# STUDY ON MACROREGIONAL STRATEGIES AND THEIR LINKS WITH COHESION POLICY

DATA AND ANALYTICAL REPORT FOR THE EUSALP

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APPENDICES

List of Abbreviations

Abbreviation	Stands for
AG	Action Group
AP	Action Plan
BSAP	Baltic Sea Action Plan
BSLF	Baltic Sea Labour Forum
BSN	Baltic Science Network
BSR	Baltic Sea Region
BSR Stars	PA Innovation (EUSBSR) flagship
BUP	Baltic University Programme
CBC	Cross Border Cooperation
CBSS	The Council of the Baltic Sea States
CEF	Connecting Europe Facility
CF	Cohesion Fund
CISE	Common Information Sharing Environment
DG	Directorate-General
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
ECTS	European Credit Transfer System
ECVET	European Credit system for Vocational Education and Training
EFTA	European Free Trade Association
EMFF	European Maritime and Fisheries Fund
ERASMUS+	EU Programme for Education, Training and Sport
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF / ESI funds	European Structural and Investment Funds
ETC	European Territorial Cooperation
EU	European Union
EUSAIR	European Union Strategy for the Adriatic-Ionian Region
EUSALP	European Union Strategy for the Alpine Region
EUSBSR	European Union Strategy for the Baltic Sea Region
EUSDR	European Union Strategy for the Danube Region
EWTCA	East West Transport Corridor Association
HAC	Horizontal Action Coordinator (EUSBSR)
HELCOM	Baltic Marine Environment Protection Commission
HLG	High Level Group
IALA	Navigation in the IMO, International Association of Marine Aids to Navigation and Lighthouse Authorities

ICPDR	International Commission for the Protection of the Danube River
IHO	International Hydrographic Organisation
IMO	International Maritime Organisation
MA	Managing Authority
MRS	Macro-regional strategy/-ies
MS	European Union Member States
MSFD	Marine Strategy Framework Directive
NCs	National Coordinators
NCM	Nordic Council of Ministers
NDEP	Northern Dimension Environmental Partnership
NEFCO	Nordic Environment Finance Corporation
NGO	Non-governmental organisation
NUTS	Nomenclature of territorial units for statistics
OP	Operational Programme
OVI	Objectively Verifiable Indicators
PA	Policy Area / Priority Area / Pillar / Action area
PA Education	Policy Area Education (EUSBSR)
PA Innovation	Policy Area Innovation (EUSBSR)
PA Nutri	Policy Area Nutrition (EUSBSR)
PA Safe	Policy Area Safety (EUSBSR)
PA Transport	Policy Area Transport (EUSBSR)
PAC	Policy / Priority Area Coordinator
RDP	Rural Development Programme
S2W	School to Work (PA Education (EUSBSR) flagship)
SG	Steering Group
SME	Small and medium-sized enterprises
SWD	Commission Staff Working Document
TEN-T	The Trans-European Transport Networks
TO	Thematic objective
TNK	Transnational Component
TSG	Thematic Steering Group
VET	Vocational Education and Training
WFD	Water Framework Directive

1 Introduction to the Report

Data and analysis report for Task 1 and Task 2

The 'Study on macro-regional strategies and their links with cohesion policy' consists of four task, which are summarised and concluded upon in the Final Report. The first two tasks (**Task 1** and **Task 2**) have been reported on individually, and the present report contains the **data and analysis** for these two tasks for the European Union Strategy for the Alpine Region (**EUSALP**).

Structure of the report

This report begins with a brief section presenting the EUSALP, followed by

> the first major part (section 2) of the report, which contains the data and analytical report for **Task 1**, i.e. a description and an analysis of the overall context of the Alpine macroregion;

> thereafter, the second major part (section 3) contains the data and analytical report for **Task 2**, analysing the overall achievements of the EUSALP and an evaluation of its contribution to strengthening the territorial cohesion objective of the EU. Task 2 is divided into the following four sub-tasks:

> > **Task 2a**: Review of the EUSALP

> > **Task 2b**: Achievements of the EUSALP

> > **Task 2c**: Comparison of objectives of the EUSALP with achievements

> > **Task 2d**: EUSALP and ESIF

1.1 The EUSALP – Background

The EU Strategy for the Alpine Region (EUSALP) was developed by the European Commission together with countries and stakeholders of the Danube region. The strategy builds on a high level of existing cooperation, for instance the Alpine

Convention. The EUSALP aims to both extend and deepen this existing regional cooperation.

Three broad thematic policy areas – economic growth and innovation, mobility and connectivity, and environment and energy – are specified in the strategy. Each of these areas includes a number of Actions that should contribute to the EUSALP's main objective, namely "to ensure that this region remains one of the most attractive areas in Europe, taking better advantage of its assets and seizing its opportunities for sustainable and innovative development in a European context".[1]

The EUSALP is the youngest of the four macro-regional strategies and it has 5 EU member states which are part of the EUSBSR and 2 non-EU members. The strategy's 48 regions are located in seven member countries: five EU Member States and two non-EU countries, which both are EFTA members.

Table 1-1   Countries and key features of the EUSALP

Countries and regions	Key features
- Austria - France (Franche-Comté, Rhône-Alpes, Provence-Alpes-Côte d'Azur) - Germany (Baden-Württemberg, Bavaria) - Italy (8 regions) - Slovenia Third countries: - Liechtenstein - Switzerland	- Representing 80 million inhabitants or nearly 16% of the EU population 5 EU Member States 2 non-EU members (Lichtenstein, Switzerland)

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[1] https://www.alpine-region.eu/ and COMMISSION STAFF WORKING DOCUMENT, Action Plan, Accompanying the document COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN CONOMIC AND SOCIAL COMITTEE AND THE COMITTEE OF THE REGIONS concerning the European Union Strategy for the Alpine Region {COM(2015) 366 final}, SWD(2015) 147 final

Figure 1-1: The EUSALP by NUTS2 Regions

The EUSALP strategy includes a number of objectives and actions which are implemented through 9 action groups (hereafter AGs).

Table 1-2   EUSALP: objectives and actions

Objectives	Actions
1st OBJECTIVE: Fair access to job opportunities, building on the high competitiveness of the Region	Action 1: To develop an effective research and innovation ecosystem
	Action 2: To increase the economic potential of strategic sectors
	Action 3: To improve the adequacy of labour market, education and training in strategic sectors
2nd OBJECTIVE: Sustainable internal and external accessibility to all Presentation of the topic	Action 4: To promote inter-modality and interoperability in passenger and freight transport
	Action 5: To connect people electronically and promote accessibility to public services
3rd OBJECTIVE: A more inclusive environmental framework for all and renewable and reliable energy solutions for the future	Action 6: To preserve and valorise natural resources, including water and cultural resources Energy
	Action 7: To develop ecological connectivity in the whole EUSALP territory
	Action 8: To improve risk management and to better manage climate change, including major natural risks prevention
	Action 9: To make the territory a model region for energy efficiency and renewable energy

Strategy and action plan

The strategy and first action plan were adopted by the Council in October 2015. The action plan is from March 2016. The first revisions of the actions plans are scheduled for 2019. The current action plan includes 9 action groups[2].

Governance

Governance of the EUSALP consist of a number of actors and institutions as listed in Table 2-1. The action groups are key implementers of the strategy.

Table 1-3   Roles and responsibilities in the EUSALP[3]

Actors/roles	Description
national coordinators	overall coordination of EUSALP implementation in country
Managers	key forces to drive implementation of relevant thematic areas forward
Action groups	National sector experts (check)
Managing Authorities	bodies in charge of implementation of programmes/financial instruments
General assembly	strategic coordination
Executive board	

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[2] COMMISSION STAFF WORKING DOCUMENT. European Union Strategy for the Alpine Region. ACTION PLAN {COM(2015) 366 final}. Brussels, 28.7.2015
SWD(2015) 147 final

[3] Roles and responsibilities of the implementing stakeholders of the EUSBSR and a flagship project concept. Working document. January 2013. EUSBSR

STATE OF THE MACRO-REGIONS

EUSALP (TASK 1)

2   State of the Macro-Regions (Task 1)

2.1   Introduction to Task 1

This report presents the results of Task 1 of the 'Study on Macro-Regional Strategies and their links with cohesion policy' for the Alpine Macro-regional Strategy. Three other reports of the same structure cover the remaining three macro-regions: the Baltic Sea, the Adriatic and Ionian Sea, and the Danube Strategy.

This report provides an '*indicator-based description and analysis of the overall context of [the] macro-regions*'[4]. This report aims further to provide a context that is detached from the Macro-regional Strategy concept and does not provide an evaluation of the Macro-regional strategies objectives; which is addressed in the Task 2 report. The description and analysis is structured along four specific headlines: macro-economic overview; macro-regional integration; competitiveness; and the political, institutional and governance context. There is a chapter on each of these dimensions, followed by a synthesised meta-analysis. Prior to these indicator-based chapters, the report provides a brief methodological overview.

For each indicator that is described, the report first provides a graphical illustration of the indicator values. This is followed by a description and analysis of the indicator values in question.

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[4] The study Specifications

2.2   Methodological Framework for Task 1

2.2.1   Macro-regions

The Macro-Regional Framework

The concept of Macro-regions refers to a grouping of regions that principally share a common functional context, such mountains, sea-basins, or river-basins, and '*in which the priorities and objectives set out in the corresponding strategy can be properly addressed*'[5]. While this grouping of territories into macro-regions thus follows a functional logic, it remains an artificial construct in terms of a governance or territorial unit. Therefore, contextual information for a macro-region as a whole is not readily available. This is reflected in the fact that no selection of relevant information is available on an aggregated level.

The family of reports under Task 1 aims at filling this gap. They seek to provide a set of relevant information that closes this gap and draws valid inferences on the overall context of the macro-region in question.

Indicators to provide an overall context of the Macro-regions

More specifically, the context of the macro-regions is described through a set of indicators on four dimensions (macroeconomic overview, integration, competitiveness and the institutional / governance context). The four types of indicators provide a research framework upon which the Task builds, and essentially reflect the EU's principal policy of Economic-, Social-, and Territorial Cohesion as follows:

> **Macroeconomic indicators** reflect the (socio) economic context of the individual economies as well as the macro-region as a whole. Further, they also serve as overview indicators on the overall social- and economic cohesion.

> **Macro-regional economic integration indicators** describe the intensity of cooperation, integration and (economic, cultural) exchange among the countries of a macro-region, and essentially reflect the state of territorial cohesion.

> **Competitiveness indicators** provide a more detailed insight into the (broadly defined) competitiveness of countries and macro-regions on various aspects. These indicators provide inference on factors that affect the three Cohesion objectives.

> **Political, institutional and governance indicators** mirror the political state of a macro-region in terms of governments' accountability or effectiveness of legislation. These indicators mirror the likely capacity to effectively pursue interventions on the economic, social as well as territorial cohesion.

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[5] Study specifications

The reports provide a picture of the status of the macro-region in question, of the developments inside the macro-regions and when possible (i.e. data allows) a comparison of the current results with the results of the past. The family of Task 1 reports thus explores and analyses the overall context of the four existing Macro-Regional Strategies (MRS), namely the EU Strategy for the Baltic Sea Region (EUSBSR), the EU Strategy for the Danube Region (EUSDR), the EU Strategy for the Alpine Region (EUSALP) and the EU Strategy for the Adriatic and Ionian Region (EUSAIR). The analysis is thus as such detached from the contents of each of the macro-regional strategies. Rather, it focuses on the comparable assessment of the socioeconomic and macro-regional integration status within the macro-regions, as well as on the comparable investigation of their performance regarding competition and efficient institutions and governance.

2.2.2   Indicator Analysis

Choosing macro-regionally relevant indicators

A first step of Task 1 focused on the construction of a set of indicators which are relevant to macro-regions on a macro-regional level. For this, indicators were first identified by the consultant, and the final selection was done in close cooperation with DG REGIO. Consultations with DG REGIO and members of the Steering Committee served to ensure an eventual comprehensive and relevant picture of the macro-regions.

Emphasis on regional indicators where possible

For the identification of indicators statistical units had to be considered. Given that the macro-regions in some cases consist of regions and not entire countries, the geographical level of the analysis is principally conducted at level 2 of the Nomenclature of territorial units for statistics (NUTS-2), as defined by the EU. However, in some cases data are not available at NUTS-2 level of aggregation but at NUTS-1 level or country level only. In these cases the missing information for the NUTS-2 level has been substituted by data from the first available aggregation level above it, i.e. if statistical information on a measure was available at NUTS-1 level, the same performance measure was assumed to apply at the NUTS-2 level. For some variables only country-specific information was available. This applies for example to the macro-regional integration indicators.

The statistical units for regions outside the EU were chosen according to the countries' own aggregation at NUTS-2 level (equivalent to SR3[6]) as defined by the EU. Only very few data were available at a level comparable with the NUTS-2 level of the EU. Furthermore, most analysed countries outside the EU are quite small, and most data for the regions outside the EU have therefore been chosen at country level of aggregation.

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[6] The NUTS classification is defined only for the Member States of the EU. Eurostat, in agreement with the countries concerned, also defines a coding of statistical regions (SR) for countries that do not belong to the EU but are either candidate countries, potential candidate countries or countries belonging to the European Free Trade Association (EFTA). Eurostat and Serbia have not yet agreed on statistical regions for the country.

The main sources of data used in this report are the Eurostat-Database supplemented with data from the World Bank Database, OECD, UNCTAD, COMTRADE, EEAA, ESPON project. Most NUTS-2 data are published with a time lag of one or two years. In order to create a common basis across the macro-regions and the themes, the description and analysis are generally based on data available for the year 2015 or the latest available data for all considered regions. When possible, a comparison is provided between the latest available year data and the data for 2008 for the Baltic Sea and Danube macro-regions. The year 2008 also is the year just before the creation of these two macro-regional strategies. For the two newer macro-regions, the Alpine and Adriatic Ionian macro-regions it is the year 2011 that is compared to 2015. The year 2011 is the year just before the creation of the Alpine and Adriatic Ionian macro-regions and it offers a timespan long enough in order for changes to become visible.

Each of the quantitative and qualitative indicators identified as best describing the socio- economic context, integration, as well as the competitiveness, institutional and governance situation of the four macro-regions was subject of an assessment against the RACER framework. RACER stands for "Relevant, Acceptable, Credible, Easy, Robust" and enables a judgement on each indicator's properties and qualities. Each RACER criterion has been assessed on a three-level scoring scale (green: criterion completely fulfilled; orange: criterion partly fulfilled; red: criterion not fulfilled). Based on the strengths and weaknesses of each of the quantitative and qualitative indicators across all the RACER criteria, a list of indicators was selected out of a pool of indicators considered.

The indicators which complied with all RACER criteria (green overall) have been definitely included into the set of selected indicators; those, which did not comply with all RACER criteria (a mix of green, red and yellow) and were not of high importance for the considered macro-region have been left outside.

2.2.3   Composite Benchmarks

As it is not possible to monitor all dimensions of a macro-region with one single indicator, a larger number of indicators has been selected. An additional challenge is that a macro-region's picture comprises the four dimensions (macro-economic, macro-regional integration, competitiveness and political-institutional- governance) but each dimension cannot be captured by one single quantitative indicator.

Composite Indices   In order to cope with this challenge, all indicators with a common theme have been aggregated into composite indices. Composite indices bundle separate (component) indicators into one index which allows the values of the whole bundle expressed as only one measure[7]; examples of such indices are the Human Development Index, Environmental Sustainability Index, and stock indices like the NASDAQ Index. In the course of gathering indicator data, the data have been grouped into sets of related indicators according to appropriately

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[7] See http://www.investopedia.com/terms/c/compositeindex.asp

identified themes. Themes have been chosen so that the indicators together represent an "essential feature" of and within a macro-region. The individual indicators have been aggregated without any weights and each composite index hence represents the unweighted average of all indicators.

