TERMS OF REFERENCE

ESPON Project 1.2.2:

TELECOMMUNICATION AND ENERGY SERVICES AND NETWORKS: TERRITORIAL TRENDS AND BASIC SUPPLY OF INFRASTRUCTURE FOR TERRITORIAL COHESION

(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **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
- Developing **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 transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **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; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; 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; 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.

(i) Relation to the ESPON 2006 programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore, a strong co-ordination is requested with the all other projects, in particular with the other project in the same strand and with the coordinating and cross-thematic under priority three and the Co-ordination Unit.

i) Thematic scope and context

A dynamic territorial development depends on an optimal combination of available services. The possibility of making use of the resources available in a city or a larger territory depends as well as of the ability to communicate and exchange services with other locations. The range of services, which interlink areas, cities and the European continent to the world market, comprises services related to transport, energy to telecommunications. For an area or a city the provision of these services has a major impact on the attractiveness for new investments and constitutes an important location parameter.

Communication and exchange between cities and territories takes place via infrastructure networks where resources, goods, humans and information are exchanged. Access to those networks is increasingly becoming a crucial factor for territorial development. The ESDP highlighted the close relation between the aim of a balanced territory and polycentric development and the policy orientations decided developing the infrastructure networks. The ESDP also highlighted in this respect the special role, which could be undertaken by Euro-corridors, global integration zones, gateway cities and urban poles, well distributed on the European territory, as nodes in the infrastructure networks.

The functioning of networks very much depends on connectivity and access points. A co-ordinated access is of particular importance where the access is related to very large investments. For telecommunication the spatial distribution of networks as well as their capacity for data transmission is a key concern. For energy networks the availability of access and the capacities to different network are also important determinants for location decisions.

The major ESDP concept of "parity of access to infrastructure and knowledge", understood as a guideline promoting a better territorial equity or balance, needs to be more clearly defined and further investigated. The diversity within the European territory concerning provisions and use of telecommunication facilities as well as the options for supply of energy, and the potential within different parts of the territory (e.g. for low density areas, ultra peripheral regions, costal zones, inlands, mountain areas, transnational co-operation areas), are important issues in that respect

The importance of telecommunication infrastructure and energy networks for economic development is substantive, being it the expansion of local companies, multinational corporations or international direct investments. The spatial structure of the territory is an important aspect as well. Therefore, further investigation is needed in the different types and the geographical location of foreign direct investments. Such an investigation will as well provide an improved knowledge on the internal strategic decisions of multinational corporations, for example on the location of headquarters, administration, production facilities, "greenfield" investments and acquisitions, which sometimes have a decisive influence on the regional job mix. It should make the location parameters of the future

more clear, including the relative importance of accessibility to telecommunication infrastructure and energy networks.

The European integration process is followed by a growing number of acquisitions and mergers, leading to restructuring of companies and regional economies. How these decisions could influence territorial development and the European political visions of better balance and polycentrism should also be discussed. Critical will be the observation of the territorial effects of the European integration process at a European and transnational scale with particular reference to the candidate countries.

The diverse territory of Europe as well as the present spatial structure (with consideration of the polycentric development) indicates the problem of minimum supply of (public and private) infrastructure capable of providing the basic services required in all regions and to maintain the "service of general interest". This supply is necessary in order to prevent the final decline of and migration from remote and other areas with specific weaknesses, often exposed to extreme geographical conditions. However, a basic supply of services represents only the first and minimum step towards the provision of higher degrees of infrastructure.

The Communication from the Commission "Service of general interest in Europe" (COM 2000/580) investigates the effects of market liberalisation in the telecommunication, transport and energy sector. The projects cited clearly indicate regionally and locally deviating effects. The interactions between different infrastructure networks, and the objectives of economic efficiency, consumer protection and economic, social and territorial cohesion should be taken into particular account.

With regard to the growing importance of some EU Member States as transit countries in an enlarged European Union, the identification of principles and the elaboration of political recommendations based on a polycentric development model gains in importance. In general, this project shall provide input for the territorial impact analysis of TENs policy under ESPON action 2.2.1.. The conceptual work done within this project on the measurement of impacts should be taken into account.

iii) General objectives

a) to refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;
b) to contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;
c) to define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to

polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context,

d) to develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;

e) to consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation and long term scenarios, as well as evaluation and assessment procedures.

In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

The research questions cover issues related to the basic supply of telecommunication services and the supply of different energy sources within the EU territory as well as territorial trends of telecommunication infrastructure and energy networks, including related services.

