

Policy guidelines for regions falling under the new regional competitiveness and employment objective for the 2007 - 2013 period in the fields of the knowledge economy and the environment, in line with the Lisbon and Gothenburg objectives

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**Policy guidelines for regions falling under the
new regional competitiveness and
employment objective
for the 2007 - 2013 period**

Vol. II Country Report. FINLAND

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The Team takes full responsibility for the data, information and judgments expressed in the present report.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	5
1 Scope and methodology	9
1.1 Aim of the report	9
1.2 Methodology for context analysis	9
1.3 Structure of the report	10
2. General economic conditions	13
3. Innovation and knowledge economy	19
4. Accessibility	21
4.1. Access to transport infrastructure	21
4.2 Access to telecommunications and information technologies	26
5. Environment and risk prevention	31
6. Implementation of Structural Funds	39
6.1 The 2000-2006 Structural Funds Programming period	39
6.2. Implementation of regional policies: lessons learnt	41
7. Policy priorities assessment	43
7.1. Findings from the statistical analysis	43
7.2. Findings from the field analysis	46
ANNEX I: Methodology for transport indicators.	53
ANNEX II: Telecom indicators levels	57
ANNEX III: Methodology for environment indicators	59
ANNEX IV: Bibliography and sources of information	63

LIST OF ACRONYMS

CIS	Community Innovation Survey
DG Regio	Directorate General of Regional Policy of the European Commission
ERDF	European Regional Development Fund
EKC	Environmental Kuznets Curve
EPO	European Patent Office
ESPON	European Spatial Planning Observation Network
FA	Factor Analysis
GDP	Gross Domestic Product
ICT	Information and Communication Technology
INRA	International Research Associates (Europe)
NUTS	Nomenclature of Territorial Units for Statistics
PC	Personal Computer
PCA	Principal Components Analysis
PPS	Purchasing Power Standards
R&D	Research & Development
SF	Structural Funds
TLC	Telecommunication

EXECUTIVE SUMMARY

This Report offers an assessment of economic conditions and policy priorities for the regions falling under the new Competitiveness and Employment Objective 2007-2013.

It is structured as follows:

- 1) the report presents some statistical data on the general economic conditions of the country.
- 2) a statistical analysis on the three ERDF themes: a) Innovation and the Knowledge economy; b) Accessibility; c) Environment and Risk Prevention.
- 3) a discussion of the current experience with Structural Funds and some implementation issues.
- 4) a set of policy priorities as perceived by the team of independent experts. The methodology, sources of data and description of indicators are explained in detail in Vol. I of the Report, that should be duly considered.

Contributors to the Report include: the statistical team, the core team, thematic experts and the country experts. The final version has been prepared under the responsibility of the core team (Milan).

Eligible Regions: Åland, Etelä-Suomi, Itä-Suomi, Länsi-Suomi, Pohjois-Suomi

▪ *General Economic Conditions*

The eligible Finnish regions are quite different in terms of structural economic features, and often with high sub-regional variability as well. The capital region, Etelä-Suomi, is near to concentrating one half of the population, but it is not densely populated in comparison with the benchmark of the average of EU regions eligible to the Competitiveness objective. The remaining regions show extremely low population density. The primary sector share in employment is everywhere higher than the benchmark, particularly in Itä-Suomi. The share of manufacturing is close to the benchmark in all regions and above it in Länsi-Suomi (a phasing-in region). In terms of economic performance, overall the capital region is a high performer (GDP per capita is high also in the Åland, a group of islands scarcely inhabited, but this is in part a statistical effect of the location there of shipping business). Itä-Suomi, in contrast has GDP per capita 30% below the reference average. All regions have high unemployment, with

Itä Suomi and Pohjois-Suomi more than 13%. Growth of GDP is in general well above the benchmark, except Itä Suomi. Labour productivity growth is higher than the benchmark everywhere, except again in Itä-Suomi and Pohjois-Suomi, that are quite low economic performers, and between them have a share of 25% of the Finnish population. Thus there is a clear dualism in the economy in terms of sector and spatial dimensions.

- *Innovation and knowledge economy:*

Finland has been highly successful in developing innovation capacity. Except Itä-Suomi and Aland, all the regions are high performers in innovation according to the standardised statistical indicators. The share of R&D expenditure over GDP, the share of turnover due to new products, and the number of patents applications in Etela-Suomi, Lansi-Suomi, Pohjois-Suomi is consistently higher than the benchmark. Employment in hi-tech manufacturing is particularly high in Etelaa-Suomi and Pohjois-Suomi, hi-tech services are over the benchmark everywhere except Itä-Suomi. Tertiary education, thanks to a decentralised system of high education, is everywhere over the benchmark.

- *Accessibility*

Connectivity indicators are everywhere low except in the capital region, where they are intermediate, while multimodal potential accessibility is everywhere low. Transport trends show that transport demand is growing at slow pace in comparison with the EU average. Private cars and coach cover more than 93% of passenger demand, while rail is still important in freight sector because of the pulp and paper industry needs. Two TEN-T projects are of interest for Finland: The Nodrica triangle Rail/Road link, connecting the Oresund link Stockholm, Oslo, Turku, Helsinki and the Finnish Russian border; the Baltic Sea Motorway of the sea.

As for TLC/ICT, Finnish regions are above the benchmark on most indicators, except Itä-Suomi for the share of household with Internet access and broadband access, which is also below the benchmark in Pohjois-Suomi.

- *Environment and risk prevention*

In general environmental indicators for Finland are quite homogeneous across regions. Electricity sustainability is low everywhere, and the country relies on the Scandinavian electricity market. There are no indications of high environmental impact of transport. For the indicators of natural/rural assets the situation is very good everywhere, while natural and technological risk is overall low.

- *Implementation of Structural Funds in the current programming period*

In the current programming period Finland is benefiting of two Objective 1 and three Objective 2 programmes. The latter ones cover some zones of Lansu-Suomi, Etela-Suomi, and Aland. Around 31% was given to assisting SME, 16% to RTDI, and 75 to tourism. 20% to large firms, and 17% to RTDI, 21% to human resources, thus the picture of current planning is highly consistent with the Innovation priority of the future Competitiveness Objective under ERDF financing. In terms of implementation aspects of project fragmentation and selection have been observed, and there is a general feeling that the system should be simplified.

- *Policy priorities for discussion*

There is no doubt that Innovation and Knowledge economy should be given the highest priority in all regions, in order to sustain the current development model. There are however regional differences in how to use the ERDF. For the capital region the scope for enhancing RTDI potential is more limited and SMEs support and promoting entrepreneurship would be more relevant, while a different mix may be advisable where the endogenous potential is weaker, particularly in Itä-Suomi.

As for access, the large transport infrastructure needs cannot be addressed by ERDF funds, and the scope for intervention should be limited to specific relatively small projects, including the specific problems of the Aland archipelago. There is instead some scope for selective measures in the field of ICT, particularly in favour of SMEs, in combination with local strategies under the first priority.

Environment investment is a low priority in most regions, and should be addressed by very specific projects in local situations.

1 Scope and methodology

1.1 Aim of the report

The aim of this Country Report is to offer the European Commission an overview of the strengths, weaknesses, opportunities and threats faced by the regions eligible for the new Competitiveness objective 2007-2013. It focuses on the three ERDF themes listed in the draft regulation, and it has been prepared as a background document, with a view to supporting the Commission in its own policy priorities analysis and negotiation with the Member States.

As a part of a comprehensive study on 19 countries including 167 regions, the present Country Report is designed as a summary assessment of some key issues. It is a preliminary assessment that should be completed by a much more detailed structural and policy analysis needed at a later stage for the preparation of the Operative Programmes. Moreover, as explained in detail in Vol. I (Statistical Analysis), and as requested by the Terms of Reference, the present report is based mainly on standardised regional statistics and a common cross-country approach. This has obvious advantages in terms of comparisons and benchmarking, but is not designed to fully capture specific features based on local data, and this fact should be duly considered when using it as a reference.

1.2 Methodology for context analysis

The analysis at regional level presents the following sections: general economic structure, innovation and the knowledge economy, accessibility, environmental and risk prevention. For each section a brief description is given according to a short list of indicators with the following characteristics:

- they are consistent and available at NUT2 level;
- they are relevant for the ERDF thematic approach;
- they are, as far as possible, policy-oriented.

The choice of this set of indicators comes from the need to provide guiding principles for policy priorities, rather than to develop comprehensive regional statistical data. For this reason it should be clear that they give some highlights of the major trends in the regions and do not offer a complete picture of all the needs and weaknesses experienced by the regions.

The rationale of the data processing is the following:

- for each aspect (economic structure plus three themes) a linear composite indicator is created and the region is ranked in comparison with all the other eligible regions;
- for each theme (except Environmental risks) the degree of correlation with the economic performance is investigated, by means of a correlation analysis.

The basic idea is to discuss the main thematic trends in the regions, with respect to the ERDF eligible interventions, in the light of the economic structure and trends and the relative position of the regions as compared to a given benchmark (the EU eligible regions average). This reading of the data helps to discover combinations of, for example, High Innovation and Low Economic Performance, that may suggest the existence of unexploited potential, hence an opportunity to invest more on transfer and adaptation than on R&D or tertiary education per se. This analysis is included in Sections 2 to 5.

This set of information is then discussed from a more qualitative point of view on the basis of inputs coming from an assessment of the current SF programming period and lessons learnt in the field analysis carried out by the national expert.

1.3 Structure of the report

Section 2 briefly summarises the general economic conditions for the eligible regions, using the following average annual data (2000-2002): regional population and its national share, population density, employment share of manufacturing, a 'rural/urban' and a 'presence of manufacturing' classification; and 1995-2002 averages for GDP per capita, rate of unemployment, growth of GDP, labour productivity growth per employee, and economic performance ranking. The latter ranking is crucial in the analysis. It is based on a linear combination of two factors ('levels' and 'growth') arising from a factor analysis (see Vol. I for details). Each data set is presented in comparison with a benchmark given by the average of the EU 168 regions eligible for the objective. Often some additional macroeconomic information is also included.

The following section is on Innovation and Knowledge Economy. It presents regional average annual data (mostly 1995-2002) on R&D expenditure as a share of GDP, EPO applications per million inhabitants, percentage of employment in high-tech services, share of population with tertiary education, share of firms' turnover due to new products (CIS data), and an overall

classification based on a factor analysis. Regions are classified High, Intermediate or Low performing in innovation with a combination of these data.

Section 4 is about Accessibility. It presents data on TLC and ICT (share of firms with Internet access and websites and share of households with a PC and access to the Internet) and data on transport indicators (the ESPON multimodal accessibility potential and connectivity to terminals by car). The analysis is supplemented by recent and forecasted trends in travel demand by mode (DG TREN data and scenario at 2020 (Tremove)). A multi-index analysis is given in the Annex.

Section 5 looks at Environment and Risk prevention. This includes standardised data on energy sustainability (electricity efficiency, self-sufficiency, renewable sources and ranking); the environmental impact of transport (vehicle density, non-fuel transport, anthropic degree, urban/rural typology); natural and technological risk (flood hazard potential, burnt areas and polluting sites). The reader should note that these data cannot cover specific sub-regional environmental risks, but consider regional averages.

Section 6 gives a quick overview of the current 2000-2006 programming period, based on a financial breakdown by re-classified priority and some qualitative comments based on the evaluation results.

The last section is about the policy priorities assessment. The first part of it presents the results of a correlation analysis between Economic Performance and Innovation, Access, and Environment summary indicators. A similar cross-reading is given for Economic Performance, Accessibility and Environment, while the presence of high Natural or Technological Risks is considered as a critical issue per se.