Composite Benchmarks

Different indicators generally apply different scales, such as percentages, currencies or categorical data (e.g. chemical status of waterbodies). The aggregation of such different scales only makes sense for comparable variables. Each indicator therefore needs to be normalised (to a common scale) before these can be combined into a composite index. For this aggregation, the proprietary '*emb*' model (*equilibrated medial benchmarking*) has been applied[8].

The benchmarking analysis focuses on the four macro-regions and the four dimensions inside each macro-region compares countries and/or NUTS-2 regions inside the individual macro-region based on a common reference framework of EU countries. The reference framework for each component indicator or composite index is delineated by the "top performer" of EU28 countries (benchmarked at 150), the "lowest performer" (50) and the median performer(s) at 100[9]. A high benchmarking score always reflects a more "desirable" situation. Taking unemployment rates as an example, higher scores reflect lower unemployment rates. In this way, the benchmarking results can always be read as showing whether – and to what extent – they are above or below the median in the EU at country level. This common framework enables observations to be made across different regions, even though the main focus remains within each macro-region.

The benchmark is always scaled on a country level against all EU28 Member States. The benchmarking score hence indicates a country's or region's relative position to all EU28 countries. This means in turn that one can observe values above 150 and below 50 in the cases summarised in the table below.

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[8] For the Proprietary Method of constructing indices from multiple indicators refer to: Fink, M. *et al.* (2011), *Measuring the impact of flexicurity policies on the EU labour market*, IHS Research Report, commissioned by DG EMPL (Employment, Social Affairs and Inclusion).

[9] The median is the point in a dataset in which a split of that dataset results in two sets with an equal number of data points. See http://www.investopedia.com/terms/m/median.asp for more details

Table 2-1: Cases with benchmarking scores above 150 and below 50

Case	Explanation
Regional analyses (NUTS-2 level)	A NUTS-2 region may out-/underperform its country. Such as Stockholm (SE), performing higher than Sweden as a whole.
Non-EU countries	A non-EU country is not included in the benchmarking scale. Thus, a country like Ukraine may score above 150 or below 50, as they are not included in the scaling.
Macro-regional Integration analyses	Countries that are stronger/weaker integrated in a macro-region than the EU's 'top performing'/'bottom performing' country is integrated in the EU28 (see paragraphs below). For example, Germany's trade integration with countries in the Danube region comprises only a small share of its trade with all EU28 countries and is at the same time lower than that of the EU's 'bottom performer'.

Integration Indices

The chapter on integration includes new integration indices. These IHS-proprietary indices cover respectively Labour Integration (three indices plus a composite of these 3 components), Capital Integration (Foreign Direct Investment (FDI), Energy Integration, and Trade Integration. Each of these seven indices is constructed on a similar principle, which is outlined as follows.

When the amount or value of labour, capital etc. supplied by a country to another country (a 'partner'), or, equivalently, received from a partner, increases, it can be said that the level of integration between the two has increased. Considering a particular group of countries, the focus is on the bilateral flows between them. For the task of estimating integration within macro-regions, i.e. between individual countries belonging to the macro-region in question, the first step is the development of a "Bilateral Flow Matrix", as shown in the table below.

Table 2-2: Energy Integration Example (Baltic Sea), energy exports (kTOE)

Partner	Denmark	Germany	Estonia	Latvia	Lithuania	Poland	Finland	Sweden
Denmark	0.0	1,917.4	0.0	0.0	0.0	0.0	505.6	3,503.5
Germany	3.5	0.0	0.0	0.0	0.0	916.5	0.0	0.0
Estonia	0.0	0.0	0.0	522.7	0.0	0.0	25.6	0.0
Latvia	0.0	0.0	0.4	0.0	293.9	0.0	0.0	0.0
Lithuania	0.0	0.0	79.7	14.4	0.0	51.4	0.0	0.0
Poland	0.0	251.7	0.0	0.0	5.6	0.0	0.0	1.7
Finland	0.0	0.2	432.8	0.0	0.0	0.0	0.0	0.1
Sweden	477.6	168.3	0.0	0.0	0.0	302.0	1,484.4	0.0

Immediately, certain strong relationships between certain country-pairs are visible. What such a table of absolute values does not make clear is the 'importance' of a bilateral relationship for a specific country. A second step

therefore converts the data to a relative share of all its exports (or foreign investments, migration flows, remittances) (in worldwide).

Table 2-3: Energy Integration Example, Share of total exports to partner country (in %)

Partner	Denmark	Germany	Estonia	Latvia	Lithuania	Poland	Finland	Sweden
Denmark	0.0	11.8	0.0	0.0	0.0	0.0	3.1	21.5
Germany	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
Estonia	0.0	0.0	0.0	24.8	0.0	0.0	1.2	0.0
Latvia	0.0	0.0	0.0	0.0	13.8	0.0	0.0	0.0
Lithuania	0.0	0.0	0.9	0.2	0.0	0.6	0.0	0.0
Poland	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Finland	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0
Sweden	2.6	0.9	0.0	0.0	0.0	1.6	8.1	0.0

The new integration index provides a common basis for measuring integration in each of the four macro-regions, just as the case for every other indicator considered in this study. Given that the number of countries in the macro-regions vary, the total share of e.g. energy exports to the macro-region would grow with the number of member countries. Therefore, to provide a measure of integration that is not affected by the size of a macro-region, the chosen measure for each country's degree of integration within its macro-region is its per partner share (ppShare); i.e. the average flow to a destination country.

Table 2-4: Energy Integration Example, resulting per partner share

Partner	ppShare
Denmark	5.21
Germany	0.22
Estonia	3.72
Latvia	1.98
Lithuania	0.23
Poland	0.18
Finland	0.83
Sweden	1.90

Benchmarking Integration Indices

In the case of integration indices, the procedure to establish the benchmark is identical in formation as for the other indices, except that in this case the bilateral flow matrix is 28 x 28 for the EU28. Thus, the benchmark is defined by the average share that each Member State exports to the EU28 countries. This results in a per partner share of each Member State, but to the whole EU28, instead of a macro-region.

In other words, using the per partner share as a unit of measure enables the degree of integration within each macro-region to be benchmarked against the degree of integration in the EU as a whole. This provides a deep insight into the question of whether the common geographical basis (and more) for the macro-regions is actually, and to what extent, of particular relevance compared to the

entire setting of all EU countries, which may in general cover a more or less contiguous area, but which course also comprise (even more) multiple regional contexts.

As mentioned in Table 2-1 above, there are many cases found to score well below 50 or well above 150. This is entirely consistent: The reason, expressed mathematically, is that the two-dimensional flow matrices gives rise to country index values in macro-regions that are not subsets of the EU index; for non-integration indices, in contrast the (EU) country indicator values form by definition a subset of the EU28.

Illustrative Maps

Each composite index is accompanied by a figure that consists of two maps and one bar chart. Both maps show the composite index values for each NUTS region in differing colour schemes. The first map provides a coloured illustration of the scores on a scale from 50-150 and reflects how a given region performs on the EU28-wide level (i.e. 100 reflects the EU28 median). Any regions scoring outside this defined range are displayed as 50 or 150.
The scale of the second map is in turn defined by the lowest and highest composite index scores found for the macro-region and seeks to highlight the differences between the high and low performing regions of that macro-region more clearly. As a result, the range of this scale depends on the maximum and minimum scores for each individual composite index in a given macro-region. The bar chart identifies the two regions with the highest and lowest composite index scores in each country, accompanied by the (benchmarked) scores of the index's components. The colouring scale ranges from 50 to 150.

Digital Toolbox

Synchronous to this report, a digital toolbox has been developed. The digital toolbox comprises a set of data files for each of the four macro-regions. Each file contains data sheets for each indicator used to assess the context of the macro-regions. As mentioned above, data has been organised separately for the appropriate NUTS regions and countries in each of the four macro-regions, and each indicator, or composite, corresponds to an excel sheet for each macro-region. The excel sheets have been grouped according to the four dimensions (macro-economic, macro-regional integration, competitiveness and political-institutional- governance). Furthermore, within each dimension, sheets have been grouped according to agreed aggregated compositions i.e. as composite indices).

An index page (usually on the first data sheet of each file) will enable users to directly find the data sheet for a named indicator (by clicking on an excel hyperlink).

A second set of excel files has been established for documenting the results of the benchmarking process. There is a file for each individual macro-region. This contains datasheets corresponding to indicators, grouped according to the above-mentioned four dimensions. Within these, they are further grouped according to the agreed aggregated composition of composite indices.

2.3   Macroeconomic Overview

In this chapter the overall macroeconomic state of the macro-region will be assessed through analyses focused on three major themes: economic performance, employment, and social equality. The macroeconomic indicators that were chosen reflect the (socio) economic context of the individual economies as well as of the macro-region as a whole.

The table below provides an overview of the indices that are presented in this chapter:

Table 2-5: Overview of macro-economic overview indicators

Composite	Economic performance indicators	Employment indicators	Social progress indicators
Components	GDP/capita	Employment index	Social progress index[10]
	GDP growth	Unemployment rate	
	Labour productivity	Youth unemployment	
		Long term unemployment	
		Economic activity rate	
		Employment rate	

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[10] A composite index based on 53 indicators covering basic human needs, conditions for well-being and opportunity to progress

2.3.1   Economic Performance

Figure 2-1: Economic Performance by NUTS-2 in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Composites-Min/Max

CO..	NUTS LABEL	Economic Performance Index	GDP per Capita (at PPP)	GDP Growth	Labour Productivity
AT	Wien	114	120	99	123
	Burgenland	103	100	99	110
CH	Zentralschweiz	166	166	155	107
	Ticino	115	128	134	71
DE	Oberbayern	121	126	111	126
	Oberfranken	109	107	111	109
FR	Rhône-Alpes	108	105	99	119
	Franche-Comté	101	91	99	113
IT	Provincia Autonoma di Bo..	111	116	95	120
	Friuli-Venezia Giulia	104	105	95	113
SI	Zahodna Slovenija	109	103	131	93
	Vzhodna Slovenija	98	77	131	85
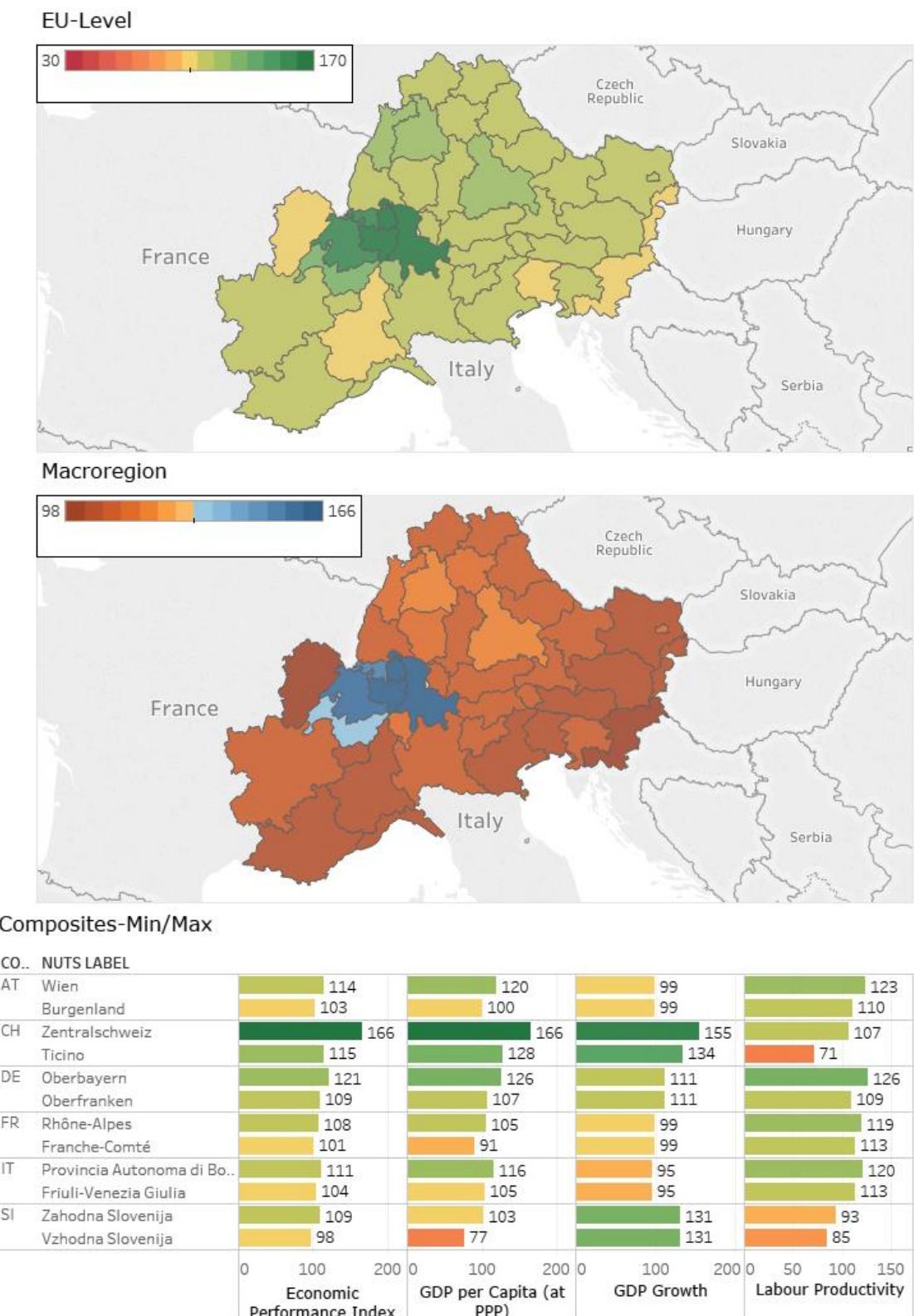
Text Box 2-1: Explanation of the indicator: 'Economic Performance'

To assess the economic performance on NUTS-2 regions inside the macro-region three indicators: regional Gross Domestic Product (GDP) per capita (at purchasing power parity), Real GDP growth rate and Labour Productivity have been bundled into one composite indicator: Economic performance index.

Regional gross domestic product (GDP) is used for the measurement and comparison of the economic activity of regions. It is the most important indicator used in the EU's regional policy for the selection of regions eligible for support under the investment for growth and jobs goal of the EU. GDP is the standard measure of the value of the production activity (goods and services) of resident producer units.[11] For this indicator regional data are available with a time lag of two years. Thus regional GDP data for the reference year 2015 have been released at the beginning of 2017. Real GDP is usually a proxy for economic prosperity. GDP per capita, however, does not reflect the equality of distribution of that prosperity, so it is not representative for many social issues.

The real percentage-growth rate of gross value added (i.e. Real GDP growth) allows the identification of the most and less dynamic regions in the EU and the non-EU regions inside the macro-region.

Labour Productivity has been calculated as Regional Gross Value Added (GVA) per employee. According to the OECD, Labour Productivity measures "how efficiently production inputs, such as labour and capital, are being used in an economy to produce a given level of output." Productivity is considered a major source of economic growth and competitiveness. It is used as a main indicator to assess a country's performance and to perform international comparisons. Over time a country's ability to raise its standard of living depends to a great extent on its ability to raise its output per worker. There are different measures of productivity.