Telecommunication infrastructure comprises networks and installations for fixed telephones, mobile phones, Internet access, radio and television. Satellite facilities are considered providing an equal coverage for the entire European territory. Energy networks include networks and installations for oil, gas and electricity as well as renewable energy sources, in particular wind energy. The concepts on effects of networks and the question inter-modality should be address in close co-operation with project 1.2.1.

- Identification, gathering of existing and proposition of territorial indicators and data and map-making methods to measure and display (1) the basic supply of telecommunication infrastructures and energy networks, including related services, (2) the trends and impacts of the development of telecommunication infrastructures and energy networks, including related services. Compilation of national studies with European focus should be undertaken;
- The most important features of the present infrastructure networks and supply of services with regard to territorial issues, i.e. the connectivity and capacity of different telecommunication networks and services in different regions, the spatial patterns of access points and coverage of services, the use and demand for telecommunication services in different parts of Europe, the spatial pattern of supply and demand of different energy sources;
- Specific typologies and territorial patterns in the telecommunication infrastructures and energy networks, including related services (referring to the typologies used in

particular by the ongoing ESPON project 1.1.1 on polycentrism and with regard to typologies of regions within other ESPON projects);

- The most relevant telecommunication services and energy supply of general interests, referring to migration and regional development potential, which influence the development of territories and regions lagging behind as well as territories and regions with peripheral location or specific features (structurally weak areas, islands and mountain areas);
- The territorial trends in telecommunication and energy supply, in particular in relation to sustainable flows of communication and sustainable energy provision within Europe.
- The importance of connectivity to telecommunication services and networks as well as energy supply as a location parameter for investments and the economic development of cities and regions
- The correlation between trends in (1) telecommunication networks and services, (2) energy supply, and a polycentric development model, including identification of an operational benchmarking system that could be applicable with regard to the data and indicators available;
- A further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP, including an adaptation to the territorial diversities within an enlarged EU.

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies in autumn 2002.
c) A preliminary overview on concepts and methodology and hypothesis for further investigation.

February 2003 (second interim report):

d) Preliminary results on the basis of available territorial indicators, including European maps showing the existing spatial structure of different telecommunication and energy infrastructure networks and services, as far as possible related to the degree of polycentrism, areas facing problems of lagging behind and the accessibility to different parts and types of territories within Europe.
e) A first overview on concepts and methodology and possible final results.
f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps related to the basic supply as well as the trends and impacts of the development of telecommunication infrastructure network and energy supply
g) A second revised and extended request for further indicators to be collected (mainly) from Eurostat and the EEA, by summer 2003 (the latest).

August 2003 (third interim report):

h) A working report on the main results of the research undertaken including databases, indicators, map-making and a analysis/diagnosis of the transport sector in Europe, as well as the existing territorial imbalances and regional disparities in transport infrastructure based on the research questions above, , including an extended number of available territorial indicators and European maps showing, as far as possible, the supply, trends and impacts of telecommunication infrastructure networks and energy supply in relation to territorial features, such as the degree of polycentrism, connectivity within typologies of regions and territories, areas lagging behind (and eventually facing migration), missing links for improving a sustainable European energy provision, and territorial integration of candidate countries in an enlarged EU.
i) Preliminary results on the significance of telecommunication networks and energy supply as location parameter for mobile investments
j) Development of appropriate tools for the processing of the new data base, indicators and map-making
k) Applicable systems for the monitoring and benchmarking of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;
l) Policy recommendations, which provide the basis for the future focus of Community interventions post 2006, to improve parity of access to infrastructure (in particular, an integrated approach for improved transport links and promotion of efficient and sustainable use of the infrastructure), including institutional settings and instruments. Particular attention should be paid to peripheral and ultra-peripheral regions.

August 2004 (final report):

m) An executive summary of the main results of the research undertaken and recommendations for policy development.
o) Comprehensive presentation of supply, trends and impacts of telecommunication and energy networks and services in relation to a polycentric and balanced development of an enlarged European Union (27 countries);
p) Presentation of access points and concrete ideas for policy responses to the territorial trends facing the development of the telecommunication and energy networks and services, at different geographical scales, and in different parts of the Union, that could improve territorial cohesion;
q) Presentation of the developed territorial indicators, concepts and typologies linked to telecommunication and energy networks and services, including maps;
r) Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries
s) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities;

vi) Rationale and structure (Support needed on energy)

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.2.2. The text is not meant to be exhaustive, but only to provide guidance for the tenderer.