After this combined reading of performance and structural data, the following section is more qualitative, and based on other sources of evidence, including interviews with stakeholders, official documents, evaluation reports, academic research, and the personal assessment by the country expert. This leads to the suggestion of some indicative regional policy priorities, based on the available evidence, to be checked at a later stage when the national frameworks and regional programmes are available.

The report ends with a brief discussion of some implementation issues.

2. General economic conditions

Finland is a large country but scarcely populated and, thus, only the capital region of Etelä-Suomi, with a fifty percent of the national population, shows a more significant demographic density. To be noticed, however, is that such a figure remains largely below the average of the eligible regions (around a half). In order to fully understand the regional performance, it is important to bear in mind two noteworthy aspects. Firstly, aside from Etelä-Suomi, all the regions exhibit a share of employment in primary sectors above the reference average for the EU, especially Itä-Suomi with a percentage four times higher than the average. It must be added that Itä-Suomi is one of the “phasing-in” regions in the competitiveness objective.

Secondly, Åland is a group of islands with only 26 thousands inhabitants and, thus, the remarkable economic performance experienced during the last decade should not be overemphasized. More than 30% of GDP is generated from international shipping. Shipping is important for employment, but more than 70% of crewmembers are living in other places. Thus GDP figures should be interpreted with caution.

The intermediate presence of manufacturing in all the regions but Länsi-Suomi which, albeit classified as rural, is characterised by a high percentage of manufacturing employment, explains why Finland, as a whole, gets an above average share of manufacturing activities.

Looking at the indicators of competitiveness, one can easily note the brilliant performance of Etelä-Suomi and Åland, in clear contrast to the other regions which instead fall in the group of low performing regions (see table 2 and map 1). It should be stressed; however, that the Länsi-Suomi stands just below the borderline of intermediate performing regions since it diverges from the other low performers for a lower rate of unemployment and a faster rise in labour productivity.

Tab. 1 Structural indicators

	Population (thousands)	Share of national population	Population density	Share of primary sectors on total employment	Share of manufacturing on total employment	Rural/urban classification	Presence of manufac-turing
Itä-Suomi	679	13.09	10	11.22	17.10	Rural	Intermediate
Etelä-Suomi	2,536	48.88	62	3.20	18.08	Intermediate	Intermediate
Länsi-Suomi	1,319	25.42	23	7.61	24.78	Rural	High
Pohjois-Suomi	628	12.10	5	9.24	19.21	Rural	Intermediate
Åland	26	0.50	17	5.88	19.64	Intermediate	Intermediate
National figures	5,188	100.00	17	5.88	24.54		
EU eligible regions	313,711		129	3.34	20.18		

Source: Eurostat.

Since the mid-1990s Finland has experienced a rapid economic expansion, a consequence of the transition from an economy heavily dependent on the former USSR to an open market economy. Nevertheless, the process of development presents a significant degree of heterogeneity across the Finnish NUTS2 regions, due to the wide disparities in their geographic and structural profiles (table 1). Also the NUTS2 level is too rough when analysing the Finnish situation since there is even larger disparities *within* these statistical units – something that obviously means that policies will have to be differentiated within the regions. As an example the state aid rules are differentiated on the basis of 79 economic regions.

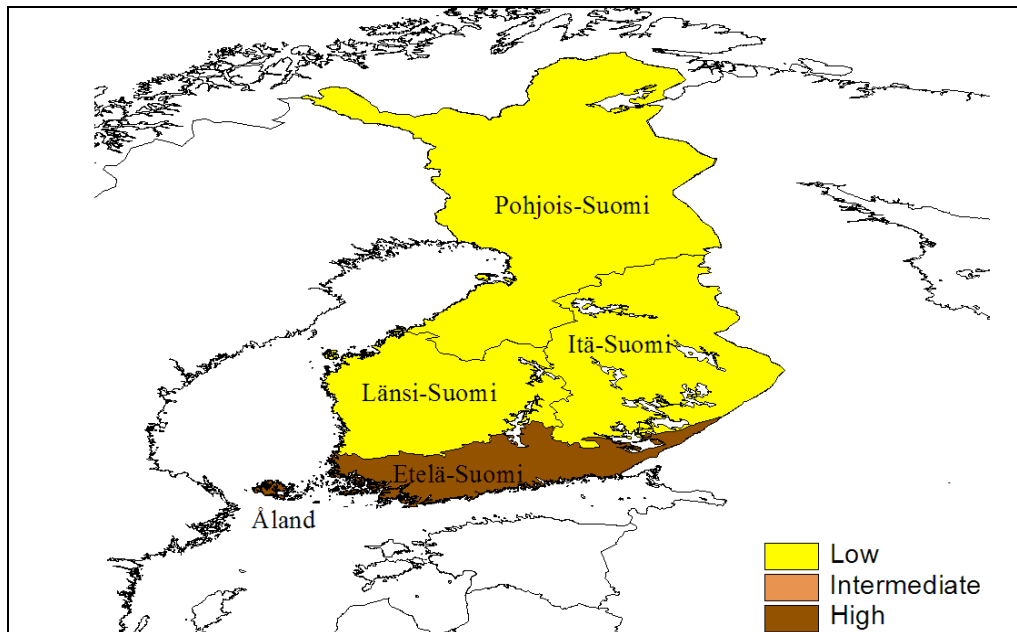
The Finnish GDP/per capita is at the EU15 average, but with large internal variations and a clear core-periphery divide. The capital region (Etelä-Suomi) and the Åland Islands score “high”, while the other three regions score “low”. In reality, the picture is more complicated. All Finnish regions – even the “low” ones - have core cities and towns that are doing well, but with a poorer area around with high unemployment, ageing population and out-migration. The statistics at NUTS2 level cannot reflect this internal variation which is relevant for the actual challenges for regional development. A specific challenge for the northern periphery of Europe is the gradually weakening of large parts of the territories, which calls for specific attention towards maintain service levels and for elderly people as well as job opportunities for the younger and middle-aged.

Tab. 2 Economic performance indicators

	GDP per capita	Rate of unemployment	Growth of GDP	Growth of GDP per employed person	Economic performance ranking
Itä-Suomi	16,903	13.80	1.64	0.70	Low
Etelä-Suomi	27,246	7.27	4.44	2.06	High
Länsi-Suomi (**)	20,402	9.85	3.44	1.94	Low
Pohjois-Suomi	20,084	13.30	3.03	1.03	Low
Åland	31,542	1.69	4.48	2.56	High
National average	23,308	9.34	3.78	1.82	
EU eligible regions	24,162	6.42	2.34	0.99	

(**) = Borderline region between "low" and "intermediate" performers.
 Sources: Eurostat and DG Regio.

Map 1 Economic performance



The more remote northern areas of the country (Pohjois-Suomi and Itä-Suomi), still strongly dependent on primary activities such as forestry and wood working, have been facing more difficulties in reconverting their economy after the liberalization of the early 1990s, as clearly indicated by their high rates of unemployment.

Tab. 3 Economic performance indicators (comparison with the national and European eligible regions)

	GDP per capita		Rate of unemployment		Growth of GDP		Growth of GDP per employed person	
	Finland (100)	EU eligible regions (100)	Finland (100)	EU eligible regions (100)	Finland (100)	EU eligible regions (100)	Finland (100)	EU eligible regions (100)
Itä-Suomi	73	70	148	215	43	70	39	71
Etelä-Suomi	117	113	78	113	117	189	113	207
Länsi-Suomi	88	84	105	154	91	147	107	195
Pohjois-Suomi	86	83	142	207	80	130	56	103
Åland	135	131	18	26	119	191	141	258

Sources: Eurostat and DG Regio.

Economic analysis indicates the in the distribution of ERDF funds available for Finland some regional priorities could be identified in the low performing regions. Among the latter, the priority for Itä-Suomi is also due to its status of “phasing-in” region.

Past and recent trends

Economic growth and structural change have a major influence on regional development.

As a result of changes in the demand for commodities and production methods, there is an ongoing movement of labour and population in general. Finland is a country with large and enlarging internal differences between the main city regions and especially the periphery in east and north.

The urban network in Finland comprises one European level centre with the Greater Helsinki Metropolitan Area, a few strong national centres, all located in Southern Finland with the exception of Oulu in Pohjois-Suomi, and some thirty or more medium or small-sized regional

centres. Although urbanisation has significantly increased since the Second World War, Finland remains one of the least urbanised EU countries.

- Since the mid-seventies the Finnish urban system is characterised mainly by the growth of cities of different sizes and “suburbanisation” of urban regions. The 1990s were a period of “urban centralisation” and domestic migration flows climbed up to the level of the early 1970s when restructuring and follow-on urbanisation (“Great Move”) led to a clear distinction between a developed Southern Finland and lesser-developed regions in Northern and Eastern Finland.
- The strong recession of the early 1990s, followed by a rapid recovery after 1994, opened a new period of strong regional differentiation. During this time, differences between Southern Finland and Northern and Eastern Finland were increasing again. Few “winners” emerged thereafter: Salo (Nokia plants, company headquarters in Espoo), Helsinki, Oulu, Tampere but also Turku and Jyväskylä, although to a lesser degree. All of these early “winners” share common features: they are either large university regions and/or centres of ICT or electronics industries. Conversely industrialised cities as well as regional centres based on public sector were left behind. Looking at the more than 30 small urban regions (around 30 000 inhabitants), the situation is contrasted, with university-city regions usually faring better. Medium sized cities in Northern Finland (Rovaniemi, capital of Lapland) and Eastern Finland (Kajaani, capital of Kainuu), that are mostly public sector oriented, face massive unemployment and out-migration.
- Most recent trends show that the strong concentration that was taking place in the last part of the nineties has evened out from 2002 onwards. The growth of the largest centres, including the capital region has slowed down. A certain number of medium-sized urban regions are amongst the “winners”. Also small and medium-sized urban regions as well as rural areas with good accessibility to the large urban areas in Southern and Western Finland have gained population.

The number of jobs increased in all parts of the Finland during the last ten years, with acceleration towards the end of the last decade. Urban regions with the highest positive migration balance are also those where job creation is the highest.

These trends have not however led to significant improvements in terms of reducing unemployment, even in the growth regions. This is due to the fact that employment growth is predominantly based on that of the new knowledge-based industries that do not provide opportunities for an often elderly and lesser-qualified labour force. Contrary to the preceding period, job loss was also registered in most of the peripheral and declining industrial centres.

3. Innovation and knowledge economy

Finland is generally indicated as a model of an intensively knowledge-based economy. The analysis of the innovation potential confirms that, aside from the rural area of Itä-Suomi and the small island of Åland, all the NUTS2 regions of Finland belong to the European group of best performers.

Two key factors are behind such a position: firstly, a diffused engagement in formal R&D largely above the EU average and; secondly, the high share of people with tertiary education. Etelä-Suomi is clearly the most advanced part of the country by exhibiting an outstanding intensity of EPO applications and a very high percentage of employment in high-tech services.

The effort in R&D-based activities, instead, is particularly relevant in Pohjois-Suomi that shows an intensity of R&D share on GDP nearly three times higher the overall average of the EU regions; this finding is associated with a significant presence of high-tech manufacturing activities.

Tab. 4 Indicators of innovation and knowledge economy

	R&D expenditures on GDP	EPO application per million inhabitants	Percent. of employment in high-tech manufact.	Percent. of employment in high-tech services	Share of population with tertiary education	Share of turnover due to products new to the firms	Overall ranking
Itä-Suomi	1.30	70	1.24	2.83	30.54	18.00	Intermediate
Etelä-Suomi	3.63	345	2.31	5.28	38.95	41.50	High
Länsi-Suomi	3.47	245	1.33	3.32	34.16	33.00	High
Pohjois-Suomi	4.09	232	3.31	3.34	31.61	25.00	High
Åland	0.10	96	1.91	4.53	26.23	0.00	Intermediate
EU eligible Regions	1.70	136	1.49	3.23	24.81	35.21	

Sources: Eurostat and Community Innovation Survey.