An analysis of the composite indicator Economic performance in the Alpine macro-region shows a relatively homogeneous picture regarding economic development of its regions. For the years 2011 and 2014 the composite indicator Economic performance shows the highest values for the most regions in Germany and Austria, as well as for three regions in Northern Italy, Provincia Autonoma di Bolzano, Lombardia, and Provincia Autonoma di Trento. Also the rest of the regions in the macro-region exhibit values for this indicators which are above the EU-average. Switzerland accounts nearly exclusively, with the exception of the canton Ticino, for the better performing half of the benchmarking scoring (see bottom map above).

The lowest values for the indicator Economic performance can be found in Slovenia. While most German and Austrian NUTS-2 regions improved their position in the period 2011 to 2015, the regions in France, Italy, and Slovenia

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[11] https://www.oenb.at/en/Statistics/Standardized-Tables/Economic-and-Industry-Indicators/Economic-Indicators/nominal-gpd-growth-expenditure-side.html

slightly worsened their position. This was due to the long lasting banking crisis in Slovenia, the modest GDP growth in France after the GDP contraction in 2009 and the still persistent debt and banking crisis in Italy.

2.3.2 Employment

Figure 2-2: Employment by NUTS-2 in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

CO..	NUTS LABEL	Employment Index	Unemployment Rate	Youth Unemployment	Longterm Unemployment	Economic Activity Rate	Employment Rate
AT	Vorarlberg	151	163		141	148	
	Wien	106	94	110	117	105	103
CH	Zentralsch..	166	166	155	107	216	186
	Ticino	115	128	134	71	109	134
DE	Oberbayern	156	173	164	129	148	164
	Oberfranken	136	160		108	122	154
FR	Rhône-Alpes	105	99	100	115	97	112
	Provence-Al..	91	93	94	107	69	92
IT	Provincia A..	129	160	132	119	100	132
	Piemonte	82	96	70	77	67	99
SI	Zahodna Sl..	106	115	119	90	94	113
	Vzhodna Sl..	96	95	113	85	89	99

Text Box 2-2: Explanation of the indicator: 'Employment'

Labour market statistics are crucial for many EU policies. There are significant labour market disparities within the EU territory as well as in candidate/neighbour countries. The first figure on the left shows the employment situation from the perspective of a composite index based on the following indicators. i) Economic activity rate, which describes an economy's ability to attract and develop a great share of human capital from its population; ii) Employment rate combined with Unemployment Rate, providing useful information about the ability to utilize available labour; iii) Youth unemployment rate, as an indicator showing the match between the existing skills within the young people and the employment opportunities offered by the regional economies; iv) and Long term unemployment rates, which indicate inefficient labour markets. More elaborate descriptions of the composite indicator can be found in the methodology.

All NUTS-2 regions in Switzerland, Germany, and Austria in 2011 and 2015 exhibit values above the EU average. These regions were also in a leading position in 2008. This reflects high economic activity and employment rates, coupled with low unemployment. The good performance of the regions in these three countries is due to their successful labour market policies, especially the dual vocational training, which plays an important role in reducing youth unemployment. The German regions even managed to reduce unemployment, youth unemployment and long-term unemployment rates largely due to labour market policies implemented during the first five years of the first decade of the millennium.

In 2011, there were two regions with values below the EU-median: Two Italian (Liguria and Piemonte) and one French (Provence-Alpes-Côte d'Azur). By 2015 however, the number of regions below the EU average increased to nine found in Slovenia, France and Italy[12]. The long economic recession in Italy and Slovenia (until 2014 and 2013 respectively) that followed the economic and financial crisis had as a consequence rising total unemployment and especially youth unemployment in the NUTS-2 regions in these countries. While Slovenia managed to recover and solve its banking crisis over the last years, Italy is still confronted with a banking and debt crisis.

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[12] The group was made up by one region from Slovenia (Vzhodna Slovenija), two from France (Franche-Comté and Provence-Alpes-Côte d'Azur), and six regions from Italy (Valle d'Aosta/Vallée d'Aoste, Veneto, Lombardia, Friuli-Venezia-Giulia, Liguria and Piemonte).

2.3.3   Social Progress Index

Figure 2-3: Social Progress by NUTS-2 in 2016, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
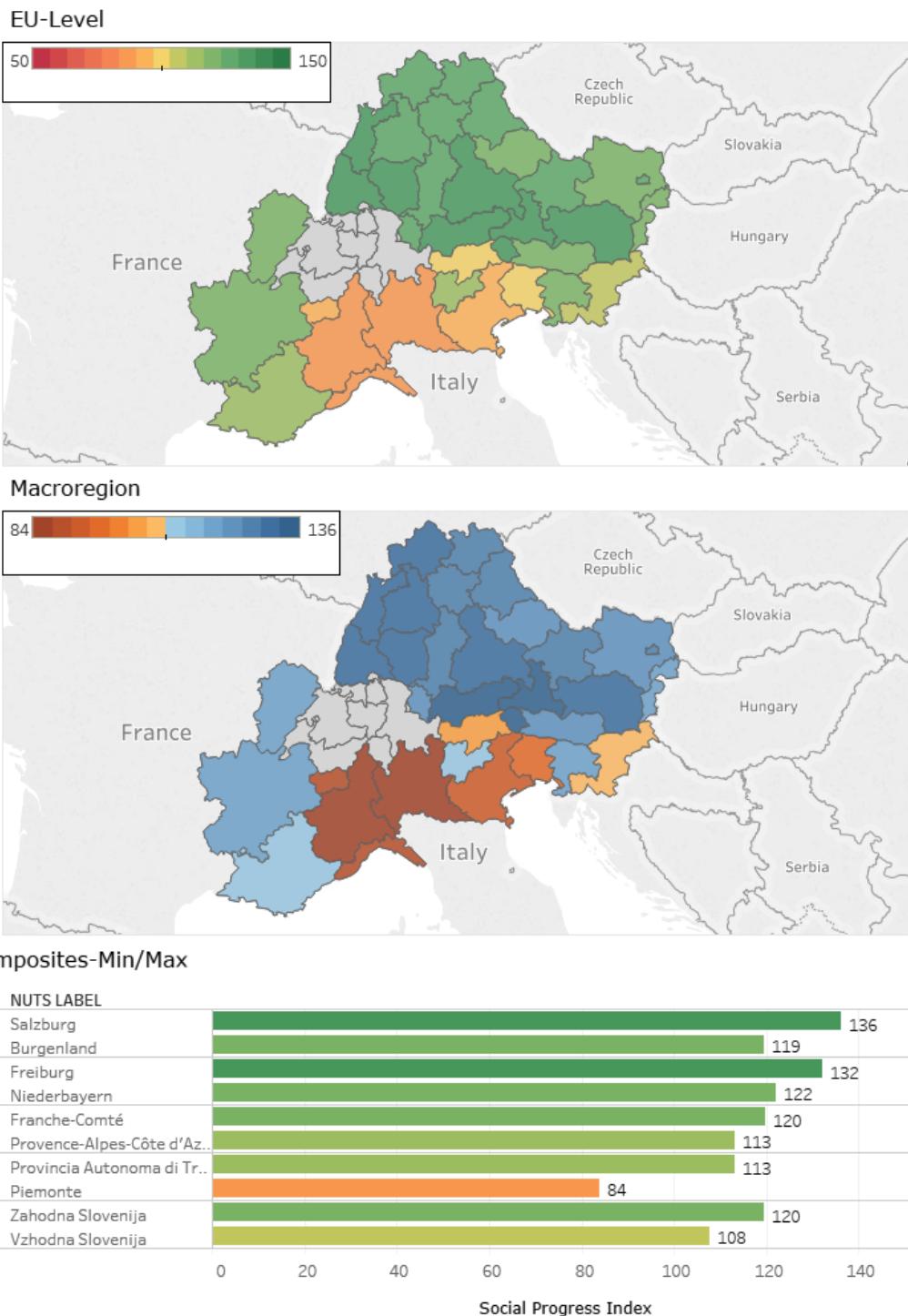
Text Box 2-3: Explanation of the indicator: 'Social Progress Index' [13]

The Social Progress Index measures the extent to which countries provide for the social and environmental needs of their citizens.

The Social Progress Index from 2016 bases on fifty-three indicators that cover the fields of Basic Human Needs (Nutrition and Basic Medical Care, Water and Sanitation, Shelter, Personal Safety), Foundations of Well-Being (Access to Basic Knowledge, Access to Information and Communications, Health and Wellness, Environmental Quality), and Opportunity to Progress (Personal Rights, Personal Freedom and Choice, Tolerance and Inclusion, Access to Advanced Education). A ranking of the values of Social Progress Index shows the relative performance of the countries included. For the purpose of this Task, this index has been re-scaled to this report's format.

There is a correlation between the level of economic development and social progress. Thus, the regions with the highest GDP per capita such as the NUTS-2 regions in Austria and Germany are also those regions where the European Union Regional Social Progress Index takes the highest scores. The highest performers are the regions of Salzburg and Tirol in Austria, with the highest scores (above 131 points). They are followed by the other Austrian regions and the German regions with scores above 119 points. The high performance of these regions is due to the highest scores for the component indicators 'Basic Human needs'. Additionally, Austrian regions show a high performance for the component indicator 'Opportunity'. The French regions Franche Comté, Rhône Alpes and Provence AlpesCôte d'Azur, and Provincia Autonoma di Trento in Italy register scores just below 113 points. The lowest performers in the macro-region are the NUTS-2 regions Piemonte, Lombardia, Liguria, Valle d'Aosta/Vallée d'Aoste, and Veneto in Italy with values between 86 and 92 points, which is mostly explained by especially low values for the component indicators 'Access to Advanced Education' and 'Environmental Quality'. Slovenia performs better with scores above 108 points.

The overall picture demonstrates that in terms of social progress, the Alpine regions are fairly cohesive and perform mostly above the EU-median. Furthermore, only about 23% of the regions are below the EU-median. A cross-comparison with the Education Index further manifests northern Italy's comparable low performance on education, which exhibits remarkably low tertiary education attainment rates.

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[13] The index is published by the nonprofit organization Social Progress Imperative. A custom version for the EU regions has been developed in cooperation with the European Commission. See http://www.socialprogressimperative.org/custom-indexes/european-union/

2.4   Macro-regional Economic Integration

The emergence of the "new trade theory" (Krugman, 1979)[14] in late 1970 with its emphasis on economies of scale put economic integration in the centre of economic debate. According to this theory, companies in small countries tend to exhibit relatively high average costs, while companies in large countries can profit from lower average costs due to size advantages. [15]

As a result, regional integration represents an important national policy alternative for small economies in order to overcome the small size handicap. By joining a regional integration agreement, companies from a small domestic economy may enlarge and be better prepared to face competition from countries with larger domestic economies.[16]

However, while regional integration gives rise to new opportunities, new challenges may appear. These may take the form of strong restructuring at microeconomic level, with some companies disappearing and other companies growing bigger and becoming successful in international competition.[17] In the restructuring process, relatively large and strong companies overtake their weaker competitors. An important role in this respect play mergers and acquisitions involving companies from different countries. Foreign direct investment (FDI) represents thus a channel in the integration process. Companies with foreign participation, which are usually involved in vertical production networks, are also responsible for a large share of exports and imports. Integration may also lead to trade diversion and erosion of sovereignty.[18]

In the context of the EU's long-term objectives, this chapter provides a context on the territorial cohesion of the macro-region, which is one of the three cornerstones of Cohesion Policy next to economic and social cohesion[19] , as well as the degree to which the Single Market[20] is fulfilled within the macro-region.

For this analysis, various indicators have been chosen to provide a context of integration. The table below lists the chosen indicators. The macro-regional economic integration indicators chosen describe the intensity of cooperation,

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[14] Krugman, Paul R. (1979): Increasing returns, monopolistic competition, and international trade, URL: http://www.sciencedirect.com/science/article/pii/0022-1996(79)90017-5.

[15] Gustavson, Patrick & Koko, Ari (2004): "Regional Integration, FDI and Regional Development. European Investment Bank". In: *Papers of EiB-Conferences*, Vol. 9, No. 1, pp. 122, Luxembourg.

[16] Gustavson, Patrick & Koko, Ari (2004): "Regional Integration, FDI and Regional Development. European Investment Bank". In: *Papers of EiB-Conferences*, Vol. 9, No. 1, pp. 122, Luxembourg.

[17] Gustavson, Patrick & Koko, Ari (2004): "Regional Integration, FDI and Regional Development. European Investment Bank". In: *Papers of EiB-Conferences*, Vol. 9, No. 1, pp. 122, Luxembourg.

[18] https://www.globalpolicy.org/nations-a-states/political-integration-and-national-sovereignty-3-22.html

[19] Territorial Cohesion, http://ec.europa.eu/regional_policy/en/policy/what/territorial-cohesion/

[20] The European Single Market, https://ec.europa.eu/growth/single-market_en

integration and (economic, cultural) exchange among the countries of the macro-region.

Table 2-6: Overview of Macro-regional economic Integration indicators

Composite	Components
Labour Integration	Intra macro-regional migration
	Mobile students from abroad
	Workers' Remittance
Trade Integration	Share of exports to macro-region out of total exports
Capital Integration	Inward FDI stocks
Energy Integration	Exports of energy
Accessibility	Multimodal
	Road
	Rail
	Air
Territorial Cooperation	Number of organisations participating in INTERREG-IVB