1. Approaches to the definition and methodology

The description of the territorial effects of infrastructure for all typologies of regions prepared in the framework of the ESPON Programme, and the development of further typologies with consideration to infrastructure, provides an important focus in the methodological approach of the project. Beyond further approaches the following should be considered:

1.1. Basic supply and level of connectivity

Basic supply of services in the field of telecommunication as well as energy sources represents preconditions for economic development of cities and territories. The variety of services and their cost is considered an important framework condition for territorial development.

Connectivity reflects the possibilities for customers to connect to the services provided, being it private households, businesses or, in the energy sector, facilities for processing such as oil-refineries. The level of connectivity indicates the volume of services in a

particular city, region or larger territory. More in general, connectivity should be considered as a part of the peripherality question[1].

Measurement of connectivity is apparently so far not developed into indicators.

A value is proposed for "connectivity" to the transport network by measuring the access time (or cost) from the location to the closest connection node or terminal of the network, the utility this closest node supplies to the average user and the gap between the ideal utility sought and the actual utility obtained in the node (due to delays, congestion, service discontinuities, externalities). A similar value might be developed for telecommunication and energy networks. Assessments should consider this approach as well as the index of accessibility developed for the Second Cohesion Report in order to develop an index of connectivity/accessibility fulfilling the gaps identified below.[2]

The assessment should take account of transport networks and therefore closely coordinate activities with project 1.2.1.. The SPESP states concerning the development of new knowledge on the implications of the information society: "Further research is needed about different forms of accessibility indicators for different types of actors and users. A second area of research should explore new concepts of accessibility indicators that have not yet been made operational, such as indicators taking into account of telecommunications or indicators that are not scalar values but multi-valued distributions. Finally, a third area of research should develop advances of visualising geographical position and time-space maps".

Concerning the geographic reference to be used minimum is the NUTS 3 level, but more detailed analysis might require NUTS 4 and 5 levels.

1.2. Accessibility and connectivity

To study usefully and validly the combined impacts of transportation and telecommunications on the territorial cohesion, it is necessary to assess simultaneously the accessibility and the connectivity of territories. If the concept of accessibility allows dealing with material flows that are transported by physical networks, it does not allow dealing efficiently with information flows that goes through telecommunication networks and for which the necessary condition is the connectivity. As the flows of information, persons and goods are narrowly coupled, it is not possible to produce a valid territorial diagnosis, unless the two constitutive dimensions of the territorial cohesion related to transport infrastructure and supply, accessibility and connectivity, are studied together.

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[1] see report for DG Regio "Towards a European Peripherality Index" Institut für Raumplanung Dortmund, 2000

[2] The second cohesion report states (p. 30): "An index of accessibility has been developed, which measures for each region the time needed to reach other regions weighted by their economic importance. It should be emphasised that this index involves a good deal of estimation and that it represents the position at the present time rather than what it might be in the future, given the current development of infrastructure in peripheral regions (partly financed by SF) and, perhaps more importantly, given the implications for the concept of accessibility of the development of the information society". A typology of regions (3 groups) is presented in the 2RC according to this index.

Cities and urban regions, which constitute the privileged nodes of the telecommunication and transportation networks (including energy), shall play a central role in the analysis. It is from the study of connectivity and accessibility in these privileged locations that it will be possible to assess the forms of territorial cohesion produced by the telecommunication and transport networks, that be at superior territorial levels (euro-corridors, harbour-cities, etc.) or at lower levels (intra-urban spaces, sub-urban spaces, etc.)

1.3. Sustainable territorial development and energy provision

Inter-modality is a characteristic of the transport system that allows the use of at least two different transport modes for a single trip. Within the telecommunication sector inter-modality seem to be of limited consequence for territorial trends. On the other hand, within the energy sector inter-modality is very important, in particular for energy production based on crude oil. From crude oil to petrol and heating oil and further on to the main consumers in industry and households a number of modes of transport are being used. This particular sector could be reflected in considerations on inter-modality.

The indicator work has still considerable gaps in the field of inter- and multi-modality.[3] The SPESP states that "further work should also develop linkages between accessibility data and data on the political, economic and cultural barriers hampering the development of a more decentralised and polycentric Europe, and in doing so also take ICT developments and changes in time distance into consideration". The project should contribute to the development of an appropriate inter-modality and multi-modality index (NUTS III level) within ESPON project 1.2.1., integrating at least the following variables: number of transfer and transhipment points, nodal points; link travel times; terminal utilisation and capacity; investments in EU 27.

The inter-modality index could be combined with the measurement of the efficient and sustainable use of all physical infrastructure (ESDP policy options 30 to 34).