Finland has a decentralised system for higher education, and this has contributed to a high frequency of university education in all regions. There are however not enough job

opportunities outside the main cities for people with high education, and the migration pattern is clearly towards the cities, especially the capital area.

Finland has a number of high-tech large companies (Nokia is the best known), and most of the innovation is taking place here – while manufacturing increasingly has moved to other countries.

Policies have in recent years to a large extent been directed towards the innovation system. The “Centre of Expertise”-programme has aimed at enhancing cities specialities and to encourage a division of labour between city regions. Regional strategies have been developed within the national industry policy, and Universities has got cooperation with industry as their 3rd task (after education and research).

The high scores for innovation does not reflect the fact that a significant part of the employment is in non-innovating companies, which are dominating in the sparsely populated peripheral parts of the country especially in North and East. These companies cannot easily be reached by innovation policies, but do still need more traditional investment aid measures.

4. Accessibility

4.1. Access to transport infrastructure

Aside from the intermediate value exhibited by the capital region (see the table displayed below) the endowment of secondary road infrastructure is particularly low. This finding clearly reflects the large size and the low population density of the country. When measured at the NUTS II level, the main cities within each region do dominate the figures. It is reason to believe that the poor accessibility in the peripheries in particular has a significant impact on the low level of GDP and on the high unemployment in those regions.

A similar situation emerges with respect to multimodal potential accessibility, which shows a generalised low degree of accessibility of the Finnish regions.

Tab. 5 Indicators of access to transport

	Connectivity to transport terminals by car	Multimodal potential accessibility
Itä-Suomi	Low	Low
Etelä-Suomi	Intermediate	Low
Länsi-Suomi	Low	Low
Pohjois-Suomi	Low	Low
Åland	Low	Low

Source: ESPON.

As a result, several differentiated policy indications emerge for access to transport infrastructure, as summarised in the final section.

Transport context

Transport demand in Finland is growing at a slow pace in comparison with the EU average trends. In fact all trends are below the EU 15 ones¹ and also the motorization rate is less rapidly increasing, 1990 the Finnish rate was similar to the European one, and in 2001 was

¹ European Commission, Directorate General for Energy and Transport, European Union Energy and Transport Figures, 2003

20% below. As a consequence, the negative impacts due to a fast growing transport sector are probably very limited, although there might be other problems linked to the level and quality of the existing infrastructures, and or to modal shares.

Being a low density territory, some road modes play a major role: private cars and bus and coaches cover more than 93% of all passengers demand. Unexpectedly, rail has a very high share of freight sector demand: 26%, a value exceeded only by Austria and Sweden. This is explained by the type of production in Finland, where paper and pulp dominate – goods that typically are transported on rail.

Tab. 6 Trends in travel demand - pkm 1990 = 100

Years	Cars	Bus and coaches	Railway	Urban rail	Air
1970	46	57	65	72	
1980	68	75	97	98	
1990	100	100	100	100	100
1995	98	104	96	97	104
2000	109	114	102	106	153
2001	111	116	99	107	152
2001 EU 15	120	112	115	115	182

Source: EC -DGTREN.

Tab. 7 Trends in travel demand - tkm 1990 = 100

Years	Road haulage	Railway	Inland waterways
1970	47	75	139
1980	70	100	164
1990	100	100	100
1995	88	115	50
2000	108	121	40
2001	105	118	48
2001 EU 15	143	95	117

Source: EC -DGTREN.

Tab. 8 Modal shares by mode of land transport - Passengers - 2001

	Cars	Bus and coaches	Railway	Urban rail	Powered two wheels
Finland	82.2	11.1	4.7	0.7	1.3
EU 15	80.4	8.8	6.5	1.0	3.2

Source: EC -DGTREN.

Tab. 9 Modal shares by mode of land transport - Freight - 2001

	Road	Rail	Inland waterways	Pipelines
Finland	72.6	25.9	1.4	
EU 15	75.5	13.1	6.8	4.7

Source: EC -DGTREN.

Tab. 10 Motorization - cars per 1000 inhabitants

	1970	1980	1990	1995	1996	1997	1998	1999	2000	2001
Finland	154.57	256.51	388.85	369.63	376.62	376.47	389.64	400.58	409.76	413.65
EU 15	183.64	292.5	392.92	432.97	438.22	446.13	456.88	468.81	478.81	487.75

Trends projections²

Trends in transport demand, emissions and vehicle stock are derived from the Tremove study³ for the period 2005-2020 and are used as background scenario for the regional analysis. According to these forecasts, in the next 15 years railway will diminish its role in the freight transport market, and air transport will subtract some demand to car, in spite of the fact that the environmental impacts of the transport sector will either improve or remain stable.

² Trends have been derived from the Tremove database, data cannot be compared with the past trends presented in the previous section as the transport modes as well as the type of flows considered are different. Nevertheless they represent a likely trend in the absence of specific transport policies.

³ Tremove 2 Model has been developed by K.U Leuven and Transport & Mobility Leuven together with WSP, TRT, TRL, INFRAS and COWI, on behalf of DG ENV (2005)

Fig. 1 Modal shares. Percentage change 2005-2020

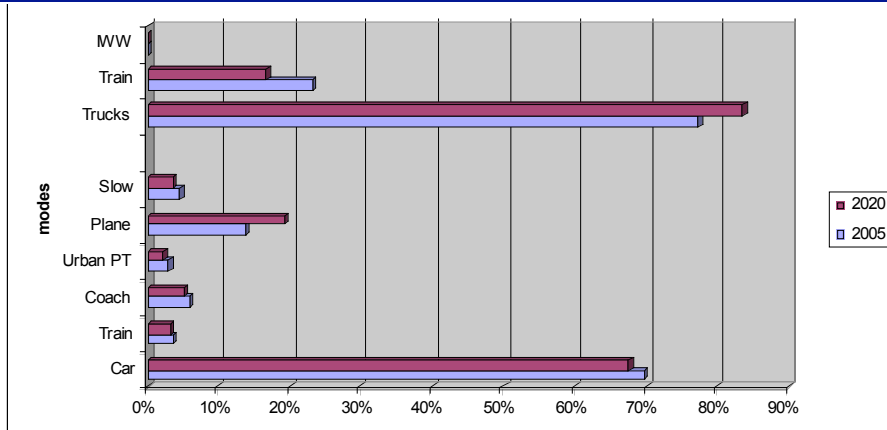


Fig. 2 Road vehicles stock

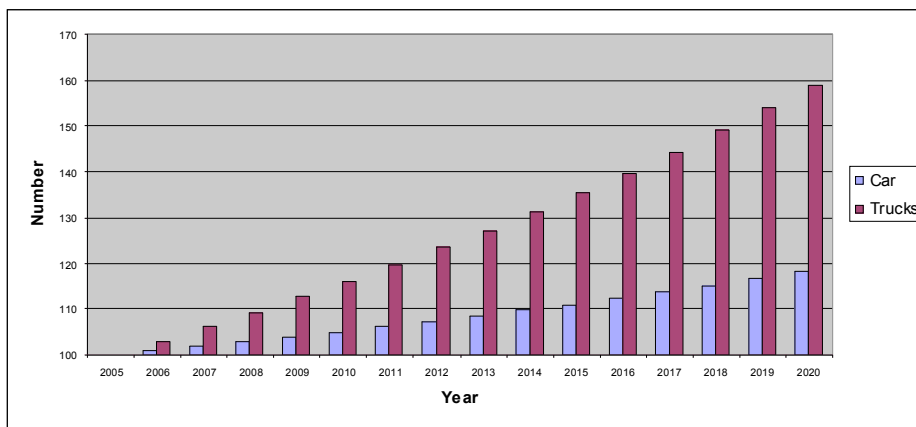
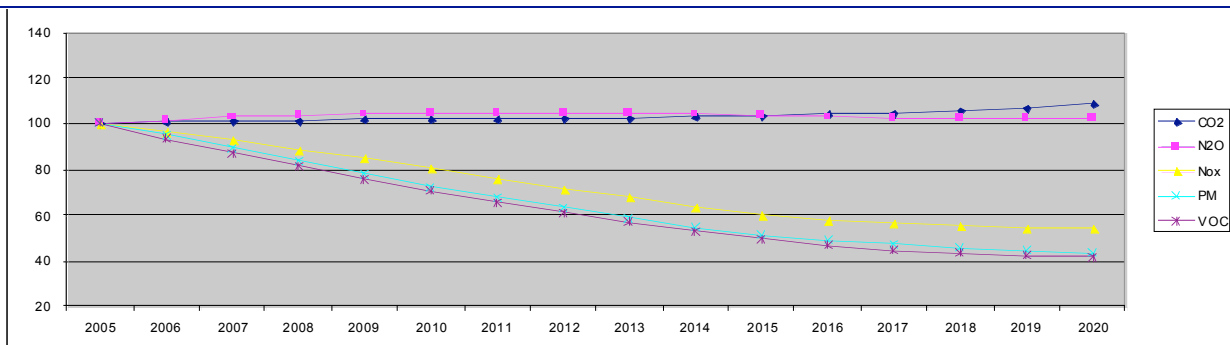


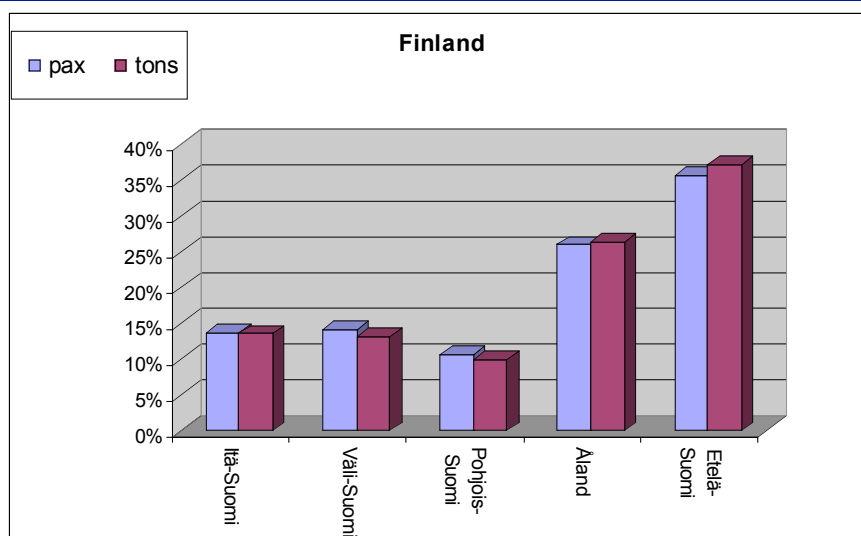
Fig. 3 Trends in transport emissions



Regional analysis

As mentioned, Finland is a very low density country. Passengers and freight flows distribution is homogeneous and follows the distribution of population among regions, difference between the percentages of each flow type within the regions are very small.

