendations for policy adjustments regarding EU transport and TEN policies (o) Recommendations for institutional settings and instruments (p) Presentation of new territorial indicators (q) Recommendations for further research.								
4	Milestones The recommendations will be presented in the Final Report.								

WP 8: Project Co-ordination

Work package number : 8	
Start date or starting event: 1	
Participant: CAU S&W VUA KTH BBR MIL CER Σ	
Person-months: 1 1 2	
1	<p>Objectives</p> <p>The objective of project co-ordination is the efficient scientific, practical and financial operation of the project.</p>
2	<p>Methodology / work description</p> <p>The co-ordination will follow the detailed work plan to be developed in Work Package 1. The work package leaders will be responsible for verifying the satisfactory completion of the tasks of their work packages, and the project co-ordinator will review each work package overall. Each work package leader will complete a progress report as required. The report will be controlled by the project co-ordinator with respect to progress against work plan and objectives, with respect to problems or key findings and their implications for other work packages. The project co-ordinator will not only monitor the project progress but also identify problems and ways to solve them. The control of progress in terms of schedule, resources and quality will be ensured by regular co-ordination meetings. Meetings with other relevant ESPON projects (see Section 5.3) serve to ensure co-ordination between the ESPON projects. Project co-ordination includes also the links to the ESPON Co-ordination Unit, to other ESPON projects and to ESPON Contact Points. This function will be provided through the inclusion of the ESPON Contact Point of Germany, BBR, in the work package.</p> <p>The dissemination will ensure that intermediate and final (public) results are communicated to the other projects of the ESPON 2006 programme, to the European Commission as well as to external parties of interest including policymakers at the European, national and local level, public agencies and research institutions. The project co-ordinator will organise the provision of material to be placed in the ESPON 2006 homepage.</p> <p>The fourth project workshop scheduled for Project Month 19 (see Section 5.4) will be a workshop with invited experts and practitioners and serve to present and discuss the results of the project achieved so far and, if necessary, adjust the work for the rest of the project. In addition, publications in professional journals and presentations at national and international conferences are envisaged. Publications origin</p>
3	<p>Deliverables (4.4%)</p> <p>The co-ordinator is responsible for the progress reports and all deliverables of the project.</p>
4	<p>Milestones</p> <p>Co-ordination is a continuous activity during the whole lifetime of the project.</p>

Table 8. Time-work flowchart

WP No		Month																									
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	Project Planning																										
2	Indicators, Databases and Mapping																										
3	Cohesion Indicators																										
4	Forecasting Methods																										
5	Forecasting																										
6	Institutional Issues																										
7	Recommendations																										
8	Project Co-ordination																										
	Reports																										
	Meetings	▲					▲						▲						▲							▲	

■ Most intensive work periods