Telecommunication is a potential tool in developing sustainable spatial structures, in particular in urban regions and their rural parts. On the one hand, telecommunication networks and services offer new possibilities for location of enterprises away from "central place locations" in larger cities, which can impact congestion and commuting positively. On the other hand, new forms and the increasing acceptance of tele-working can imply less use of transport networks and facilities, which could benefit the environment and create more lively rural areas.

The potential of sustainable energy has started to be exploited in large scale in some Member States. The substitution of fossil fuels with renewable sources has to continue in order for the EU to meet objectives for emissions set at global level. Therefore, it is important to investigate the potentials in different regions and parts of Europe for renewable energy supply, in particular by using an indicator for wind efficiency at different locations. Concerning natural gas supply the expansion of physical networks

[3] SPESP 2000 CD report of working group on geographical position I.

represent new possibilities for substitution of more environmental damaging energy sources. This development has a clear territorial dimension, where knowledge about existing and potential parts of the European territory for natural gas provision should be visualised. As well, the possible substitution to natural gas by local enterprises and public service providers could improve the attractiveness of a city or a region for new investment.

1.4. Productivity and location parameters

The productivity of enterprises is, in particular, often heavily dependent on costs related to the transportation of inputs to and output from the production process. This dependency is supposed to increase as market places become more global. For the service sector this dependency of transportation seems to be lower in general. However, the dependency of telecommunication services seems to be increasing rapidly, in particular in the industry and the service sector. For many enterprises advanced communication via the Internet is considered an indispensable precondition for modern business development.

As a consequence, connectivity to telecommunication services becomes a location parameter of growing importance. However the potential of European cities or regions to offer the requested connectivity to telecommunication facilities differs profoundly, which should be assessed in relation to the objective of a better balanced and polycentric European territory.

2. Indicators and data, mapping

2.1. Indicators and data

Taking into account the existing (limited) indicators for telecommunication networks and the methodology of the territorial impact assessment developed (see non exhaustive list below) the collection of further statistical and geographical data and the integration of existing and new databases[4] might doubtlessly be required. The same is the case for energy services and networks.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level). It should cover the 15 Member States as well as the candidate countries.

On the basis of these data, the study should provide a first analysis /diagnosis of the telecommunication and energy sector in Europe as well as the existing territorial imbalances and regional disparities in the related infrastructure.

[4] Where harmonised (Eurostat) data sources do not provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of this data should be done in co-ordination with data collection provided by the Transnational project groups of ESPON under priority 4.

Key existing indicators (EUROSTAT) for telecommunication and energy services and networks are (non exhaustive list):

- ***(to be developed and inserted)***

2.2. Mapping

The cartographic restitution of the structure of networks, the consequences and territorial impact of new infrastructures could be highlighted by dynamic mappings ('hyper-maps') and by privileging information restitution methods adapted to the various potential addressees (elected local officer, planners, general public).

The mapping should address different territorial typologies.

3. Quantitative and qualitative analysis

Apart from the points addressed under the specific research questions the following points is supposed to deepen the understanding of feasible approaches. A co-ordination will be inevitable to ESPON project 1.2.1..

3.1. Several spatial scales and simulation models

An approach addressing several spatial scales is indispensable to analyse the territorial differences in terms of connectivity and accessibility that appear at each scale being observed. A city may globally be credited with good accessibility and connectivity levels, even if some of its districts are characterised by inaccessibility and non-connectivity that reinforces the segregation and exclusion processes in social or spatial terms.

The "time-space" approach should lead to simulation or anticipation models allowing –in the cases of the transportation networks– to assess (1) the consequences of natural, technological or social risks; (2) the foreseeable consequences of Union enlargement in terms of internal restructuring of the networks and associated flows; (3) the forward evaluation of the implementation of the political orientations suggested by the ESDP.

3.2. Networking ruled by proximity and by strategic interest

Most networking is ruled of proximity and taking place in the "space of place": neighbours trade and visit each other. However, a networking ruled by specialisation and strategic interests of agents seems to be fostered by the globalisation of economy. These kinds of networking create relations between agents, regions or cities over longer distances taking place in "spaces of flows" rather than "spaces of places". Theories and empirical findings of clustering are in line with the first mentioned kind of networking. In the European context networking within regional settings are highly relevant for the

efforts of fostering cross-border regions. However, networking between cities over longer distances is crucial for understanding of urban systems at the European level.