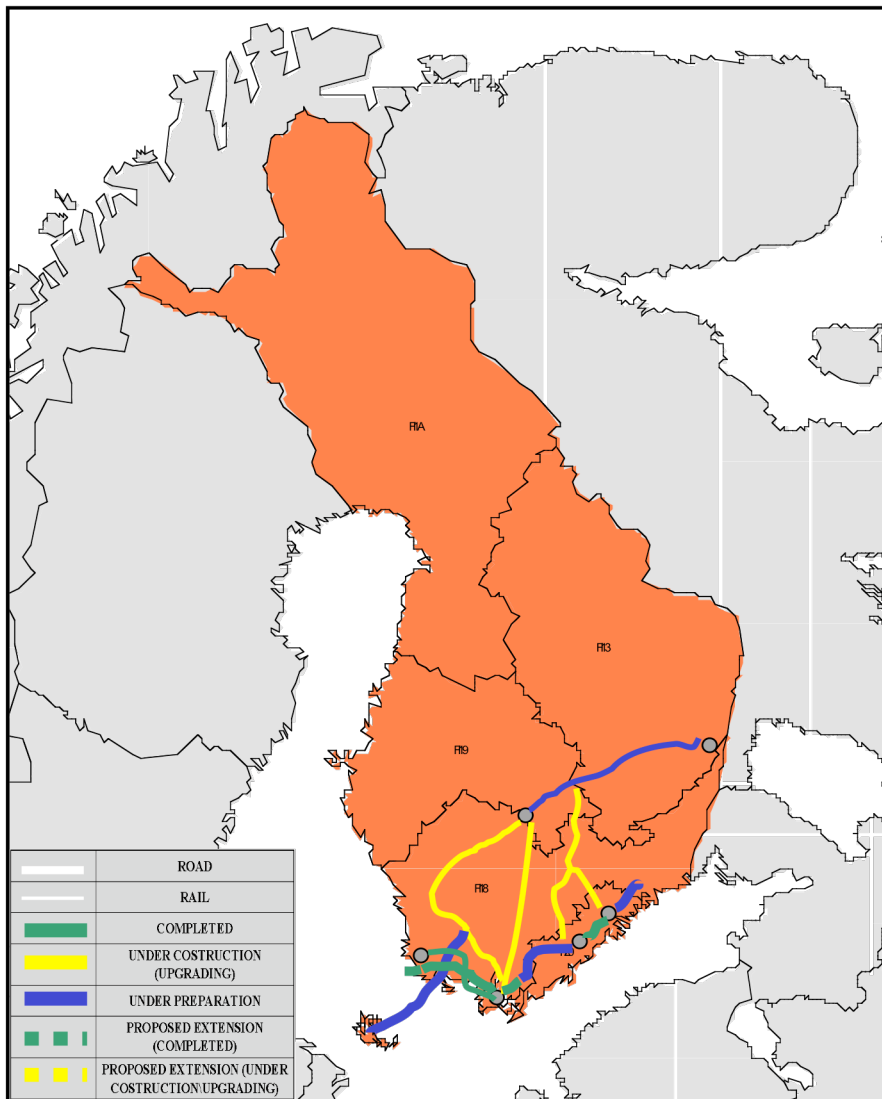
Fig. 4 Traffic flows % of total traffic attracted/generated by each region



Two TEN-T Priority Projects will improve the accessibility of the Finnish territory:

- The Nordic triangle rail/ road link, a project for the upgrading of road, rail and maritime infrastructure in Sweden and Finland to improve freight and passengers transport between the Oresund fixed link Stockholm, Oslo, Turku, Helsinki and the Finnish Russian border
- The Motorway of the Baltic Sea linking the Baltic Sea Member States to those in central and western Europe

Map 2 TEN-T priority projects



4.2 Access to telecommunications and information technologies

In line with the finding on the innovation potential, the access to ICT is largely above the EU average.

This country is usually referred to as a model of the so called “new economy”, being strongly specialised in the production of ICT goods and services and because of a meaningful penetration of these goods across firms and households. In this respect, all Finnish regions are classified as high or intermediate performers.

By scrutinizing more accurately the data, it is possible to note that:

- the uptake of ICT is particularly pronounced across firms where Finland stands in the top ranking of the European regions.
- By contrast, apart from the home access to the Internet through the broadband, the adoption rate of households is relatively less pronounced, even in the highly populated areas of Etelä-Suomi and Länsi-Suomi.

As a country, Finland invests in ICT more than the EU25 average (as much as 6.60% of GDP) and overall it provides a very good and pervasive ICT infrastructure, with remarkable strengths in more advanced applications: it is only at the 3rd level for fixed telephony and in the 2nd for PC availability⁴, but in the top layer for mobile telephony and Internet access⁵.

In fact, Finland is home to one of the strongest players in the mobile telephony industry and it is known in the ICT industry for its widespread adoption of mobile telephone.

When the focus is on the best performing regions across Europe, the picture changes somehow and Finnish regions lose their top position, although performance is still remarkable and Finland records overall a wide access to ICT. When different typologies of applications are compared, businesses appear to perform relatively better than household, although only marginally; and traditional and well established better than leading and emergent technologies.

The ICT/TLC adoption rate of households is relatively less pronounced, even in the highly populated areas of Etelä-Suomi and Länsi-Suomi.

⁴ Respectively, with 50-59 fixed telephony lines and 40-49 PCs per 100 inhabitants (See Annex II)

⁵ Respectively, more than 90 mobile subscribers and more than 50 users per 100 inhabitants

Tab. 11 Access to TLC/ICT

	Share of firms with Internet access	Share of firms with a Web site	Share of households with PCs	Share of households with Internet access	Share of households with broadband Internet access	Overall ranking
Itä-Suomi	94.5	66.6	46.5	28.9	2.2	Intermediate
Etelä-Suomi	98.4	74.5	53.6	38.2	7.2	High
Länsi-Suomi	97.0	70.0	50.4	35.8	4.6	High
Pohjois-Suomi	96.7	69.5	51.2	34.8	3.4	Intermediate
Åland	96.6	70.2	50.4	34.4	4.3	Intermediate
EU eligible Regions	86.01	56.33	49.29	35.19	5.05	

Sources: ESPON and INRA.

Tab. 12 Ranking of the better performing Finnish eligible region by access to TLC/ICT

	Share of firms with Internet access	Share of firms with a Web site	Share of households with PCs	Share of households with Internet access	Share of households with broadband Internet access
Ranking	5	7	8	10	8

Tab. 13 Range between highest and lowest level of access of Finnish eligible region, by variable out of the EU eligible regions

	Share of firms with Internet access	Share of firms with a Web site	Share of households with PCs	Share of households with Internet access	Share of households with broadband Internet access
High	98.4	74.5	53.6	38.2	7.2
	Etela-Suomi	Etela-Suomi	Etela-Suomi	Etela-Suomi	Etela-Suomi
Low	94.5	66.6	46.5	28.9	2.2
	Itä-Suomi	Itä-Suomi	Itä-Suomi	Itä-Suomi	Ita-Suomi

Sources: ESPON and INRA.

Tab. 14 Ranking of regional spread, by variable

	Share of firms with Internet access	Share of firms with a Web site	Share of households with PCs	Share of households with Internet access	Share of households with broadband Internet access
Ranking	11	6	12	8	7

Sources: ESPON and INRA.

In general, ICT access is better than warranted by economic performance; the only exception is Åland where the statistically recorded (but rather disappointing) high economic performance is related with an intermediate ICT access. The suggestion may be to put an extra effort in order to improve the use of the ICT and to utilise the general good infrastructure access for economic development.

5. Environment and risk prevention

The status of environment and risk prevention is rather homogeneous across the Finnish regions, even though it may somehow vary depending on the indicator taken into account. The similarity in the total score attributed to the regions sometimes reflects the usage of the national or NUTS1 averages when NUTS2 data are not available.

Overall, in Finland the local energy sustainability is very low, except for the renewable sources which instead have a great importance, especially in Itä-Suomi. Instead, Åland is the sole area with a satisfactory degree of electricity efficiency.

However, in interpreting this data one has to consider that the Scandinavian electricity market is well integrated across countries.

Tab. 15 Indicators of energy sustainability

	Electricity efficiency	Electricity self-sufficiency	Renewable sources of electric energy	Overall ranking
Itä-Suomi	1.005	0.105	0.385	Low
Etelä-Suomi	1.293	0.156	0.192	Low
Länsi-Suomi	1.293	0.156	0.192	Low
Pohjois-Suomi	1.293	0.156	0.192	Low
Åland	2.879	0.187	0.014	Low
EU eligible Regions	3.646	0.254	0.202	

Source: EUROSTAT - NEW CRONOS (Regio).

Tab. 16 Indicators of transportation impact

	Vehicles density	Non-fuel transportation	Traffic intensity	Overall ranking
Itä-Suomi	0.004	0.006	-1.044	Intermediate
Etelä-Suomi	0.007	0.007	-1.089	Intermediate
Länsi-Suomi	0.007	0.007	-1.089	Intermediate
Pohjois-Suomi	0.007	0.007	-1.089	Intermediate
Åland	0.011	0.000	-1.135	Intermediate
EU eligible Regions	0.218	0.031	0.400	

Source: EUROSTAT - NEW CRONOS (Regio).

The picture is much more positive when one examines the transportation impact and, in particular, the endowment of natural assets. Overall, the figures on natural and technological risks confirm that environment should not be considered a priority in the regional policy agenda.

Tab. 17 Indicators of natural/rural assets

	Degree of protection	Wilderness degree	Anthropic degree	Urban/Rural typology	Overall ranking
Itä-Suomi	0.062	0.657	0.002	4.952	High
Etelä-Suomi	0.062	0.590	0.018	4.011	High
Länsi-Suomi	0.035	0.685	0.006	5.409	High
Pohjois-Suomi	0.234	0.820	0.001	5.663	High
Åland	0.013	0.487	0.004	5.901	High
EU eligible Regions	0.088	0.310	0.103	2.819	

Source: IRENA Database and ESPON-CORINE Landcover Database.

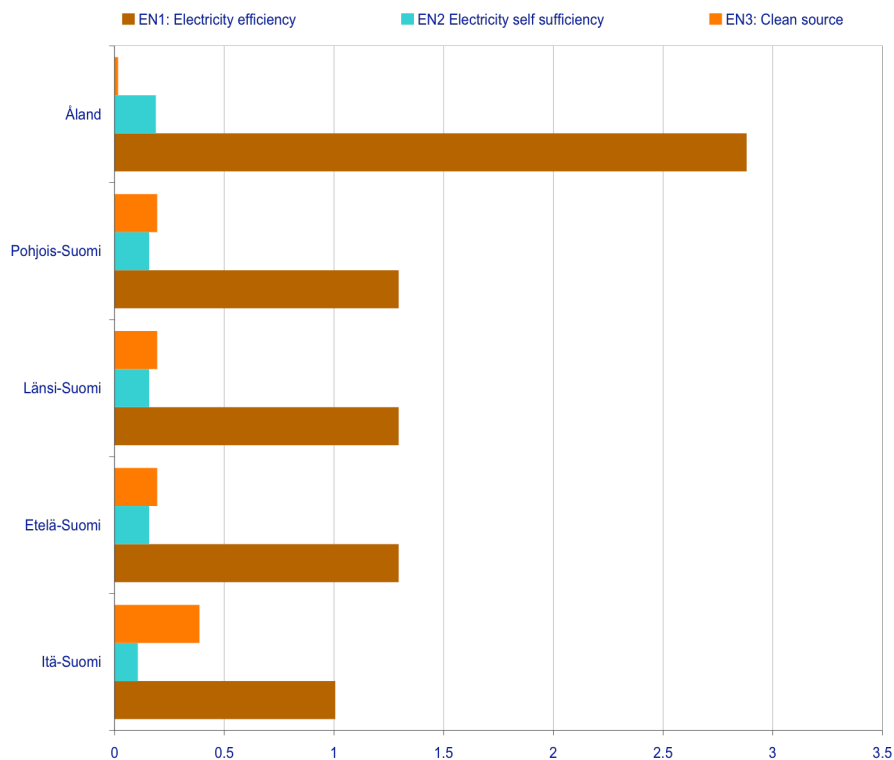
Tab. 18 Indicators of natural and technological risk

	Natural risk			Technological risk	
	Flood hazard potential	Share of burnt areas	Overall ranking	Polluting sites density	Overall ranking
Itä-Suomi	0.000	0.458	Low	0.006	Low
Etelä-Suomi	0.000	0.420	Low	0.025	Low
Länsi-Suomi	0.000	0.294	Low	0.065	Low
Pohjois-Suomi	0.000	1.123	Low	0.060	Low
Åland	0.000	0.000	Low	0.000	Low
EU eligible Regions	0.763	1.622		0.447	

Source: ESPON Database and EPER-EEA.