2.4.1   Labour Integration

Figure 2-4: Labour Integration by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
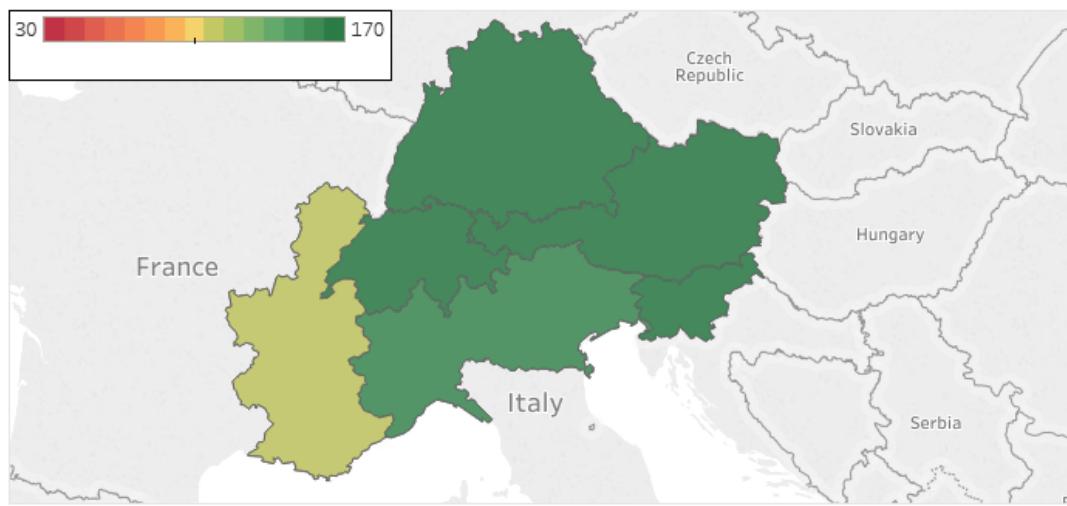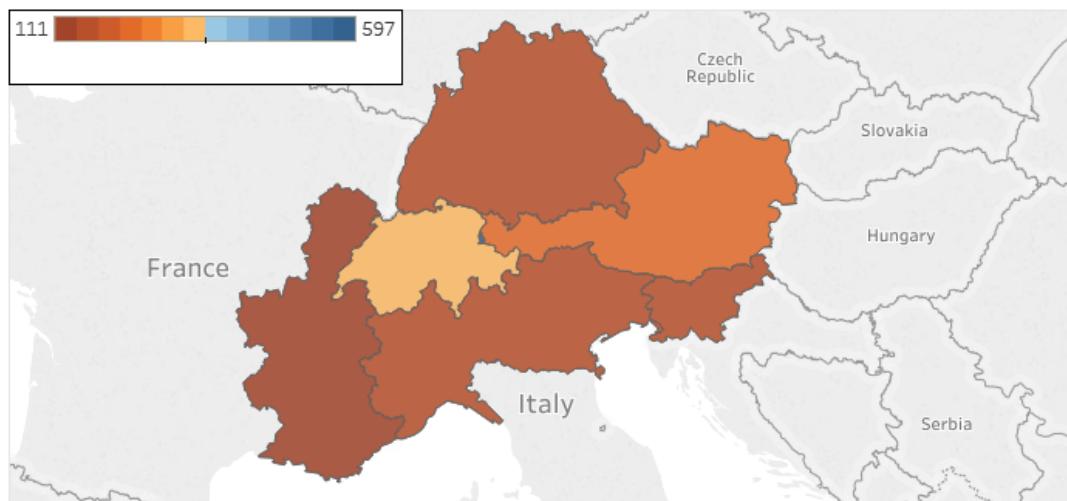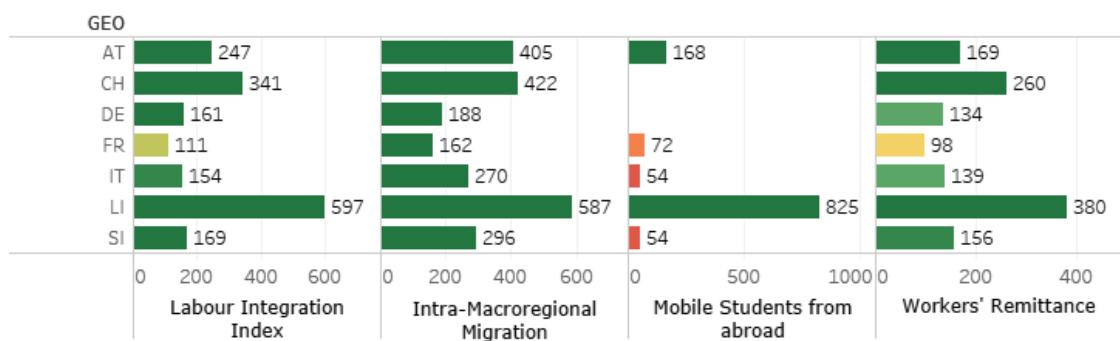
Text Box 2-4: Explanation of the indicator: 'Labour Integration'

To get a picture on the status of labour integration in the macro-regions three indicators are selected: a) Bilateral estimates of migrant stocks in 2013, b) Bilateral Remittance Estimates for 2015 using Migrant Stocks, Host Country Incomes, and Origin Country Incomes (millions of US$) (October 2016 Version) both indicators provided by the World Bank and the c) Share of mobile students from abroad by education level, sex and country of origin, provided by Eurostat have been used to create a composite indicator.

Data on Migration and remittances are based on the Migration and Remittances Factbook 2016 published by the World Bank. It provides a comprehensive picture of emigration, immigration, and remittance flows for 214 countries and territories, and 15 country groups, drawing on authoritative, publicly available data. The data are collected from various sources, including national censuses, labour force surveys, and population registers.

According to the "Recommendations on Statistics of International Migration" by the United Nations Statistics Division (1998), "long-term migrants" are persons who move to a country other than that of their usual residence for a period of at least one year, so that the country of destination effectively becomes their new country of usual residence. "Short-term migrants" are persons who move to a country other than that of their usual residence for a period of at least three months but less than one year, except for the cases where the movement to that country is for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment, or religious pilgrimage (UN Statistics Division 1998).

A new notion of remittances introduced in the sixth edition of the IMF Balance of Payments and International Investment Position Manual (BPM6)[21] is starting to be used by many countries (IMF 2010a). According to the new definition, personal remittances are the sum of two main components: "compensation of employees" and "personal transfers". Personal remittances also include a third item: "capital transfers between households," but data on this item are difficult to obtain and hence reported as missing for almost all countries.

Compensation of employees[22], unchanged from BPM5, represents "remuneration in return for the labour input to the production process contributed by an individual in an employer-employee relationship with the enterprise." The definition of "personal transfers," however, is broader than the old "worker's remittances" – it comprises "all current transfers in cash or in kind made or received by resident households to or from non-resident households." Therefore, "personal transfers" include current transfers from migrants not only to family members but also to any recipient in their home country. If migrants live in a host country for one year or longer, they are considered residents, regardless of their immigration status. If the migrants have lived in the host country for

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[21] IMF (2013): Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (*BPM6*). URL:
https://www.imf.org/external/pubs/ft/bop/2007/pdf/appx5.pdf
[22] *See footnote above*

less than one year, their entire income in the host country should be classified as compensation of employees.[23]

Share of mobile students from abroad enrolled by education level, sex and field of education refers to students from abroad enrolled in tertiary education (level 5-8) in percentage of all students.

The Alpine macro-region shows the highest degree of integration among all analysed macro-regions and the countries of the Alpine macro-region all exhibit high or average levels compared to the EU average. The highest levels are observed for Liechtenstein and Switzerland, followed by Austria. The high value for Liechtenstein is to a certain degree attributable to the high number of students studying in the other countries of the macro-region. Germany, Slovenia, Italy and France have index values below those of the macro-region but above the European average. The lowest labour integration with the other countries in the macro-region is seen for France[24].

A close look at the migration, remittances and students' mobility flows inside the macro-region, discloses some interesting integration patterns. Statistical evidence shows that geographical proximity, historical and cultural ties and language advantages play an important role for labour integration. Family and friends network that migrants already have in the destination country is another contributing factor (Taylor, 1986)[25] . Thus, there is a high degree of integration between Austria and Germany and to a lower extent between Austria and Switzerland; there is a high degree of labour integration between Germany on one hand and Switzerland, Italy, France, and Austria on the other hand; integration is high between Italy and Germany, France and Switzerland. Most labour migrants from Switzerland can be found in Italy followed by France, Germany and Austria. Slovenian migrants choose Croatia, Germany and Austria. The data show a very high integration of all these countries with migrants and remittances going in both directions. The strong role of historical and family ties as well as language advantages in this macro-region prevail in the migration decision (e.g. German speaking countries).

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[23] IMF (2013): Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (*BPM6*). URL: https://www.imf.org/external/pubs/ft/bop/2007/pdf/appx5.pdf

[24] There were no data on students' mobility available for Germany and Switzerland.

[25] Taylor, J. Edward, 1986. Differential migration, networks, information and risk. In: Stark, Oded (Ed.), Migration, Human Capital and Development. JAI Press, Greenwich, CT

2.4.2 Trade Integration

Figure 2-5: Trade Integration by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
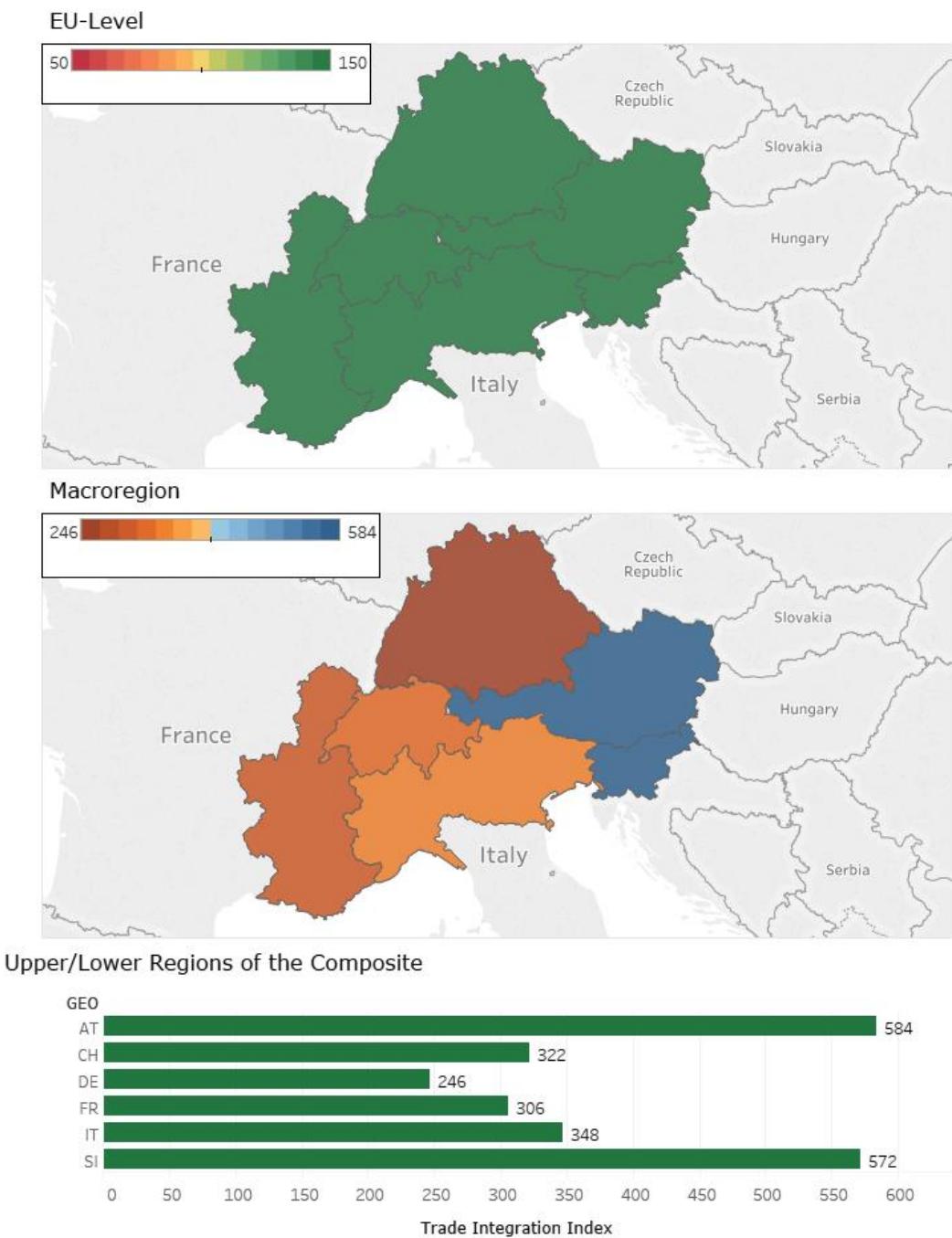
Text Box 2-5: Explanation of the indicator: 'Trade Integration'

To measure Trade Integration, the analysis benchmarks a country's share of exports to the macro-region out of its total exports. The result of the benchmark thus indicates the degree to which a country is able to sell its goods in the macro-region, and what importance the single market concept has on a macro-regional scale.

Next to the high economic importance of the macro-region associated with a high indicator score, the 'functional' definition of a macro-region through a common geographic feature is manifested through economic evidence.

The data was obtained from the COMTRADE Database of the United Nations, which provides comprehensive trade data.[26]

The Alpine macro-region shows the highest trade integration compared to all macro-regions. Austria and Slovenia register the highest share of the macro-region with total exports amounting to more than 45% and a score of 584 and 572 respectively. In parts, the high scores are explained by the fact that both countries are as a whole part of this macro-region, unlike the other Member States.

A medium degree of integration can be observed within a second group of countries (Germany, France, Switzerland, and Italy). This exhibit shares of macro-region's exports in total exports ranging from 23% in France (score of 306) to about 30% in Italy (348). There is a strong trade activity among the countries of the macro-region, as all have a large share in each other exports'. Since this analysis uses country-level data, the actual trade integration of the relevant regions may even be higher. Compared to 2011 the share of macro-region in the exports of the countries of the Alpine diminished. Although integration decreased in all countries it remained nevertheless strong.

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[26] UN COMTRADE, URL: https://comtrade.un.org/

2.4.3 Capital Integration

Figure 2-6: Capital Integration by country, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
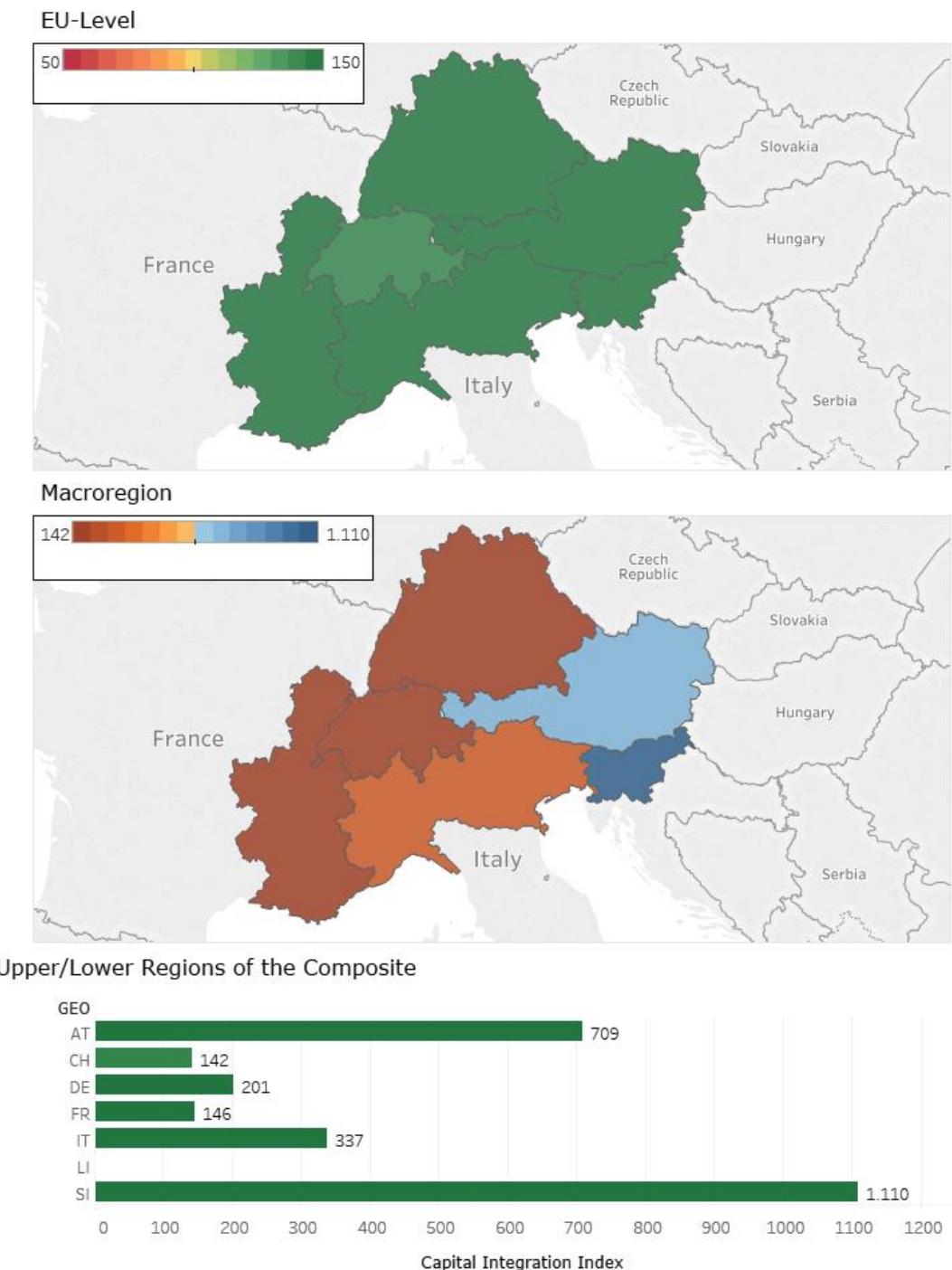
Text Box 2-6: Explanation of the indicator: 'Capital Integration' [27] [28]

The Capital Integration among the countries of this macro-region is measured through foreign direct investment (FDI). The ability of a country to attract FDI indicates the economic attractiveness of a region (Grozea-Helmenstein et al, 2017). When using this concept, one has to differentiate between outward FDI (domestic companies investing in a foreign country) and inward FDI (foreign companies investing in the domestic country) as well as between flows (the annual stream of investments) and stocks (the aggregated volume of all past investments minus depreciation and repatriation) (Grozea-Helmenstein et al, 2017). For the underlying analysis inward FDI stocks of 2012 were therefore used, as these are in fact a moving, weighted average of flows that depreciate over time. The data have been provided by Eurostat.