3.3. Location decisions of private companies and infrastructure

The study of telecommunication services and network infrastructures in relation to territorial development, in particular the relation between connectivity and location decisions for different kind of companies is highly interesting and relevant for policy development towards territorial cohesion. The same goes for energy supply and networks. It will require the identification of sustainable indicators to identify actual and potential location parameters in relation to telecommunication as well as energy provisions, in other words to "local attractivity", and the relation with actual investment patterns, in order to test hypotheses about the relation between telecommunication networks and service provision, and investment location decisions.

Furthermore, international direct investments form and influence local labour markets to a considerable degree. Strategic decisions in multinational corporations on the location of headquarters, R&D facilities and green-field production sites influence heavily on regional and urban job mix. Acquisitions and mergers leading to restructuring of companies can have crucial effects on regional economies.

The influence of international direct investment on regional and urban development should involve two types of approaches in relation to infrastructure:

- The type and mass of foreign direct investments located in cities and regions of Europe(EU27).
- The geography of investments of selected "cutting-edge" multinational companies, including the strategic reasoning behind.

3.4. Comparative study of selected urban areas in the IT era - the role of networks in promoting social cohesion and public participation

The objective could be to study selected (sub)urban areas, such as Finnish Hervanta in Tampere, as "network cities" and on the other hand as local communities. These two characteristics are both considered as essential parts of studying the future development of such areas. To avoid the risk of flouting into the direction of so called "Dual City", the possibility of increasing discrepancy between these two characteristics should be minimized. The comparison of the development of similar network cities in other EU countries is one source of information. The other one is related to action research, a system to make co-operation between different experts easier in community planning. The challenge is focused on how to increase the citizens' access to useful information, on how to improve their life and on how to increase their feeling of participation in the decision-making process, everything developed inside a modern Information Technology System.

3.4. Basic supply for telecommunication and energy services

With reference to accessibility (energy) and connectivity (telecommunication), any minimum requirements for transport and communication infrastructure should be detected and as far as possible related to a typology of regions. The correlation between the kind of economic activity and the spatial development potential on the one hand, and the equipment by a certain degrees of infrastructure should be further investigated. A close co-ordination to ESPON action 1.2.1 on transport should be undertaken.

4. Orientations for policy recommendations

The identification of principles and the elaboration by this project of recommendations for policy development gains importance with regard to the increasing role of some EU Member States as transit countries in an enlarging European Union.

All relevant policy options of the ESDP should be addressed based on the findings of the project in order to derive recommendations that take the diversity of needs and potentials in different parts of the European territory and at different spatial scales into account.
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Furthermore consequences of the findings for the orientation of structural policies should be drawn referring to the development potential of different types of regions, taking into account the existing basic supply telecommunication and energy services and networks.

Substitutive effects between in particular telecommunication networks and transport infrastructure and other infrastructure networks will be fully investigated in the forthcoming ESPON project 3.1. However, approaches of close co-ordination with ESPON project 1.2.1. are requested in order to facilitate cross-coordination.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer usefull information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information

- Eurostat can provide European data concerning telecommunication and energy. Minimum data level required will be the NUTS 3 level, but more detailed analysis will require NUTS 4 and 5 levels. The indicator work has still considerable gaps in the field of inter- and multi-modality transport.[5]

- Experiences of working on this proposal were described in the framework of the "Study Programme on European Spatial Planning" within the theme of "Geographical Position" of the strand "Criteria for Spatial Differentiation" by creating accessibility models. The SPESP study on spatial integration[6] also provides interesting proposals

[5] SPESP 2000 CD report of working group on geographical position I.

[6] SPESP 2000 CD report of working group on spatial integration, p. 51ff.

for data work under this sub-measure. In addition, the SPESP report detected a shortage of important data at regional level concerning ISDN lines and fax accessibility and other communication network related information.[7] The spatial integration projects already mentioned to measure telephone and Internet traffic communications between districts but also the number of computer links to the Internet.[8]

- The Commission's White Paper "European transport policy for 2010: time to decide" and background documents for the "Revision of the Trans-European Transport Networks "TEN-T" Guidelines" provide interesting access points for the investigation of the questions raised, in particular on energy networks. The same is the case concerning the Commissions TINA programme dealing with transport infrastructures in candidate countries.

- The Communication from the Commission "Service of general interest in Europe" (COM 2000/580) already offers a good starting point in the definition of indicators and measures.

- Interreg IIC and IIB projects, also dealing with infrastructure, can provide some experience on transnational scale.

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[7] SPESP 2000 CD report of working group on economic strength, p. 114.

[8] SPESP 2000 CD report of working group on spatial integration p. 52