Energy context

Fig.5 Energy Indicators



EN1 = GDP PPP/ total electricity consumption; EN2 = Total electricity production capacity/ total electricity consumption; EN3 = (Total electricity production capacity - Thermal power - Nuclear power)/ Total electricity production capacity.

EN1 – Energy efficiency and renewable energy

The national electricity efficiency is quite low, with its 1.55 value, exactly 2 points under the European average (3.65). The best performance is registered by the *Åland* Region (2.87), the lowest value is reported by *Itä-Suomi* (1.005), while the other 3 regions present the same low efficiency degree, equal to 1,29.

EN2 – Electricity self-sufficiency; EN3 – “Clean” sources

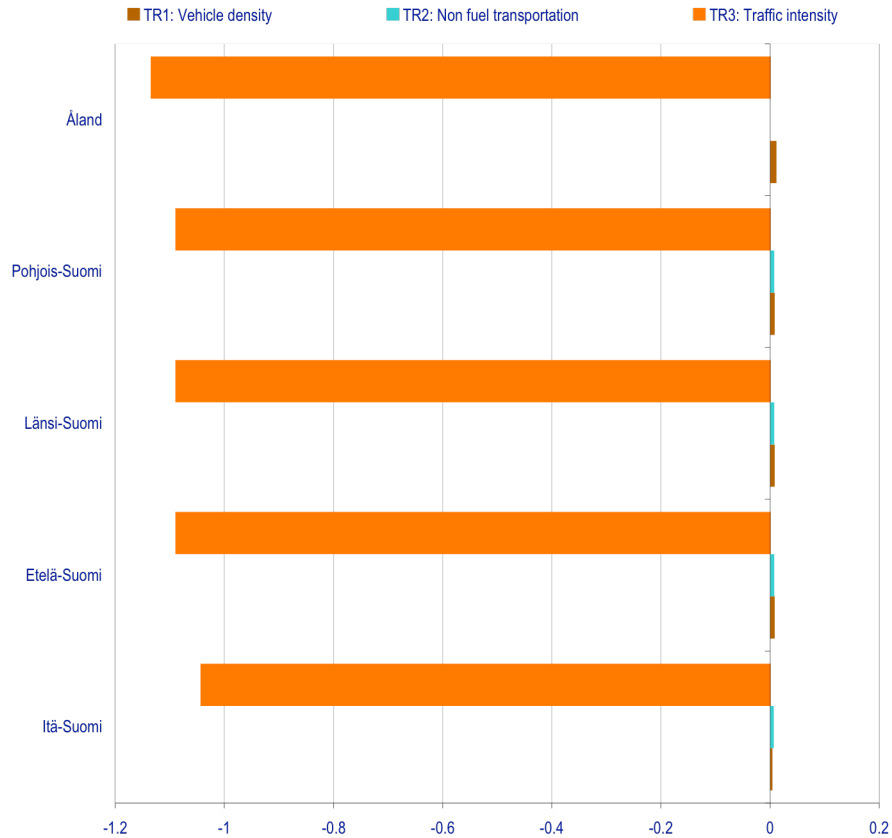
As regards the electricity self-sufficiency indicator, the Finland performance, differentiated by regions, is similar to the previous indicator one: the *Åland* Region ranked first, with 0.18 and *Itä-Suomi* received the worst performance value (0.105). Anyway, the European average does not differ much (0.26) from the Finnish one.

The EN3 indicator is in inverse relation to the previous one, as the best performing region, regarding the clean resources' production capacity, results *Itä-Suomi* (0.38), whereas the region with the lowest share of renewable sources is *Åland* (0.01). The Union average reaches the level of 0.2, which is near the national average of 0.19.

The joint analysis of energy sustainability and economic performance shows that the worst performers are the regions *Itä-Suomi*, *Länsi-Suomi* and *Pohjois-Soumi*, although the nearest to an intermediate economic position is *Länsi-Suomi*. The regions with an unsustainable growth are *Åland* and *Etelä-Soumi*, having a high economic performance, but a low EN indicator.

Transport and environment

Fig. 6 Transport Indicators



TR1 = total number of vehicles/ total area; TR2 = electricity consumption in the transport sector/ total electricity consumption; TR3 = (number of driven trip/ total area) + (total number of kilometres made by journeys/ total area)
 1) Every transport indicator - TR1, TR2 and TR3 - should be interpreted according its own dimension (and colour in column chart). Indicators cannot be compared with each other because of the difference in scales used. See Annex.
 The value of the traffic intensity indicator (TR3) could be some time negative because of the method of normalization used to calculate it. Such a normalization method allows us to summarize the two heterogeneous variables which make up the indicator (“total number of driven intra-regional trips/Total Area” and “Total number of kilometres made by journeys produced-generated by the region/Total Area”). Values produced by normalization are relative and not absolute values.

TR1 – Vehicles density; TR2 – Non fuel transportation; TR3 – Traffic intensity

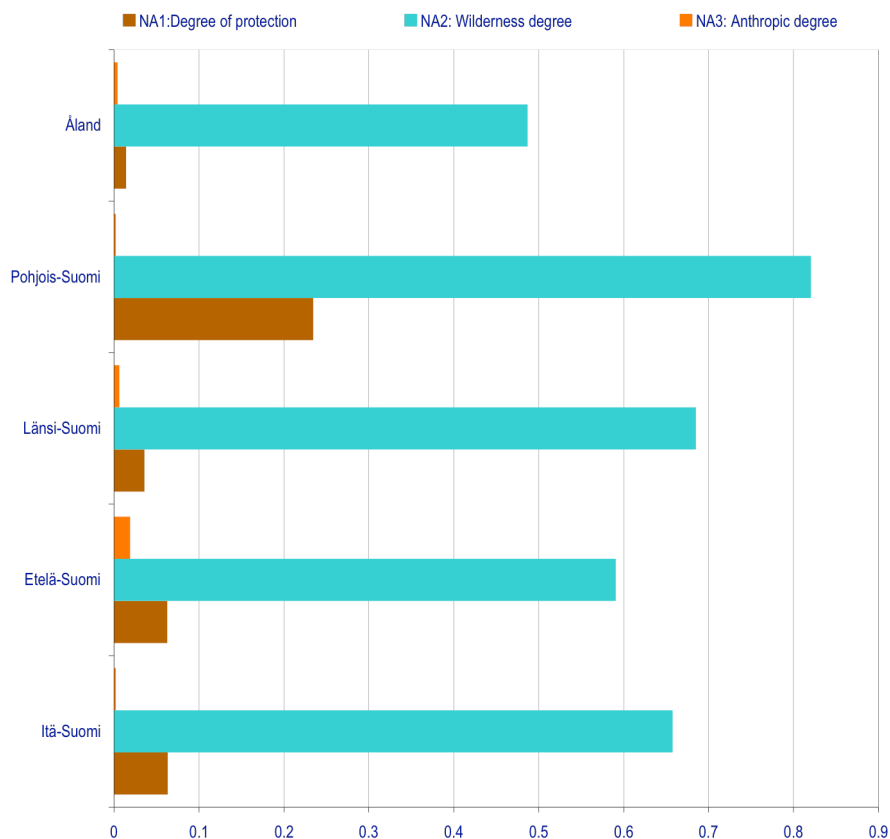
As regards the transportation impact, the Åland Region presents the highest vehicles density, while Itä-Suomi has the highest non fuel transportation value. The Åland Region has a traffic intensity degree near the minimum registered among all the European Countries (-1.13).

Generally speaking, all the regions have an intermediate transportation impact on environment.

Nature and biodiversity

Finland belongs to the Boreal bio-geographical European group of regions.

Fig. 7 Biodiversity Indicators



NA1 = area under nature protection/ total area; NA2 = forest + semi-natural areas/ total area; NA3 = artificial surface/ total area

Indicator NA1 – Degree of protection

As regards the share of protected areas, the Finnish regions have registered a value little below the European average (0.8), although the *Pohjois-Soumi* Region has reached 1 point more (0.23).

Indicator NA2 – Wilderness degree

The *Pohjois-Soumi* Region has the highest presence of natural and semi-natural surfaces (0.82), almost equal to the European Union maximum share. Furthermore, the lowest Finnish

wilderness degree (reached by *Åland* Region, with 0.48) is still higher than the EU average (0.30).

Indicator NA3 – Anthropic degree; NA4 – Urban-Rural typology

The area with the highest human intervention is *Etelä-Soumi*, with 0.018 far under the eligible European Regions average (0.103), while all the other Finnish regions have an anthropic degree near to zero.

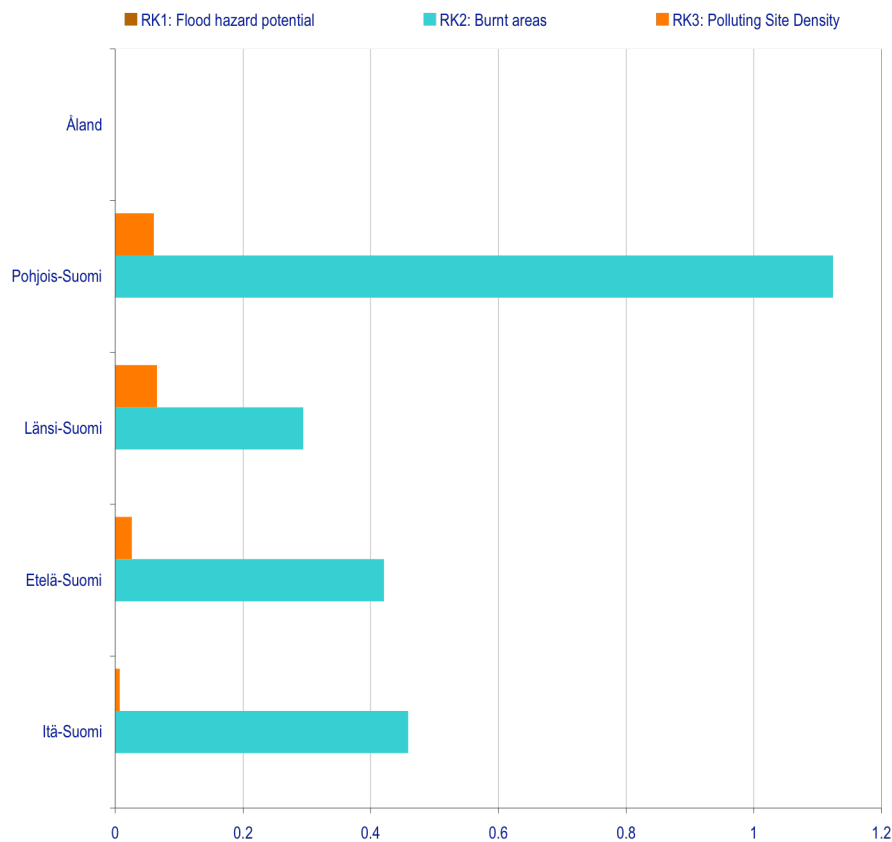
As regards the NA4 indicator, all the Finnish eligible regions have a prevalence of rural settings, and the *Åland* one with 5.90 almost reaches the EU maximum (6.00). The EU average, with its 2.819 is well overcome by the other 4 regions (*Etelä-Soumi* ranked last with its 4.011).