Among various hypotheses aiming to explain the pattern of foreign direct investment, according to the classical theory of comparative advantage relative factor endowments and initial conditions are important factors in attracting FDI to some locations rather than others (Bhagwati, 1987)[1]. This is in line with the FDI pattern which can be observed in the macro-regions, with some countries being more attractive to foreign investors compared to others.

The Capital Integration is measured on a country level. When considering the integration of countries that are only partially in the macro-region, the inward FDI stock (and thus benchmarking) of only the applicable regions may be higher if one assumes that inward FDIs are higher in closer geographical proximity (Folfas, 2011).

The Alpine macro-region shows a high level of capital integration with a share per partner amounting to 6.20, corresponding to 441 on the benchmark. The average Alpine region scores therewith nearly as high as the EU's most integrated Member State. This level is significantly higher than the EU-average (3.09). Slovenia accounts for the largest share of FDI stocks from the other partners in the macro-region (above 75% of total FDI stock in the country, and a benchmark score of 1,110), followed by Austria with a share of about 52%. Switzerland and France have the lowest share of FDI from the other partners in the macro-region, about 20%, followed by Germany with 23%. Italy is placed in the middle, with a share of 31%[29]. No data were available for Liechtenstein.

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[27] Folfas, P. (2011), *FDI between EU Member States: Gravity models and Taxes*, http://www.etsg.org/ETSG2011/Papers/Folfas.pdf

[28] Grozea-Helmenstein, D., G. Grohall, C. Helmenstein (2017): Convergence and Structural Change in Romanian Regions, in Larisa Schippel, Julia Richter, Daniel Barbu (2017): Rumäniens "Rückkehr" nach Europa. Versuch einer Bilanz. Wien: new academic press.

[29] Since the benchmarking uses countrywide data, the benchmarking is in the cases of France, Italy and Germany possibly understated, given that also further distant regions are included, rather than only the actual regions of the macro-region.

2.4.4   Energy Integration

Figure 2-7: Energy Integration by country. The top figure shows an EU-wide comparison, while the middle map illustrates the indicator on the macro-regional scale. The bottom figure shows the benchmarked indicator values for each country.
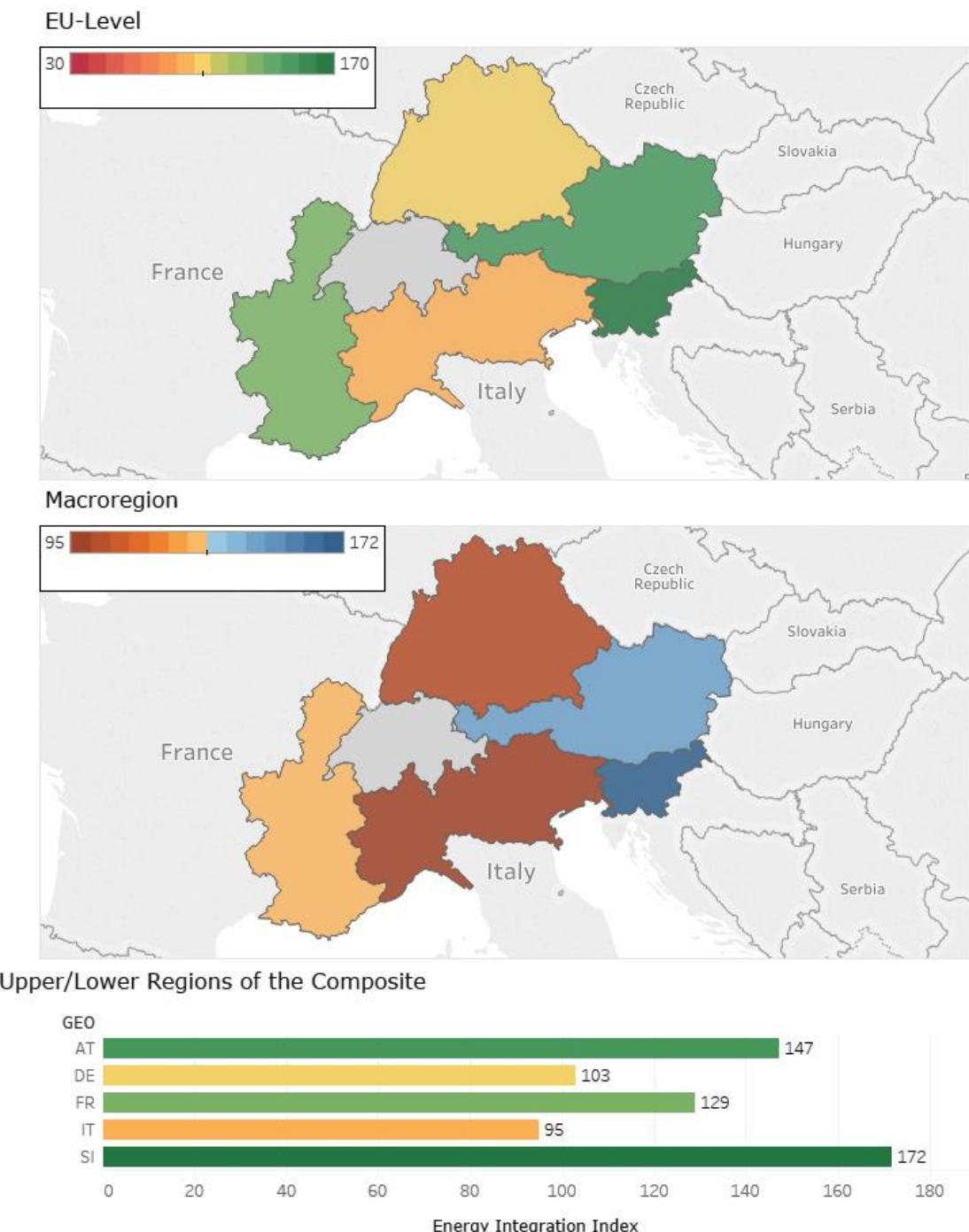
Text Box 2-7: Indicator description: 'Energy integration'

The energy integration indicator is defined as the energy export share that stays within the macro-region. Country-level data from Eurostat for the latest available year (2015) is used (Data table Exports - all products - annual data [nrg_131a]). Energy exports considered include all types of energy products: solid fuels, oil, gas, electricity and renewables.

The indicator for a specific country is constructed as follows:

1. Ratio between the macro-regional exports of the country and total energy exports is calculated.

Total exports = Energy export in tonnes of oil equivalent (toe) from the country to all trading partners

Macro-regional exports = energy products export in toe from the country to trading partners within the macro-region.

2. This ratio is divided by the number of partners in the macro-region, to obtain an average share of exports per partner in the macro-region.

3. Benchmark values are set-up in the same way as the integration indicators for macro-regional level, for EU-level energy trade integration, defined as the (per partner) share of exports to other EU countries as compared to all exports to the world.

This allows the degree of integration within each macro-region to be benchmarked against the degree of integration in the EU as a whole.

NOTE: Since the indicator is defined at the country level, it is not known what exact proportion of trade occurs within the macro-region, hence this indicator is a proxy.

Another area reflecting the degree of macro-regional integration is energy trade. The indicator selected to represent energy trade is the share of energy exports that goes to the other countries in the region (as proportion of total energy exports). This reflects the preferred partners for energy trade. The higher proportion exported to nearby countries or regions can indicate closer ties between the areas. This indicator does not directly reflect energy independence of the region, but is rather intended to show the directions chosen for outgoing trade.

Figure 2-8: Share of energy products exported to the macro-region by each country, 2015
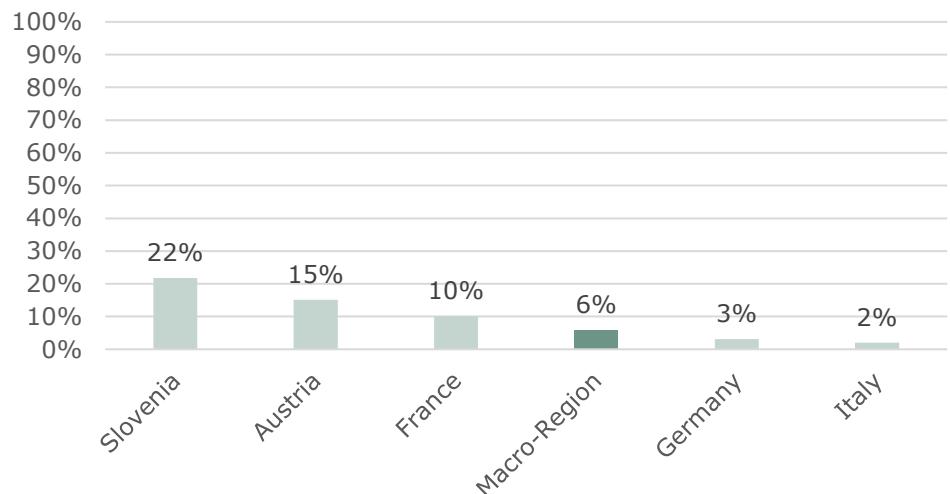
The Alpine macro-region shows a relatively low level of energy integration based on the energy export indicator. Approximately 6% of energy products (7,7 out of 133,5 Million Tonnes oil equivalent) are exported to other countries in the macro-region. Slovenia exports the largest share of its energy products to other countries within the macro-region, but it is the smallest exporter in the region The bilateral energy exports from Germany and Italy to the other countries inside the macro-region are very low with share values below 5%. At the same time, they are two of the largest exporters of energy products in the macro-region, and they have a larger number of export partners, in other macro-regions, elsewhere in Europe and in other parts of the world.

The benchmarked indicator shows that Slovenia performs higher than the EU-level top-performer, while Austria is also close to the top benchmark at 147. The rest of the countries are either above, or just below the median, showing overall high levels of integration compared to the EU-level.

2.4.5   Accessibility Potential

Figure 2-9: Accessibility Potential by NUTS-2 in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion
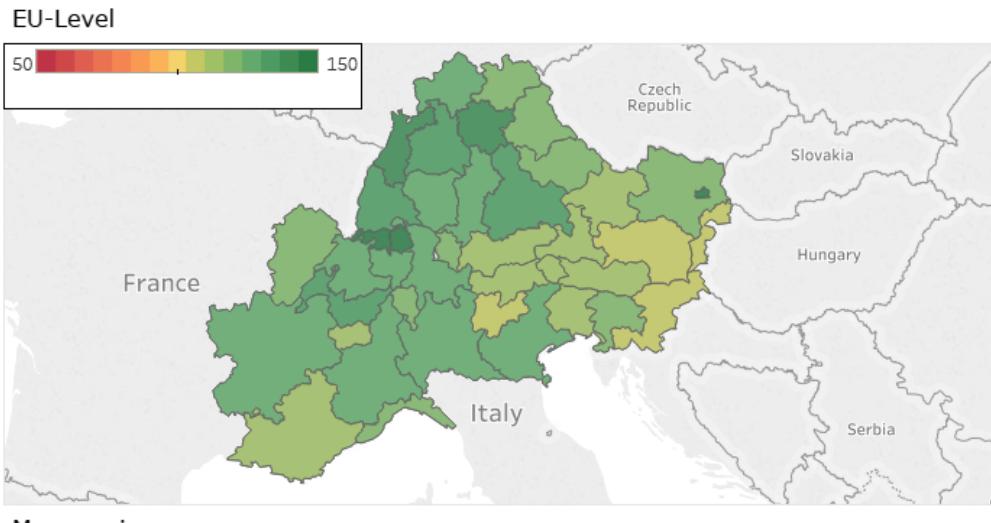
Upper/Lower Regions of the Composite

CO..	NUTS LABEL	Multimodal Accessibility (travel time)	Road Accessibility (travel time)	Rail Accessibility (travel time)	Air Accessibility (travel time)
AT	Wien	145	121	122	150
	Burgenland	105	114	108	119
CH	Zürich	148	129	136	149
	Ticino	121	128	122	118
DE	Karlsruhe	138	148	150	122
	Oberfranken	118	143	130	107
FR	Rhône-Alpes	123	126	137	111
	Provence-Alpes-Côte d'Az..	114	111	121	109
IT	Lombardia	128	129	126	125
	Provincia Autonoma di Tr..	109	126	120	102
SI	Zahodna Slovenija	117	115	110	119
	Vzhodna Slovenija	106	113	105	107

Text Box 2-8: Explanation of the indicator: 'Accessibility Potential'

The concept of accessibility refers to the ease of getting around from place to place (Saleem and Hull, 2012)[30]. Hull (2011) identifies two fields of accessibility: the first refers to the ability to travel and is based on the classical location theory. This shows the direct correlation between changes in the transport system (e.g. transport costs) and journey length (Banister, 2002; Ney, 2001; Geurs and van Wee, 2006). The second focuses mainly on the "ease of reaching" a number of daily activities at different destinations. The first conceptualisation of accessibility has been more intensively studied by the academic literature. This conceptualisation of accessibility forms also the basis of the indicators which are investigated below.

These assess the accessibility potential measured as an index[31] related to the ESPON average for various transport modes such as road, rail, air, and multimodal transport. Multimodal transport refers to the transportation of goods under a single contract, but carried out with at least two different means of transport (e.g. rail, sea and road), where the carrier is liable (in a legal sense) for the entire carriage. In order to achieve a feasible number of regions, the NUTS-3 regions were aggregated to a NUTS-2 level, by averaging the values of the aggregated regions.

In the macro-region, the best accessibility values for road and rail transport modes are in the regions of Germany, Switzerland, and France.
The highest accessibility by air and by multimodal transport can be found in Germany and the lowest in Liechtenstein and Slovenia, which is due to the small size and the topography of those countries. The regions in Austria, France, Italy, and Switzerland show relatively high accessibility index values for the air and multimodal transport.

Inside the countries, accessibility differs quite strongly from one region to another in all countries for all transport modes. The lowest disparities among the regions can be observed in Slovenia, while the highest in France and in Germany. The size of the country and the mountainous relief plays a role in this respect. Due to the implementation of successful investments co-financed through EU Cohesion Funds accessibility by road and rail improved significantly in 2014 compared to 2011 in Slovenia. In the most NUTS-3 regions in all other countries of the macro-region it decreased, however. This is due to modest investments, in the aftermath of the economic crisis, as accessibility depends on infrastructure investments, which need besides substantial financing a long time for planning and implementation. At the same time, the accessibility by air and by multimodal transport declined in Germany, Austria, Switzerland and Liechtenstein and increased in France, Slovenia and Italy.

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[30] Saleem Karou, Angela Hull (2012): Accessibility Measures and Instruments, in Angela Hull, Cecília Silva and Luca Bertolini (Eds.) Accessibility Instruments for Planning Practice. COST Office, pp. 1-19. URL: http://www.accessibilityplanning.eu/wp-content/uploads/2013/01/Accessibility-Measures-and-Instruments-R.pdf

[31] For each NUTS-3 region the population in all destination regions is weighted by the travel time to go there. The weighted population is summed up to the indicator value for the accessibility potential of the origin region.

2.4.6   Transnational Cooperation

Figure 2-10: Territorial Cooperation by NUTS-2 in 2011, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-level

Macroregional-level

Composites-Min/Max

CO...	NUTS LABEL	Aggregated number of project partners participating in Interreg IV-B projects
AT	Wien	132
	Vorarlberg	63
CH	Région lémanique	92
	Nordwestschweiz	54
DE	Oberbayern	110
	Oberpfalz	50
FR	Provence-Alpes-Côte d'Az..	138
	Franche-Comté	71
IT	Lombardia	124
	Provincia Autonoma di Tr..	96
SI	Zahodna Slovenija	150
	Vzhodna Slovenija	120

Aggregated number of project partners participating in Interreg IV-B projects
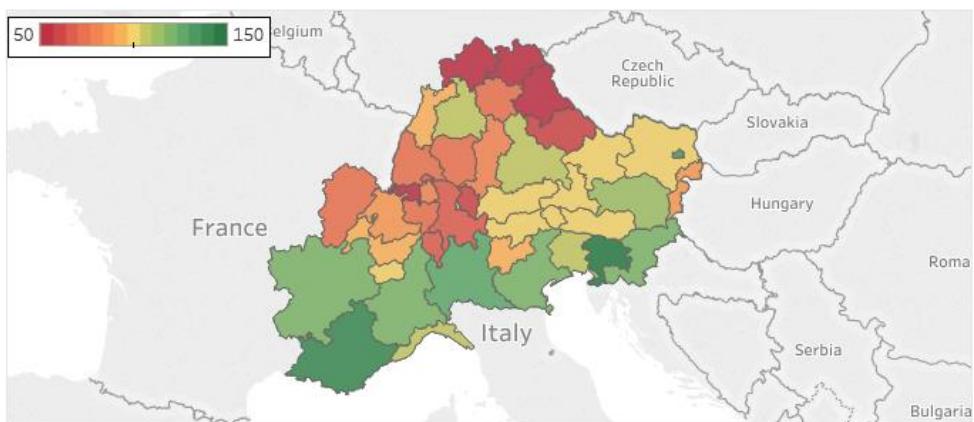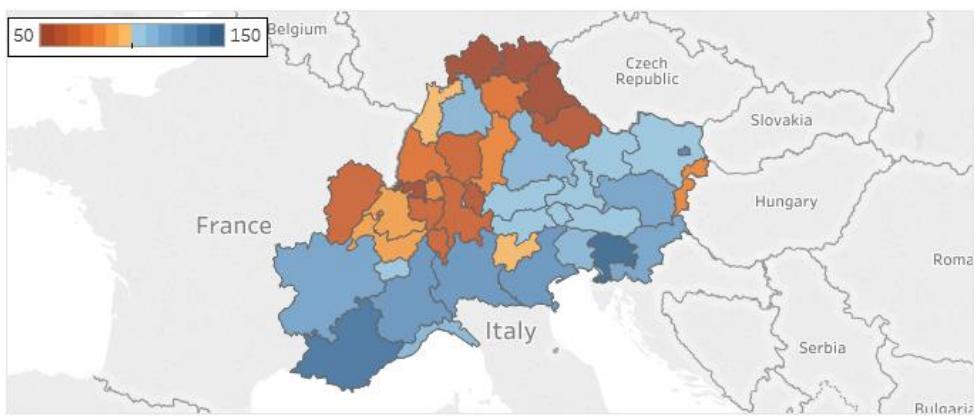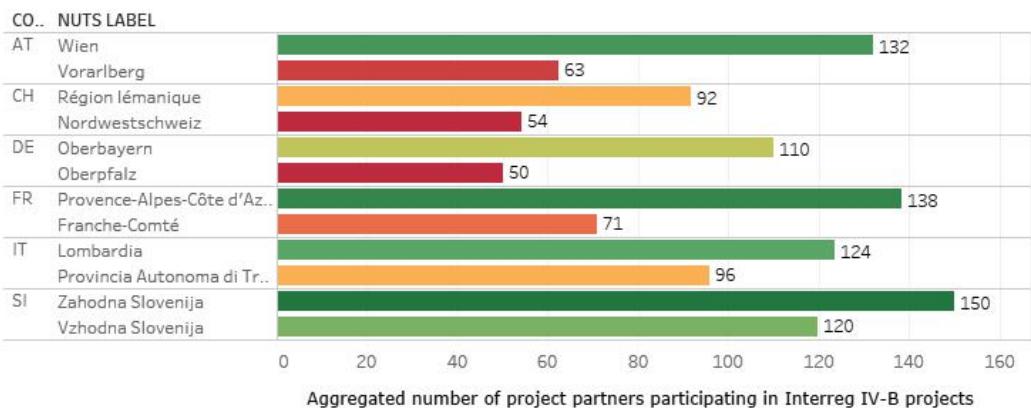
Text Box 2-9: Explanation of the indicator: 'Transnational Cooperation'

Transnational cooperation[32] is a major aspect of territorial cohesion, which is in turn one of the three cornerstones of the EU's Cohesion Policy as well as the EU's enlargement policy. A major tool for the EU to facilitate and promote cooperation is the INTERREG programme as part of the European Structural and Investment Funds, which is currently in its fifth generation (INTERREG V).

Transnational cooperation represents a tool to support economic development and competitiveness, territorial, economic, and social integration, and to foster good neighbourhood relations.[33] It is also a tool which contributes to the reduction of negative border effects between weaker and stronger regions, which promotes city networking, and supports the adoption of solutions to address environmental challenges.[34] Territorial cooperation takes place in the framework of projects, programmes, and regions. It has been steadily expanding over the last years including also many unsupported/spontaneous movements. These take the form of city networks, and non-EU-supported, macro-regional and country-specific types of co-operation.[35] However, territorial co-operation has still many weaknesses that need to be addressed.

The indicator on cooperation builds on the number of organisations participating in INTERREG IVB projects as a proxy for macro-regional cooperation, which covers the time span of 2007-2013. INTERREG IVB projects occur under programmes which have a transnational geographic scope, such as the Alpine, Danube, or Central Europe. The data covers however only the time span between 2007 and January 2011.

The Alpine macro-region comprises of a diverse scoring on this benchmark: It includes of the EU's bottom performer Oberpfalz in Germany (score of 50) as well as the top-performer Zahodna Slovenija with 118 participating organisations (score of 150). More broadly speaking, the northern eastern area of the macro-region (Bavaria) as well as Switzerland and its northern neighbours perform below the EU-median. In the southern regions most cooperation is contrast found. The high scores in the Southern region are explained by the fact that 4 out of 10 INTERREG IV-B programmes in continental Europe covered these regions.

On the country level, Switzerland is the only country performing below the EU-median with 40 participating organisations, which is not surprising as it is not a Member State, and therewith participates in ESIF programmes only as a neighbouring country. In the German NUTS-2 regions belonging to the Alpine

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[32] Collaboration between administrative bodies and/or political actors in Europe and beyond, representing their respective territories, which can also engage other stakeholders as long as their involvement is within the same institutionalized framework (2013, European Territorial Cooperation as a Factor of Growth, Jobs and Quality of Life, ESPON).

[33] https://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/TERCO/TERCO_Interim-Report-and-Annex_FINAL.pdf

[34] http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/TERCO/Final_Report/TERCO_FR_ExecutiveSummary_Dec2012.pdf

[35] http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/TERCO/Final_Report/TERCO_FR_ExecutiveSummary_Dec2012.pdf

macro-region there was a total of 102 organisations, in the French NUTS-2 regions 147 organisations, in the Italian NUTS-2 regions 284 organisations, in Austria 206 organisations, in Slovenia 171 organisations. Particularly in light of Slovenia's relatively small size in the region, this points to a strong utilisation of cooperation opportunities.

Other regions with strong cooperation are Provence-Alpes-Côte d'Azur with 93 organisations, Wien with 80 organisations, Lombardia with 62 organisations, Veneto with 59, Piemonte with 58 organisations, Vzhodna Slovenija with 54 organisations, and Rhône-Alpes with 49 organisations. No data were available for Croatia. There was no organisation from Liechtenstein, which participated in an INTERREG IV-B project.

2.5   Competitiveness

The availability of skilled workforce, capital and technological endowment as well as investment in research and infrastructure influence economic performance and competitiveness at the regional level. But also other factors, such as the proximity to universities and quality of health services, the time it takes to start-up a business, the perception of the rule of law, environmental and safety considerations are, among others, important competitiveness factors. In many countries, there are significant region-to-region differences in some or all of these factors (Grozea-Helmenstein and Berrer, 2013).

The competitiveness indicators which have been chosen provide a more detailed insight into the (broadly defined) competitiveness of countries and macro-regions on various aspects. They focus on common factors throughout all macro-regions and factors that are specific for each macro-region. The purpose in this category is to identify the possible needs for interventions that add to smart, inclusive, and/or sustainable growth, and therewith to the cohesion of a macro-region.

2.5.1 Overall Competitiveness

EU Regional Competitiveness Index

Figure 2-11: Regional Competitiveness by NUTS-2 in 2016, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite

CO..	NUTS LABEL		Regional Competitiveness Index
AT	Niederösterreich		122
	Wien		122
	Burgenland		105
DE	Oberbayern		141
	Niederbayern		115
FR	Rhône-Alpes		118
	Franche-Comté		105
IT	Lombardia		100
	Valle d'Aosta/Vallée d'Ao..		86
SI	Zahodna Slovenija		109
	Vzhodna Slovenija		94
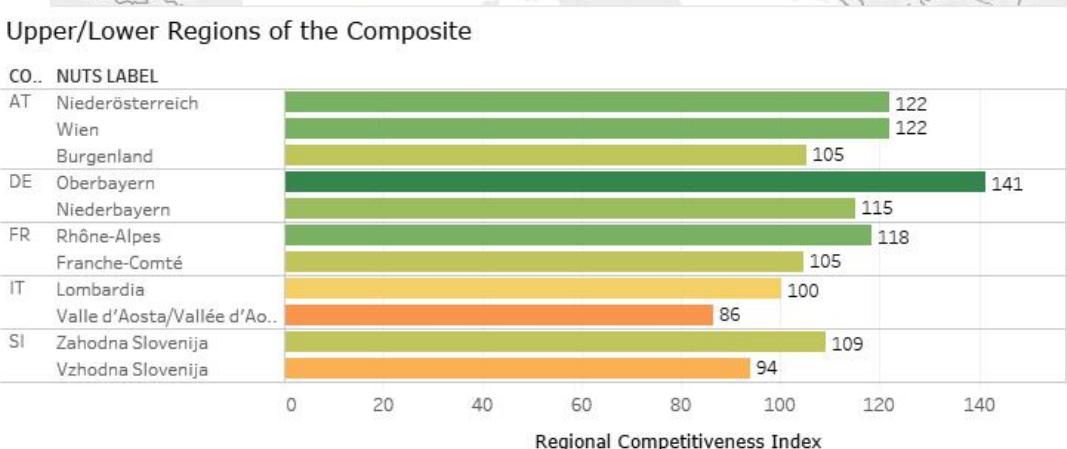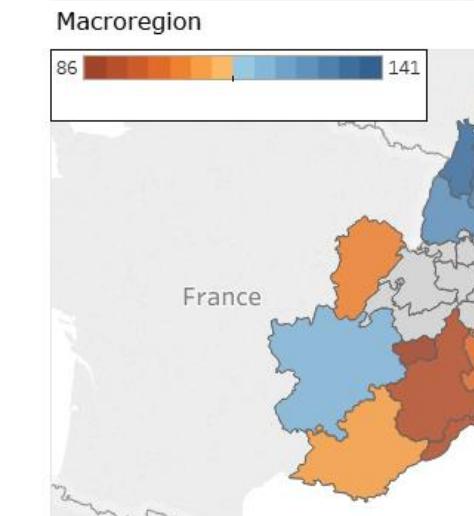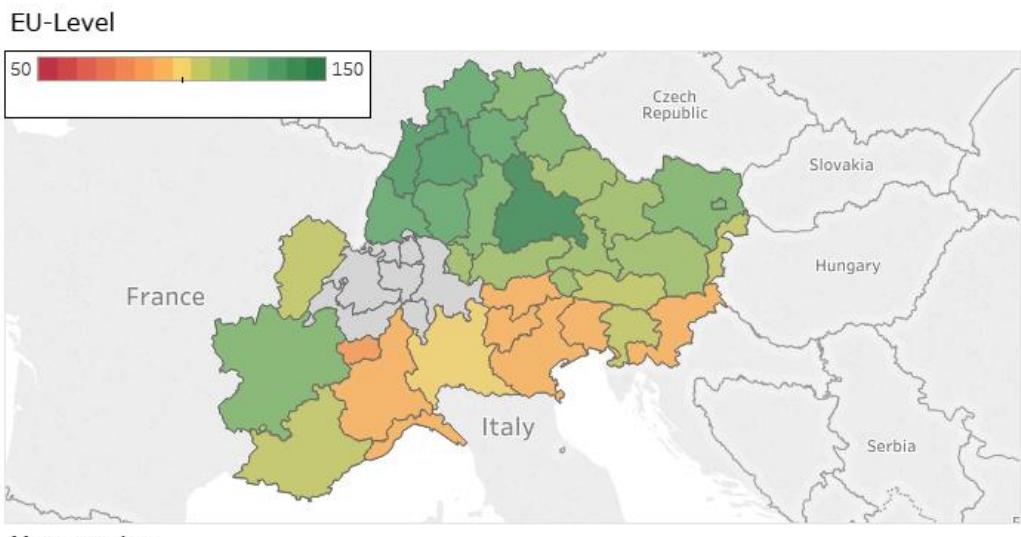
Text Box 2-10: Explanation of the indicator: 'Regional Competitiveness'

Regional Competitiveness Index (RCI) measures various dimensions of competitiveness at the regional level. [36] It highlights the EU NUTS-2 regions' strengths and weaknesses, while giving useful insights into the fields that need improvement in order to rise regional competitiveness. In the framework of the Regional Competitiveness Index the overall competitiveness of a country is defined by all its regions and not only by its capital region. Countries such as Romania, Slovakia and France are characterised by strong disparities in the socio-economic development and competitiveness between the capital region and the rest of the regions in the country. Federal states, like Germany and Austria show a more homogeneous picture regarding competitiveness.

The Regional Competitiveness Index[37] is based on eleven pillars comprising inputs and outputs of territorial competitiveness. These basic pillars are grouped into three sets focusing on basic-, efficiency- and innovative- factors of competitiveness. They include:[38] (1) Quality of Institutions, (2) Macro-economic Stability, (3) Infrastructure, (4) Health and the (5) Quality of Primary and Secondary Education. These pillars are especially relevant for less developed regions.

The area efficiency includes the following pillars: (6) Higher Education and Lifelong Learning (7) Labour Market Efficiency and (8) Market Size. Innovation pillars are especially relevant for the most advanced regional economies. They comprise (9) Technological Readiness, (10) Business Sophistication and (11) Innovation. RCI aims at showing short and long-term capabilities of the regions.

In 2013, the ten best performers of the Alpine macro-region were all located in Germany. The three best performers were Oberbayern, Karlsruhe and Stuttgart in Germany. The Austrian regions Niederösterreich and Wien were ranked on the 11th place in the ranking of the macro-region. Best performing French region was Rhône-Alpes on 14th place. Best performing region in Slovenia, Zahodna Slovenija was ranked 21st in the Alpine macro-region ranking. Italy's best performing region Lombardia was placed 24th, while Italy's worst performer Valle d'Aosta/Vallée d'Aoste was also the macro-region's worst performing region.