In conclusion, combining the 4 previous indicators, regarding the global natural and rural assets endowment, all the Finnish eligible regions ranked high.

Risk Prevention

The natural hazards with anthropic implication that Finland has to face are the flood hazard potential and the size of burnt areas.

Fig. 8 Risk Prevention Indicators



RK2 = (size of burnt areas/ total area) *1000; RK3 = number of installations under IPPC obligation/ total area (hundreds km²)
 RK1 - Regional flood hazard potential; RK3 - Polluting sites Density.

As regards the first indicator, Finland does not suffer at all from the natural risk represented by flood hazard potential. The technological risk of polluting sites is not even taken into consideration, due to the scarce productive activities in the territory.

RK2 – Natural hazards with anthropic implications – Size of burnt areas

Since Finland is mainly constituted by forested mountainous territories, the risk of forest fire events is relevant (1.12 in the most populated region, Pohjois-Soumi), but still under the EU average (1.62). The other regions present anyway very low rates.

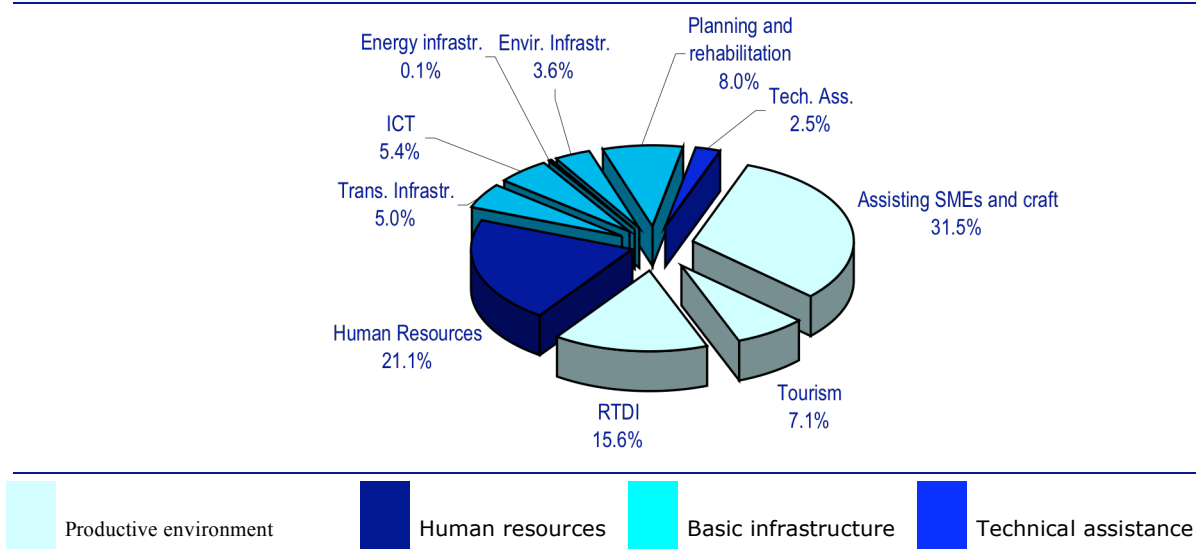
The overall rank of all the Finnish regions is quite low, as the technological risk is not high.

6. Implementation of Structural Funds

6.1 The 2000-2006 Structural Funds Programming period

For the 2000-2006 period, Finland is benefiting from five regional development programmes: two programmes in the framework of Objective 1 of the Structural Funds and three others under Objective 2.

Fig. 9 EU Contribution by typology area - Finland, Objective 2 (2000-2006)



Source: our processing of DG Regio data (programme complements).

There are three regional operative programmes for Objective 2:

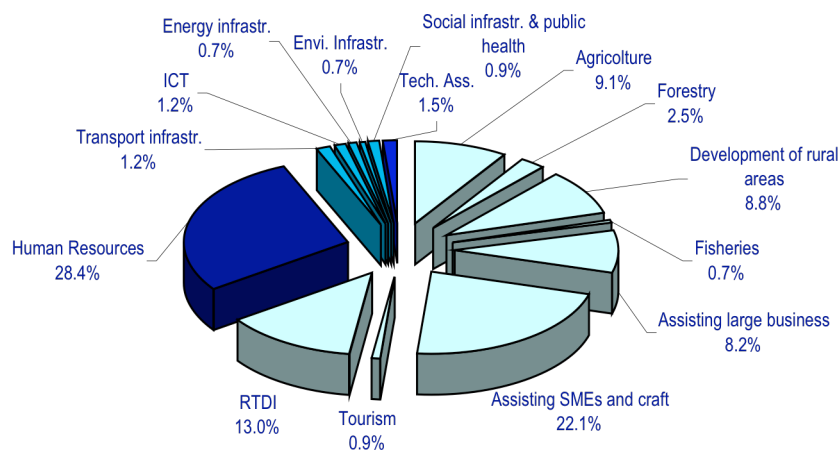
- the “Länsi-Suomi” (West Finland, formerly Väli-Suomi, Central Finland) programme: certain areas in the regions of Pohjanmaa, Pohjois-Pohjanmaa, Etelä- Pohjanmaa, Keski-Pohjanmaa, Satakunta, Pirkanmaa and Keski-Suomi;
- “Etelä-Suomi” (South Finland) programme: certain areas in the regions of Etelä-Karjala, Kymenlaakso, Päijät-Häme, Kanta-Häme, Varsinais-Suomi, Uusimaa and Itä-Uusimaa;
- the “Åland” programme: the autonomous province of the Åland Islands.

They receive 507 million Euro from Structural Funds, and also benefited from the performance reserve (23 million Euro).

Support to business, especially SMEs, is a priority among these regions, and a specific emphasis is given to new technologies.

A special attention should be given to Åland archipelago, an autonomous Finnish province. The insular nature of the islands and the restrictions it imposes on businesses renders certain business activities more difficult. The Åland islands are small and scattered with no fixed road links. Most companies are small with very little investment capabilities. Unlike in the rest of Finland, the only official language of the archipelago is Swedish.

Fig. 10 EU Contribution by typology area - Finland, Objective 1 (2000-2006)



Source: our processing of DG Regio data (programme complements).

Objective 1 regions receive a Structural Funds contribution equal to 948 million Euro. They also received 41 million Euro for the performance reserve. There are two Objective 1 regional programmes:

- the "Pohjois-Suomi" (North Finland) programme: the Lappi (Lapland) region and part of the regions of Pohjois-Pohjanmaa, Keski-Pohjanmaa and Keski-Suomi;
- the "Itä-Suomi" (East Finland) programme: the whole of the Kainuu, Pohjois-Karjala, Pohjois-Savo and Etelä-Savo regions.

The programmes are mostly devoted to business support and development helping to achieve an improvement in living conditions and avoid depopulation.

Finland devotes the highest proportion of ERDF and ESF commitments to the Lisbon objectives, compared to other countries, and its development strategies are heavily focused on supporting knowledge economy, RTDI and ICT, both in Objective 1 and 2 regions, while infrastructure and environment are not as crucial.

Box 1. Some beneficial effects from Structural Funds

- Up to now Structural Funds in Finland have supported the creation of nearly 50,000 new jobs and 7,200 new enterprises since the launch of the 2000-2006 programmes.
- An important non-quantifiable result of two programming periods in Finland is the reinforcement of institutional linkages between research institutions and industry, fostering competitiveness through innovation.
- In terms of good governance Structural Funds also increased the role of the regions, in a centralised administrative system like the Finnish one.

Finland has also Objective 3 measures for and specific support measures for restructuring of the fisheries sector. Given the specific status of the Åland Islands, Objective 3 is broken down into two programmes: "Continental Finland" and "Åland". Finland has also a Urban programme for Helsinki.

6.2. Implementation of regional policies: lessons learnt

Finland has a state and sector oriented system for policy delivery. The Structural Fund programmes are closely linked to the implementation of national policies, and this provides flexibility regarding the guidelines for the Funds (even if it is complicated in other ways). The distribution between the different kinds of sectoral interventions will therefore often be a reflection of the regulations for the Structural Funds. One of the main benefits of Structural Fund programming is that a regional dimension is added to the sector approach.

Box 2. Some problems with the implementation of Structural Funds

- As far as the implementation is regarded, the current Structural Fund system seems to be complicated. SF funds are integrated with domestic policies, which is an advantage since co-funding is available and the management can be taken care of in the national administrative structure.
- However, the funds are distributed through approximately 80 different budget lines and divided between regional programmes, which as a result produce a web of small budget allocations that sometimes are difficult to combine.
- A frequently heard criticism against the current system is that this complexity produces a situation where projects are selected more on the basis of technical eligibility than on their contribution to the fulfilment of programme goals, and that the programme content now is decided more by auditors than by those who know the needs of the regions and the potentials of the proposed projects.
- The EU regulations are demanding, and their complexity has been added to by the Finnish budget allocation structure. There are now ongoing discussions about possible ways to simplify the system, but conclusions are yet to be drawn.

7. Policy priorities assessment

According to the Commission's proposal, Finland is entirely eligible for the Regional Competitiveness and Employment objective. The Finnish position is however that the sparsely populated northern and eastern periphery according to some stakeholders' perceptions should maintain its Objective Convergence status also for the next programming period.

7.1. Findings from the statistical analysis

The access to transport infrastructure (both for connectivity and accessibility) arises as a problem common to the majority of the Finnish regions, no correlation is instead found between the road connectivity and the economic performance of the capital region (Etelä-Suomi). Moreover, the capital region Etelä-Suomi (and Åland) is characterised by a strong degree of uncorrelation between accessibility and economic performance.

The elevate innovation potential do not seem to effectively impact on the economic results of Pohjois-Suomi, Länsi-Suomi and, to a lesser extent, Itä-Suomi which, consequently, seem to suffer the scarce circulation of the knowledge created. The excellent economic outcome of Åland is not associated with its moderate innovative capacity, since GDP figures are inflated by the shipping industry.

Similar results emerge when one looks at the access to ICT; however in this case (as it is for Sweden and other North European countries with a high diffusion of ICT) the challenge is to enhance the use of ITC for economic development purposes, i.e. the diffusion of new technologies to SMEs. Computers are used and broadband is available almost everywhere, but the competitiveness gain is still to be developed. Finally, there are overall good conditions in terms of environment and risk prevention.

Tab. 19 Economic performance versus innovation & knowledge economy, access to ICT and access to transport.

	Innovation and knowledge economy		
Economic performance	High	Intermediate	Low
High	Etelä-Suomi	Åland	
Intermediate			
Low	Länsi-Suomi Pohjois-Suomi	Itä-Suomi	

	Access to TLC and ICT		
Economic performance	High	Intermediate	Low
High	Etelä-Suomi	Åland	
Intermediate			
Low	Länsi-Suomi	Itä-Suomi Pohjois-Suomi	

	Access to transport (connectivity)		
Economic performance	High	Intermediate	Low
High			Etelä-Suomi Åland
Intermediate			
Low			Itä-Suomi Länsi-Suomi Pohjois-Suomi

* Being a small group of islands, the presence of a strong uncorrelation does not implies for Åland that a policy priority should be ascribed to the improvement of the secondary network of transport.

Tab. 20 Economic performance versus innovation & knowledge economy, access to ICT and access to transport.