In 2016, German regions Oberbayern, Karlsruhe and Stuttgart were again ranked the best, these regions maintained their positions. Austrian regions Niederösterreich and Wien managed to improve, thus they were placed eighth in 2016. France's best performer Rhône-Alpes outperformed Germany's lowest performing region Niederbayern and was ranked 13th in 2016. Zahodna Slovenija in Slovenia also improved and was ranked 20th. However, Lombardia in Italy lost its 24th place from 2013, being ranked 25th and Valle d'Aosta/Vallée d'Aoste in Italy was again ranked last in 2016. Among the lowest performers in the macro-region eight were placed in Italy, one in Slovenia (Vzhodna Slovenija) and one in France (Franche-Comté). This ranking does not include Switzerland and Liechtenstein, as there were no data available for these countries.

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[36] URL: http://ec.europa.eu/regional_policy/en/information/publications/studies/2013/eu-regional-competitiveness-index-rci-2013

[37] URL: http://ec.europa.eu/regional_policy/en/information/publications/studies/2013/eu-regional-competitiveness-index-rci-2013

[38] URL: http://ec.europa.eu/regional_policy/en/information/publications/studies/2013/eu-regional-competitiveness-index-rci-2013

Regional Innovation Scoreboard

Figure 2-12: Regional Innovation Scoreboard by NUTS-2 in 2016. The bottom figure shows the scoring of all Regions.
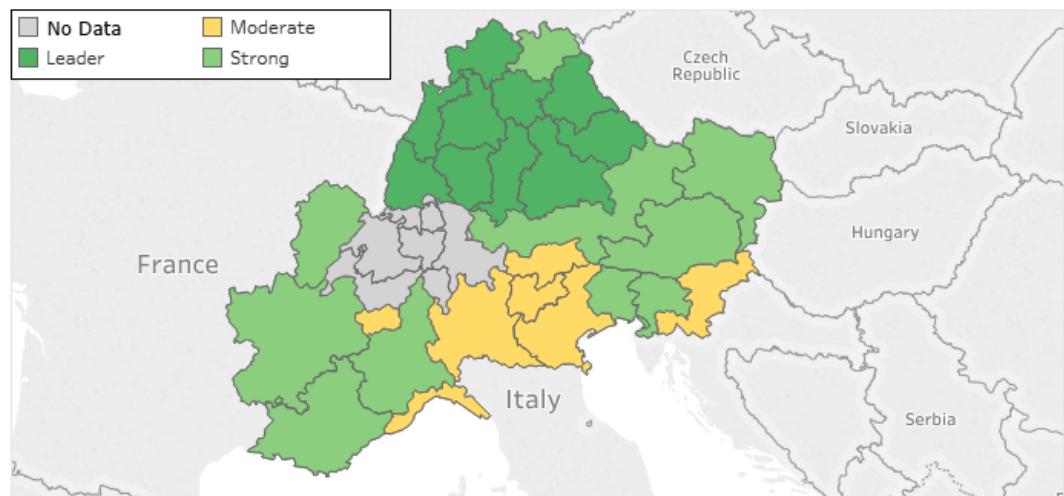
Upper/Lower Regions of the Composite

COUNTRY..	NUTS LABEL	Moderate	Strong	Leader
AT	Ostösterreich		●	
	Südösterreich		●	
	Westösterreich		●	
DE	Oberbayern			●
	Oberpfalz			●
	Oberfranken		●	
	Freiburg			●
	Karlsruhe			●
	Mittelfranken			●
	Niederbayern			●
	Schwaben			●
	Stuttgart			●
	Tübingen			●
	Unterfranken			●
FR	Centre-Est		●	
	Est		●	
	Méditerranée		●	
IT	Provincia Autonoma di Bo..	●		
	Valle d'Aosta/Vallée d'Ao..	●		
	Piemonte		●	
	Friuli-Venezia Giulia		●	
	Liguria	●		
	Lombardia	●		
	Provincia Autonoma di Tr..	●		
	Veneto	●		
SI	Zahodna Slovenija		●	
	Vzhodna Slovenija	●		

Text Box 2-11: Explanation of the indicator: 'Regional Innovation Scoreboard'

The Regional Innovation Scoreboard is a regional extension of the European Innovation Scoreboard, assessing the innovation performance of European regions on a limited number of indicators.[39]

The following analysis is based on the data of the Regional Innovation Scoreboard published by the European Commission. There have been used data on NUTS-2 regions of the European Union for the period from 2009 to 2016. Although data were not available for all NUTS-2 regions and countries in a macro-region, it gives a picture about the level of innovation in a macro-region.

The regions are ranked in the following four categories: Innovation leaders, strong innovators, moderate innovators and modest innovators.

Due to the underlying categorisation, this indicators has not been benchmarked, but has been left in its original format.

The best performing NUTS-2 regions in the Alpine macro-region were located in Germany, being all 'Leading' innovators in 2012. The NUTS-2 regions in Austria and France and Slovenia's NUTS-2 region Zahodna Slovenija follow with a rating as 'Strong' innovators. The poorest performers in this macro-region were Vzhodna Slovenija in Slovenia and all regions in Italy, being rated 'Moderate innovators' in 2012.

From 2012 to 2016, the rating of three regions changed. Piemonte and Friuli-Venezia Giulia in Italy were able to improve to 'Strong' innovators, while Oberfranken in Germany descended to a 'Strong' innovator rating. The other regions did not change their position. Many NUTS-2 regions in Italy show relative weaknesses in 'Innovative SMEs collaborating with others', 'Public R&D expenditures', and 'Tertiary education attainment'. Vzhodna Slovenija in Slovenia performs low on 'Public R&D expenditures', 'Sales of new product innovations', and 'EPO patent applications'. Switzerland and Liechtenstein are not included in this ranking, as there are no data available for these countries.

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[39] http://ec.europa.eu/growth/industry/innovation/facts-figures/regional_de

EU Digitalisation Index (DESI)

Figure 2-13: EU Digitalisation by country in 2014, on an EU-wide (top) and Macro-regional (bottom) comparison. The bottom figure shows the Upper/Lower Regions, including their components
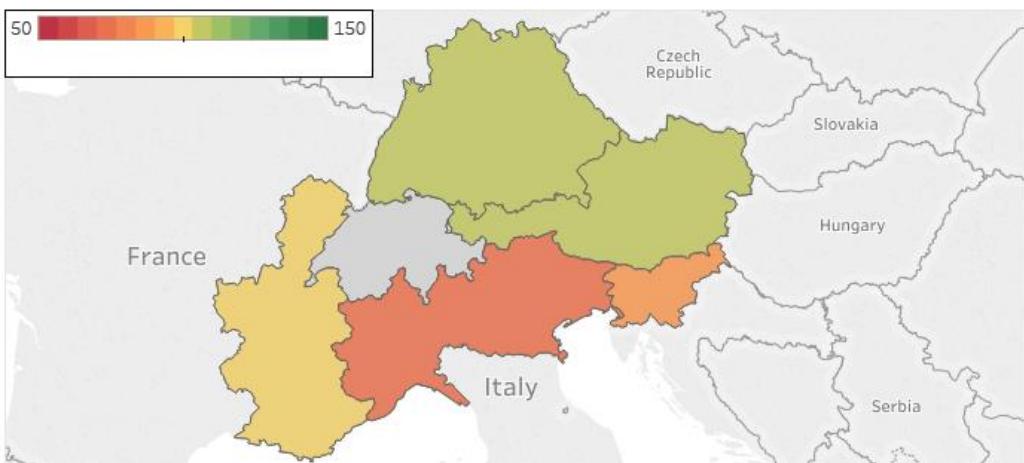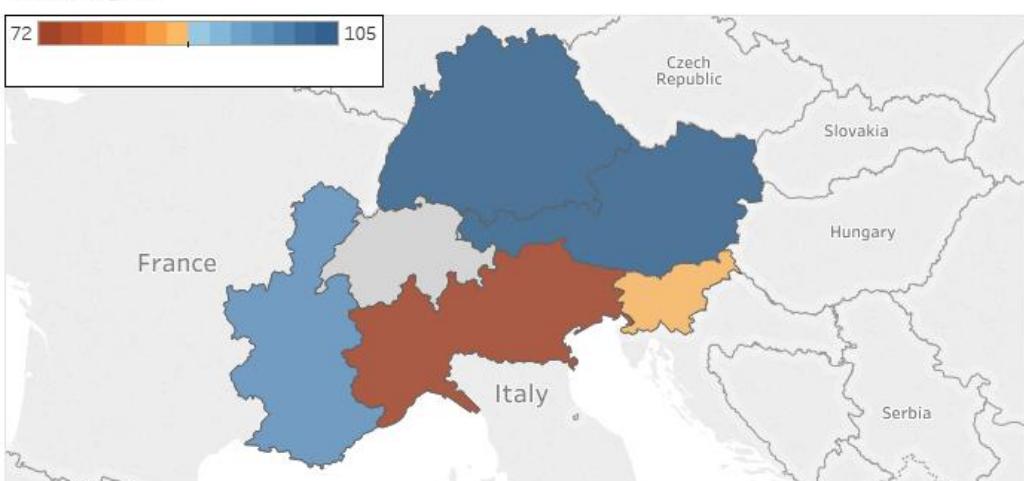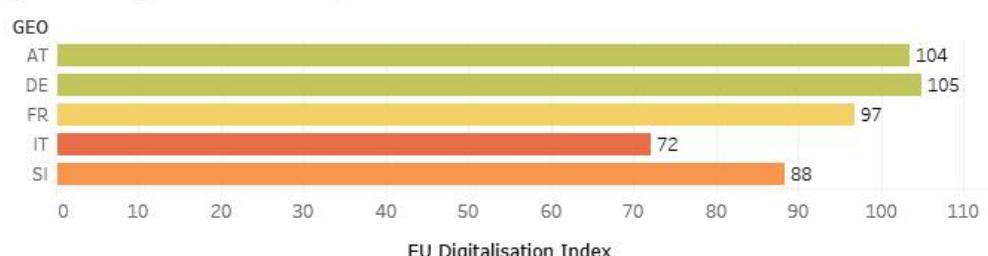
Text Box 2-12: Explanation of the indicator: 'EU Digitalisation Index'

The Commission's Digital Single Market Strategy for Europe[40] emphasises Europe's potential to take a leading role in the global digital economy; with a potential of EUR 415 billion GDP growth for the EU.[41] However, fragmentations in the single market and barriers restrain the development in this field. The digital economy could create opportunities, expand markets, assure better services at better prices, and generate employment. Therefore, progress on improving access for consumers and businesses to online goods and services[42]; creating the proper environment for developing digital networks and services; and raising the growth potential of the European digital economy are crucial in order to take advantage of the opportunities created by the digital economy.

The Digital Economy and Society Index (DESI) assesses the Member States' status and progress towards the global digital economy. DESI is a composite index that combines "relevant indicators on Europe's digital performance and tracks the evolution of EU Member States in digital competitiveness."[43]

The overall DESI score is the result of five separate dimensions:[44]

1. Connectivity: The Connectivity dimension measures the quality and development of broadband internet services.
2. Human Capital: This dimension measures the computer skills of European citizens.
3. Use of Internet: The Use of Internet dimension reports which actions European citizens execute online.
4. Integration of Digital Technology by businesses: This dimension shows the digitisation of businesses.
5. Digital Public Services: This dimension informs about eGovernment and the digitisation of public services.

An analysis of the DESI index for the macro-region's countries gives useful information regarding their achievements regarding digital competitiveness. The data used for the analysis has been published by the European Commission. However, data were not available for every country in the macro-region. For this analysis, the combined score of the five individual dimensions has been used.

In 2014 the country ranking of the Alpine macro-region was led by Germany with a score of 105. Austria and France followed with combined scores of 104 and 97. Slovenia came in on fourth place with a score of 88, losing on every dimension except 'Digital Public Services' compared to Germany. The lowest performer was Italy with a score of 72, putting it at a long way behind.

In 2017, nearly all countries show significant progress compared to 2014 and managed to increase their scores. In 2017, Austria is the best performing country of this macro-region with a score of 109, followed by Germany (102). France holds on to its third place, but loses space compared to Slovenia (France: 94, Slovenia: 92). Slovenia outperforms France on the 'Connectivity' dimension

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[40] URL: http://www.ipex.eu/IPEXL-WEB/dossier/document/COM20150192.do.

[41] URL: http://www.europarl.europa.eu/atyourservice/en/displayFtu.html?ftuId=FTU_5.9.4.html

[42] URL: https://ec.europa.eu/digital-single-market/en/access-digital-single-market

[43] URL: https://ec.europa.eu/digital-single-market/en/desi

[44] URL: https://ec.europa.eu/digital-single-market/en/desi

and 'Integration of Digital Technology by businesses' dimension. Poorest performer of this ranking is again Italy with a score of 72, lagging far behind other European countries, especially on the 'Use of 'Internet', 'Integration of Digital Technology' (digitisation of businesses), and 'Digital Public Services'.

Education

Figure 2-14: Education by NUTS-2 in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite
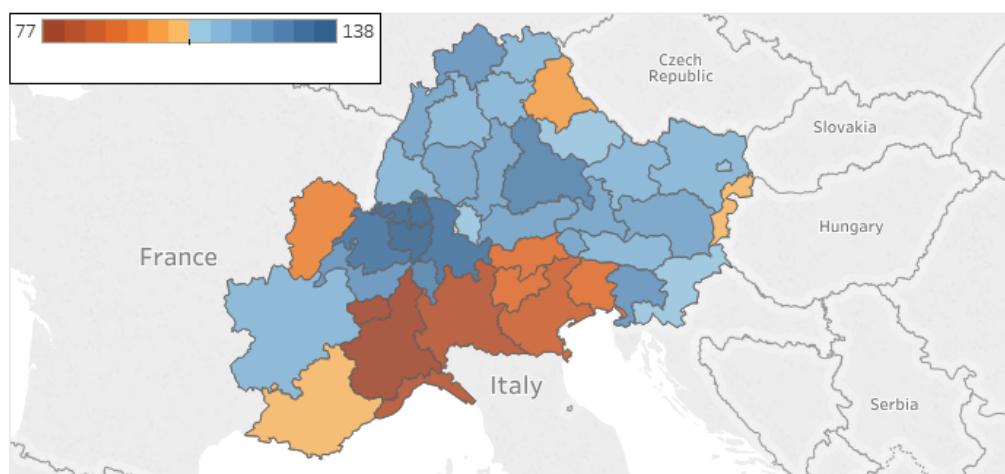
CO..	NUTS LABEL	Education Index	Participation Rate (Educ. & Training)	Early Leavers (Education & Training)	Young people; NEET Rate	Secondary Education attainment	Tertiary Education attainment
AT	Salzburg	119	111		148	122	97
	Burgenland	106	105			122	91
CH	Nordwests..	138	156	143	137	106	147
	Région lém..	124	144	119	115	97	143
DE	Oberbayern	126	102	125	160	117	126
	Oberpfalz	100	89			134	78
FR	Rhône-Alpes	114	132	104	107	98	127
	Franche-Co..	95	120	82	82	112	80
IT	Provincia A..	94	112	82	118	110	47
	Valle d'Aos..	77	98		73	92	44
SI	Zahodna Sl..	121	112	138	121	117	117
	Vzhodna Sl..	110	106	129	104	127	82

Text Box 2-13: Explanation of the indicator: 'Education'

A well-educated labour force on medium and high attainment levels represents a critical input for the economic performance of a region. While school enrolment co-determines regional workforce skills, productivity, and economic performance, the employment and career prospects in a region also influence the rate of enrolment in education (Huggins and Izushi, 2009).
The Education Index seeks to reflect on this issue with five indicators:

According to Eurostat the Participation Rate in Education and Training indicates "the share of the population that participates in formal and non-formal education". The former is defined "as institutionalised, intentional and planned through public organizations and recognised private bodies and – in their totality – constitute the formal education system of a country. Non-formal are any organised and sustained learning activities outside the formal education system, and essentially those which complement formal education or are an alternative to those."