	Economic performance	Innovation and knowledge economy		Access to TLC and ICT		Access to transport	
	Ranking	Ranking	Joint analysis	Ranking	Joint analysis	Criticality	Joint analysis
Itä-Suomi	Low	Intermediate	Unexploited potential	Intermediate	Unexploited potential	Low connectivity & accessibility	Low performer
Etelä-Suomi	High	High	High performers	High	High performers	Low accessibility	Strongly uncorrelated
Länsi-Suomi	Low	High	Strong unexploited potential	High	Strong unexploited potential	Low connectivity & accessibility	Low performer
Pohjois-Suomi	Low	High	Strong unexploited potential	Intermediate	Unexploited potential	Low connectivity & accessibility	Low performers
Åland	High	Intermediate	Uncorrelated	Intermediate	Uncorrelated	Low connectivity & accessibility	Strongly uncorrelated*

* Being a small group of islands, the presence of a strong uncorrelation does not implies for Åland that a policy priority could be ascribed to the improvement of the secondary network of transport.

Tab. 21 Economic performance versus environment and risk prevention

	Economic performance	Energy sustainability	Transport impact	Natural/rural assets	Natural risk	Technological risk
Itä-Suomi	Low	Low	Intermediate	High	Low	Low
Etelä-Suomi	High	Low	Intermediate	High	Low	Low
Länsi-Suomi	Low	Low	Intermediate	High	Low	Low
Pohjois-Suomi	Low	Low	Intermediate	High	Low	Low
Åland	High	Low	Intermediate	High	Low	Low

7.2. Findings from the field analysis

Some lessons from previous experiences in the fields of the proposed priorities for future ERDF interventions are as follows:

- *Promoting innovation and R&D*: this priority is in line with the present policies, and will probably be given priority in the next programming period. The link to SMEs is important.
- *Promoting entrepreneurship*: the link between the knowledge sector and the business sector is a key factor for Finland. The universities have recently got regional co-operation as their "3rd task" (after education and research).
- *Secondary networks*: Communications are of course crucial in a sparsely populated country like Finland. Roads and connections are always important in the local and regional political debate. The municipalities are the most important lobbyists here, and Structural Fund interventions have so far not been used for this purpose.
- *Information society*: the ICT infrastructure is now in place, and the issue for the future is how to utilise this infrastructure to gain economic growth. There may be room for Structural Fund interventions to stimulate the use of broadband.
- *Investment in infrastructure linked to Natura 2000*: Finland has a large number of Natura 2000 areas, but there has so far not been much commercial activity around them. This may be a potential for the future.
- *Promoting the integration of cleaner technologies and pollution prevention measures in SMEs*: this may also be of interest, but then more on the development of technology and sale of equipment than for the improvement of the domestic natural environment.
- *Rehabilitation of derelict industrial sites*: this is not an issue in Finland.
- *Supporting measures to prevent natural and technological risks*: This is not an issue in Finland.
- *Promotion of urban sustainable public transport*: public transport is a responsibility for the municipalities. This has not been mentioned as an area where Structural Fund interventions are likely.
- *Development and use of renewable energy*: Finland has an important forestry sector which is not eligible for Structural Fund support. However, the significant biomass

production in the forests may in the future be utilised for energy production, and this could be of interest in a regional policy context. A new nuclear power plant is currently under construction.

In the Finnish political debate, the possibilities for maintaining the welfare state system is in focus.

Accessibility issues are always of great interest for local politicians.

Economic growth

Economic growth issues are also frequently discussed, but there seems to be a lack of new ideas. There is generally a belief in education, research, innovation, networking, clusters, innovation systems etc., like in most other European countries. The public budget for these purposes has been growing significantly over the last years, especially after the economic crises in 1992-1994 when there were obvious needs of investments in education and R&D. Today there is a lack of demand from the business sector rather than a lack of funding for development purposes.

Finland is in need of economic growth to be able to maintain the present welfare system, but structural changes seem to be necessary to create that growth. It is a sort of lock-in situation, where changes are too painful to be politically feasible. Finland's challenges are similar to Sweden's, even if the situation is less serious in Finland than in Sweden.

Policy issues

The most important fields of intervention in the next programming period will be within the first strand, i.e. innovation and knowledge economy. The strand of environmental interventions is less interesting, as we also can see from the statistical analysis. Accessibility is a major issue in all peripheral parts of the EU. Secondary networks are however seen to be less important than the use of ICTs by SMEs.

Innovation and the Knowledge Economy

Interventions in Innovation and the Knowledge Economy, together with Access to Efficient Use of ICTs by SMEs, are those that we would expect the regions to prioritize. There are only small variations within Finland in this respect. These headlines do also fit the national policy quite well, as the focus now is on innovation and entrepreneurship in most regions.

These headlines do however not fit all parts of the country equally well. Especially in the weakest parts of Finland is direct business support, including investment aid, regarded as the

most efficient public intervention for enhancing job growth. A precondition for the use of general measures for stimulating innovation and the use of ICT is a business sector that is able to absorb these kinds of measures. This precondition is met in the main urban centres, but not in the peripheral and sparsely populated countryside.

Other sectors for intervention

Other types of interventions are necessary in these parts of Finland.

- The tourism industry is one of the few growing economic sectors in many areas. Tourism is however not mentioned in the proposed new regulations, neither is the use of the nature and the natural environment for recreational purposes, and this may be problematic seen from the perspective of regional development in weak areas.
- Another issue of concern for many peripheral regions is service provision for the ageing population, and this is another topic that is not mentioned in the proposed Objective 2 guidelines.

Suggested prioritisation

A breakdown of resources should be based on the same overall division between the three strands of Innovation and Knowledge Economy, Environment and Risk Prevention and Accessibility: we suggest that high priority could be given to Innovation, a marginal share to Environment and around one third for Accessibility. Under the Environment strand, only measures for enhancing energy efficiency and building more renewable energy should be prioritised, while the other three are of little relevance in the Finnish context. Better use of ICT for development of SMEs is seen as the most important measure under Accessibility, while all regions also can make use of the possibility of investing in secondary networks – which in the rural parts is of specific relevance for small scale investments connected to tourism development.

There are some variations between the regions.

- Etelä-Suomi is the southern region, where Helsinki is located. This is the most competitive region. Here the enhancement of R&TD innovation capacities is somewhat less important than in the rest of mainland Finland, while promoting entrepreneurship is important to benefit from these investments.
- The Åland islands are different from the rest of Finland: they are small and lack infrastructure for higher education and research in most academic disciplines. Entrepreneurship is a major concern here. The issue of accessibility is also different here,

since the external connections are so important. There are numerous ferry routes linking the Åland islands to Finland and Sweden, but the very limited air connection is a specific concern.

Regional level

Etelä-Suomi

This region (Southern Finland) comprises the important metropolitan area of Helsinki and it contains almost half population of the country.

- Its population density, half of the average of EU eligible regions, nonetheless is way above Finnish national average. The low share of primary and manufacturing sectors on total employment distinguishes this region from the rest of "rural" Finnish regions and makes it closer to EU eligible regions. However, these data are mainly driven by the Helsinki whereas the rest of the region tends to reproduce the features of bordering Finnish regions.
- Economic indicators (especially GDP growth and growth of GDP per employed person) point at Etelä-Suomi as the only Finnish high performer together with the small region of the Åland islands.
- As seen earlier, this is clearly the most advanced region in the innovation and knowledge economy by exhibiting an outstanding intensity of EPO applications and a very high percentage of employment in high-tech services. The important Nokia corporation plant is located in this region, in Salo, a town of 25,000 people, a 90 minute drive from Helsinki's international airport. The main concern is to stimulate entrepreneurship in order to take advantage of significant investments in this area. Moreover, there is a shortage of skilled labour in the service industry, and in the manufacturing and primary sectors.
- Transport and TLC/ICT accessibility is the highest in Finland and this did not involve a significant negative impact on the environment. By European standards, however, and even with respect to other metropolitan areas in Nordic countries (Stockholm and Copenhagen) connectivity and accessibility indexes are still quite low and indicate room for improvements.

Åland

The Åland archipelago consists of more than 6,500 isles and is an autonomous, Swedish speaking region of Finland. The largest island "Fasta Åland" is home to 90% of the population.

This region exhibits a very high economic performance: in Finland it has the highest GDP per capita, the lowest unemployment rate and the highest growth of GDP. As explained earlier, GDP figures should be interpreted with caution. More than 30% of GDP is generated from international shipping. Shipping is important for employment, but more than 70% of crewmembers are living in other places.

- Innovation and knowledge economy do not play significant role in the local economy. These islands lack infrastructure for higher education and research in most academic disciplines. Therefore, emigration of young people to universities of Finland and Sweden is common and the not so favourable economic opportunities in the islands prompt young graduates to settle abroad.
- Besides education, the other major concern is the poor air infrastructure. TLC/ICT infrastructures perform well Åland has always been at the forefront of developments in information technology, and now the region has a broadband network that is accessible to almost the entire population.
- As the other Finnish regions, Åland does not present particular environmental issues. There are about 40 nature reserves that should help boost tourism industry.

Länsi-Suomi

This region corresponds to western Finland and includes the important city of Tampere.

- High share of manufacturing sector on total employment characterises this region from the rest of Finland and indicates its important industrial past. This made the region more sensitive to the 1990s important structural changes, increasing unemployment. The latter is now still above average of EU eligible regions but it is not so high with respect to the Finnish context (excluding Helsinki area and Åland).
- Despite their economic decline, the regions of Western Finland are endowed with good TLC/ICT infrastructure and a well-functioning communication network. Connectivity, remains, however, very low.
- The agricultural sector that represents a high share on total employment is competitive and the education and research and development facilities are of high quality. Again, the region presents also areas where difficult economic conditions underlie the high rate of outmigration towards most important cities (Tampere).

Itä- Suomi

Eastern Finland is made up of four regions, South Savo, Kainuu, North Karelia and North Savo.

- This region exhibits probably the worst macroeconomic conditions of Finland and presently receives funding as an objective 1 region from the EU. The share of primary sector on total employment is the highest in Finland, as well as the GDP per capita and the unemployment rate (close to 14% during the 1995-2002 period), leading to massive out-migration. All this is not helped by the lowest GDP growth in the country (a modest 1.64%). The economy relies heavily on the public sector and also on agriculture and forestry.
- Knowledge and innovation indicators are the worst in the country but the share of population with tertiary education is above the average of EU eligible regions and indicates that the objective of diversifying business in growth sectors based on expertise is achievable in the long term.

Pohjois-Suomi

Pohjois-Suomi stretches above arctic circle and presents the lowest population density of the country. Most of the population in this vast region is concentrated on the west coast with Oulu representing the only significant urban area of the region which remains highly rural.

- Economic performance is slightly better than in Itä-Suomi, except for GDP growth that is almost aligned on levels of southern regions. The region suffers from out-migration and long distances between population as in Itä-Suomi.
- Contrarily to the latter, innovation and knowledge indicators show good steps forwards, overall as concerns the will of the governmental authorities to invest in this area.
- Low population density explains low connectivity and accessibility but few existent communication links are considered of good quality. Access to TLC/ICT indicators confirm the latent potential of the region that seems to be on the way to catch up with the rest of the country.

Implementation issues

Finland will probably organise the Objective *Competitiveness and Employment* interventions in four programmes on the mainland, following the NUTS II statistical delineation, plus a programme for Åland. The four mainland programmes will cover several regional councils

each. The councils have already started to cooperate in “regional alliances” to prepare future programmes.

Finnish regions do prefer a larger share of the available European funding to be used on ERDF measures than presently, when the division is 54% ERDF and 46% ESF. They also want the ESF measures to focus more on education and less on labour market measures.

The regions underline that ESF and ERDF interventions should be coordinated, and are here in opposition against the labour market authorities who prefer a separate national programme with only limited regional influence.

The discussion on the future administrative organisation has just started. The Finnish government has emphasised their wish for more delegation to the regional level. However, since governmental funds cannot be delegated to a non-state agency, it might be necessary to establish a new legal framework. As always when such issues are raised, one can expect resistance against changes in financial responsibilities.

Integrated projects are not much used in Finland (but more in EDF than in ERDF), as it is regarded as too complicated from a monitoring perspective. This attitude will be maintained in the new period.

The proposed toolbox is too limited for Finnish needs. The division of labour between national and European funding will therefore be crucial, since nationally funded measures will have to cover issues not included in Objective 2 regulations. The state aid rules will also be of major significance in this context.

The NUTS II level covers geographically very large regions. The four NUTS 2 areas can be compared with the 79 economic regions often used in domestic regional analysis. The NUTS 2 regions have large internal variations regarding development challenges and opportunities. It is therefore necessary to differentiate the policy response within them to fit the local situation.

ANNEX I: Methodology for transport indicators.

The multi-index approach

Finding a unique measure of the transport conditions in a given region, even if the analysis is focused on one main aspect like accessibility, is a very difficult task. Both demand and supply conditions play a role and both can be seen from different perspectives so that each indicator is hardly more than just a limited point of view. For that reason, we decided to use different indicators, namely three indexes:

- Infrastructure Usage Index - IUI_j
- Accessibility Index - AI_j
- Connectivity Index - CI_j

The Infrastructure Usage Index measures the level of road and rail demand entering the region and leaving the region (i.e. generated and attracted traffic excluding trips starting and ending in the same region) in comparison to the supply of major roads and rails. The index is computed separately for road and rail and for passenger and freight⁶ by taking the ratio between the demand and the length of the main infrastructures (e.g. motorways, dual carriageway roads, etc.). Thus four separate ratios are computed. Then the logarithm of each ratio is computed and a weighted average of the four logs is computed where the weights are the modal shares of road and rail on passenger and freight demand. The weighted average is the Infrastructure Usage Index. The index is greater for zone where the ratio between demand and supply is higher, that is where infrastructure are more exploited.

The Accessibility Index is a synthetic measure of multimodal potential accessibility. It is based on the assumption that the attraction of a destination increases with its size (in terms of population or GDP) and declines with distance, travel time and costs. The accessibility model used in the ESPON study assumes the centroids of NUTS3 regions as origins and destinations and, then, calculates the minimum travel time (with respect to different modes of transport, that is by road, rail and air) between the various centroids. This indicator of potential accessibility contains parameters that need to be calibrated so that it cannot be expressed in

⁶ Generated and attracted traffic is estimated from the results of the European transport model SCENES.

familiar units. The higher is the index the higher is the accessibility. As a consequence, NUTS3 data are standardised to the average accessibility of the EU25 countries. NUTS2 indicators have been computed by the Statistical Team by averaging NUTS3 data provided by the ESPON database.

The Connectivity Index is expressed as the reciprocal of the hours needed to reach by car different transport nodes (rail stations, motorways accesses, seaports and airports) starting from the centroid of each NUTS3 region. Thus, regional centroids are taken as origins while transport terminal as destinations. The higher is the index the higher is the connectivity. Again such an indicator is available for NUTS3 European regions from ESPON and it has been averaged by the Statistical Team to obtain NUTS2 indexes.

All three indexes provide a piece of the story and there is not a hierarchy among them. As the analysis in section 2 will show, the Infrastructure Usage Index is somewhat correlated to the Accessibility Index, in the sense that zones where the former is greater than the median (showing a lower performance in terms of availability of infrastructures with respect to the generated and attracted demand), also the latter is greater than the median (showing a better performance in terms of accessibility). In other words, not surprisingly, the most accessible zones tend to be attract and generate more demand, in relative terms, than less accessible zones.

Furthermore, more than the numeric values, the most useful information is how the regions within a country are ranked according to each index and especially which performs better and which worse. When a region underperforms according to all the indexes, this is a hint that some problems exist concerning accessibility, and vice-versa if a region overperforms.

Therefore, the analysis consisted in the following steps:

- a) For each index the median across the NUTS2 regions of a given country has been computed: $MED(IUI)$, $MED(AI)$, $MED(CI)$. The median has been preferred to the mean because in most of the countries the distribution of the indexes is strongly asymmetrical and so the mean can be influenced by one or two very high (or low) values.
- b) Each region in the country has been classified as underperforming or overperforming in terms of each of the three indexes: underperforming have been considered those regions where the index is lower than the median (for the accessibility and the connectivity index) or, vice-versa, higher than the median (for the infrastructure usage index). This classification allows to compare regions in terms of a specific index.

- c) For each region has been computed the ratio between the value of the index for that zone and the median value computed above across all the zones of the country: $AI_j/MED(AI)$ and $CI_j/MED(CI)$ for the accessibility and the connectivity index or, vice-versa, the ratio between the median value and the value of the index for the zone: $MED(IUI)/IUI_j$ for the infrastructure usage index. These ratios are greater than one for zone overperforming and lower than one for the regions underperforming.
- d) For each region the three ratios computed above have been summed. The higher is the sum and the better the region performs. However, as the aim of the analysis is not computing a super-index, the value of the sum is not really relevant in itself. Instead, the average and the standard deviation of the sums have been computed. The zones where the sum of the ratios is lower than the average minus one standard deviation ($SUM_j < Average - DevSt$) can be considered as highly problematic with respect to the average conditions in the country. The zones where the sum of the ratios is lower than the average minus 75% of standard deviation ($SUM_j < Average - 0.75*DevSt$) can be considered as problematic even if at a less extent. On the opposite side, zone where the sum is higher than the average plus one standard deviation ($SUM_j > Average + DevSt$) can be considered as those with less problems concerning their accessibility.

This analysis mixes quantitative and qualitative indications to provide a comparative picture of region's performances. It should be stressed that the results make sense in relative terms (e.g. comparing the regions each other) rather than in absolute terms. In other words, a region can perform worse than other regions of the country but this does not mean that the accessibility is absolutely poor; if the overall situation is good in the whole country, even regions classified as underperforming can enjoy a good level of accessibility.

Multi index analysis

The multi index analysis is based on three different indicators:

- Infrastructure Usage Index - IUI_j
- Accessibility Index - AI_j
- Connectivity Index - CI_j

The analysis covers all the five NUTS2 regions. The regions with a value of the IU index above the average are the two more densely populated (Etelä-Suomi and Åland); for the other three, a low Infrastructure index is coupled with a low Accessibility index (the worst case is the region of Pohjois-Suomi). Connectivity is very low in the Åland region, which is one with the worst

summary statistics, although still within the national range. There are no regions strongly below the average. For the sake of completeness, it should be noted that the mean of the summary statistics has been computed after excluding the Pohjois-Suomi region, as this is a statistical outlier with a very high value due to a low Infrastructure Usage Index. The Etelä-Suomi region is not an outlier, although it also overperforms.

Tab. 22 Indexes for the NUTS2 regions of Finland

NUTS2 region	IUI	AI	CI	Summary
FI13 Itä-Suomi	17.8	40.3	1.6	3.23
FI19 Länsi-Suomi	22.6	49.8	1.4	3,00
FI1A Pohjois-Suomi	3.7	39.7	1.3	7.84
FI18 Etelä-Suomi	24.9	66.1	3.0	4.42
FI20 Åland	33.6	73.0	1.0	2.85
Median ¹	22.6	49.8	1.4	3.37
St. Dev.				0.71

¹ The mean of the summary statistics exclude the Pohjois-Suomi region.

ANNEX II: Telecom indicators levels

Sources and definitions

The source is: ESPON project 1.2.2 Telecommunication Services and Networks: Territorial Trends and Basic Supply of Infrastructure for Territorial Cohesion.

Main telephone lines per 100 inhabitants:

Level 1 = >70

Level 2 = 60-69

Level 3 = 50-59

Level 4 = 40-49

Level 5 = 30-39

Level 6 = <30

Cellular mobile subscribers per 100 inhabitants:

Level 1 = >90

Level 2 = 80-89

Level 3 = 70-79

Level 4 = 60-69

Level 5 = 50-59

Level 6 = <50

Estimated PC per 100 inhabitants:

Level 1 = >50

Level 2 = 40-49

Level 3 = 30-39

Level 4 = 20-29

Level 5 = 10-19

Level 6 = <10

Internet (users per 10000 inhabitants):

Level 1 = >5000

Level 2 = 4000-4999

Level 3 = 3000-3999

Level 4 = 2000-2999

Level 5 = 1000-1999

Level 6 = <1000

ANNEX III: Methodology for environment indicators

Sources and definitions

Indicators at regional level Nuts II

1 - Energy

Indicator	Definition	Year	Source
EN1	GDP / total electricity consumption	2000	EUROSTAT – New Cronos (Regio)
EN2	Total electricity production capacity/ total electricity consumption	2000	EUROSTAT – New Cronos (Regio)
EN3	(Total electricity production capacity – Thermal power – Nuclear power)/ Total electricity production capacity	2000	EUROSTAT – New Cronos (Regio)
Energy sustainability	Energy sustainability indicator + Energy efficiency indicator	2000	EUROSTAT – New Cronos (Regio)

2 - Transport

Indicator	Definition	Year	Source
TR1	Vehicles Density: Total Number of Vehicles/Total Area	2000	EUROSTAT – New Cronos (Regio)

TR2	Non-fuel Transportation: Electricity Consumption in the Transport Sector/ Total Electricity Consumption	2000	EUROSTAT - New Cronos (Regio)
TR3	Traffic Intensity: (Total number of driven intra-regional trips/Total Area) + (Total number of kilometres made by journeys produced-generated by the region/Total Area)	2001	EUROSTAT - New Cronos (Regio)
Transportation impact	Traffic intensity sustainability indicator - Clean transportation indicator		EUROSTAT - New Cronos (Regio)

3 - Natural resources

Indicator	Definition	Year	Source
NA1	Degree of protection: Area under Nature Protection/Total Area	2003	Irena Database
NA2	Wilderness degree: (Forest Area + Semi-Natural Area)/ Total Area	1996	Espon Corine Landcover Database
NA3	Anthropic degree: Artificial surface/ Total Area	1996	Espon Corine Landcover Database
NA4	Urban-Rural typology	1996	Espon Corine Landcover Database
Natural/rural assets indicator	$(\text{factor score} - \text{lowest score}) / (\text{highest score} - \text{lowest score}) * 100$		

4 - Natural hazard and Technological risk

Indicator	Definition	Year	Source
RK1	Natural hazards with anthropic implications-1: Regional flood hazard potential	1996-2002	Espon Database
RK2	Natural hazards with anthropic implications-2: (Size of burnt areas/Total area)*1000	2000	Espon Database
RK3	Polluting Sites Density: Number of Installations under IPPC obligation (IPPC Sites)/Total Area (hundreds Km ²)	2000-2001	Eper-EEA
Natural risk indicator	$[(RK1 - \text{lowest value}) / (\text{highest value} - \text{lowest value}) * 100] + [(RK2 - \text{lowest value}) / (\text{highest value} - \text{lowest value}) * 100]$		

ANNEX IV: Bibliography and sources of information

Ministry of the Interior (2005): National regional development targets under the regional development act.

Ministry of the Interior (2005): Government decision on development targets under the regional development act.

Dan Steinbock (2004): What next? Finnish ICT Cluster and Globalization. Helsinki: Sisäasiainministeriö.

www.bof.fi

www.virtualfinland.fi

OECD: "Environmental performance (I cycle). Conclusions and recommendations, 32 countries (1993-2000)", *OECD working party on environmental performance*. November 2000

International Energy Agency (IEA), "Energy balances", *IEA Energy Statistics*, 2000