The indicator Early leavers from education and training is defined by Eurostat as the "percentage of the population aged 18 to 24 having attained at most lower secondary education and not being involved in further education or training". A high share of early leavers impacts the economy: As the demand for low qualified workforce continues to decrease as a result of structural change, a high share of persons who leave the education and training system too early influence negatively the socio-economic development. As part of the EU 2020 targets, the European Commission seeks to achieve a value below 10%.

According to Eurostat, the indicator Young people neither in employment nor in education and training (NEET) reflects "the percentage of the population of a given age group and sex who is not employed and not involved in further education or training (formal or non-formal)". A high NEET rate points to a difficulty of transition between school and work (OECD, 2015). This may be caused by the mismatch between acquired skills in the education and the skills needed on the labour market and also by the scarcity of jobs in some economies which have been strongly impacted by the economic crisis. Flexible school-work arrangements can positively influence the transition to employment. Also higher education achievements may help the transition from school to work.

The last two indicators are respectively the Secondary-, and Tertiary Education Attainment of the total population aged 25-64. Eurostat defines these as "the highest ISCED (International Standard Classification of Education) educational attainment successfully completed by an individual". The shares of the adult population with secondary and tertiary education in total population are used to picture a region's skills level. Generally highly educated individuals tend to be attracted by urban centres as these offer better employment opportunities with income opportunities above average.

The highest values on the composite indicator Education in 2015 can be found in Alpine macro-region in the NUTS-2 regions in Switzerland followed by the regions in Germany. The best performing NUTS-2 regions are Nordwestschweiz, Zürich, and Zentralschweiz. Oberbayern and Unterfranken are the best performing regions in Germany. These regions register the best values regarding

'NEET Rates' and 'Early leavers from education and training'. This is due to the well-established and also well-funded dual (including theoretical and practical education) vocational education and training system in Switzerland, Austria and Germany. In 2015 compared to 2011 half of the NUTS-2 regions in Germany and almost all regions in Austria show an improvement on the composite indicator Education.

In the Vocational Education and Training System in these countries, companies have an important role in the training of a highly skilled workforce. There are also connections between this system and the broader education system. The system is especially attractive to the young people due to the following reasons: Young people learn and work together with adults, they get more responsibility, together with extensive coaching and support; Learning is much more hands-on; Students receive payment while they are learning; Students get a nationally recognized qualification at the end of the apprenticeship, which allows them either to go directly into full-time employment or to continue education.

The lowest performing NUTS-2 regions are located in Italy: Valle d'Aosta/Vallée d'Aoste, Piemonte, Lombardia, and Liguria with values far below the EU-median (100). These regions exhibit high NEET rates and many 'Early leavers from education and training'. At last, Italy scores on 'Tertiary Education attainment' dramatically lower than other regions (scoring around 45 points). The NUTS-2 regions in France record values that are only slightly above the EU-average. The reason is that these regions exhibit also the highest values regarding the indicator 'Early leavers from education and training'. Most NUTS-2 regions in Italy and France show an improvement of the composite indicator Education between 2011 and 2015. Slovenia registers on the opposite a deterioration, which is likely related to Slovenia's recent actions on improving the cost effectiveness of its public education system.

2.5.2   Business

Net business population growth

Figure 2-15: Net business population growth by NUTS-2 in 2013, on an EU-wide (top) and Macro-regional (bottom) comparison. The bottom figure shows the Upper/Lower Regions, including their components.
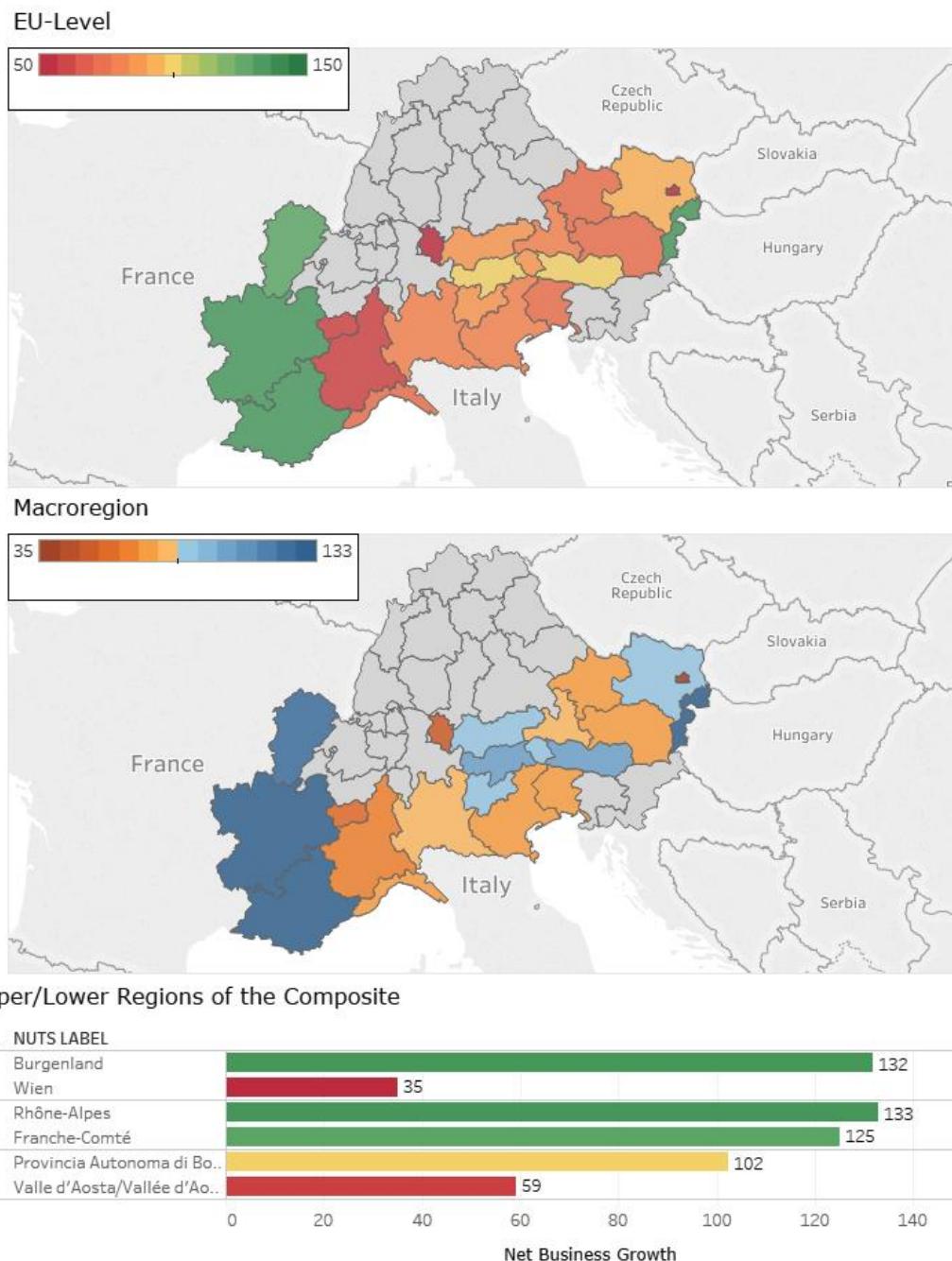
Text Box 2-14: Explanation of the indicator: 'Net business population growth'

Eurostat defines an enterprise as "the smallest combination of legal units" that "produces goods or services, benefits from a certain degree of autonomy in decision-making, [and] carries out one or more activities at one or more locations"[45]. The foundation of new enterprises and closure of unproductive businesses are main contributors to business dynamism, with a strong impact on employment. The indicator Net business population growth considers the yearly change in the difference between enterprise births and deaths.

Enterprise births are defined as enterprises beginning their activity from scratch[46]. An enterprise death refers, according to Eurostat, to the "closure of a combination of production factors with the restriction that no other enterprises are involved in the event."[47] Deaths do not include exits from the population due a change of activity. An enterprise is included in this category only if it is not reactivated within two years. At the same time, a reactivation within two years is not considered a birth.

The indicator Net business population growth is based on data provided by the private sector economy. Eurostat has developed a methodology for the production of data on enterprise births (and deaths). The harmonised data collection follows the requirements for the indicators used for supporting the Europe 2020 Strategy.

The indicator Net business population growth shows high dynamics in France for the year 2013, with growth rates ranging from 3.09% in Franche-Comté (and a score of 125) to 4.10% in Rhône-Alpes (133). This reveals a continuation of the favourable dynamics of the previous year.

The only Italian region with a positive development in 2013 was Provincia Autonoma di Bolzano/Bozen (score of 102). All other NUTS-2 regions in Italy show a negative development in 2013. The largest declines of the net business population are to be found in Valle d'Aosta/Vallée d'Aoste (score of 91) and Piemonte with cutbacks amounting to more than 2%, the lowest in Provincia Autonoma di Trento with less than 1% (89).

Except for Burgenland (32) and Kärnten (103), the net growth of business population was negative in all Austrian NUTS-2 regions in 2013. In the Western part of Austria (Oberösterreich, Salzburg, Tirol and Vorarlberg) the negative values ranged from -1.73% in Oberösterreich (73) to -0.75% in Vorarlberg (54), following however a positive development in the previous year. While the net growth rate of business population turned positive in 2014 in Oberösterreich, it decreased further in the other NUTS-2 regions in Western Austria. This development followed after a positive development in the previous year in all

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[45] URL: http://ec.europa.eu/eurostat/cache/metadata/de/bd_esms.htm

[46] The exact definition of a birth is "the creation of a combination of production factors, with the restriction that no other enterprises are involved in the event"; URL: http://ec.europa.eu/eurostat/cache/metadata/de/bd_esms.htm

[47] URL: http://ec.europa.eu/eurostat/cache/metadata/de/bd_esms.htm

Austrian regions. Vienna's enterprise growth remained negative in 2014 with -1.14% following a fall of 4.06% in the previous year (and score of 35). The most dynamic NUTS-2 region in Austria is Burgenland with a growth rate of business population amounting to 2.81% in 2014 and 3.94% in 2013. Burgenland is the region with lowest GDP per capita in Austria benefitting from EU cohesion funds, which also records the highest GDP growth.

No data are available for this indicator for Germany, Slovenia, Switzerland and Liechtenstein.

Share of SMEs in industry, trade and services

Figure 2-16: Share of SMEs in Value Added by country in 2013, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
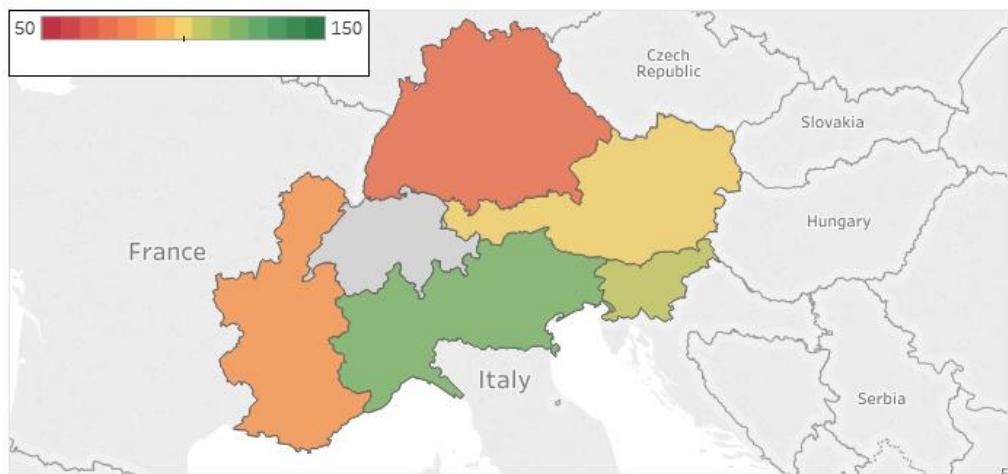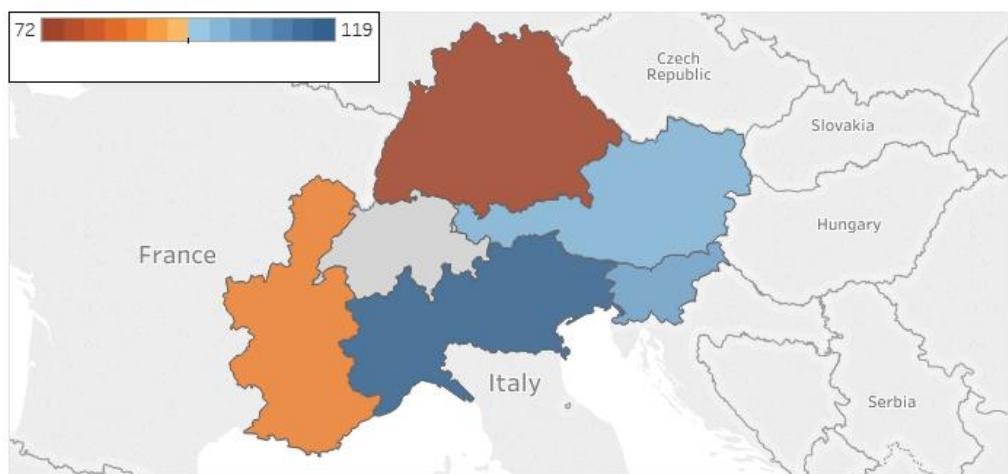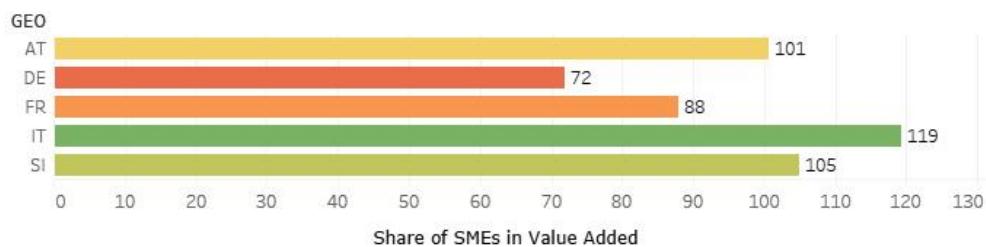
Text Box 2-15: Explanation of the indicator: 'Share of SMEs in value added'

Small and medium-sized enterprises (SMEs) are important players in the local and regional communities, as creators of new jobs and source of economic growth. As such, they play an important role in Europe's 2020 strategy, in achieving smart, sustainable and inclusive growth. In June 2008, a Communication named the Small Business Act (SBA)[48] for Europe recognising the central role of SMEs in the EU economy was adopted. This Act aimed to strengthen the role played by SMEs and to foster their growth and job creating potential through addressing some problems which impeded their development, such as administrative burdens; access to finance etc.[49] A review of the SBA was released in February 2011 and formulated new actions to respond to challenges arising from the financial and economic crisis.

For the Share of SMEs in value added, data was used from DG GROWTH's SME Performance Review from 2016.[50] The data covers the NACE rev.2 sectors B-J, and L-N. For policy purposes, SMEs in the EU are defined, according to Eurostat, as enterprises with fewer than 250 employees, provided that they are independent (of other enterprises) and do not have sales that exceed EUR 50 million or an annual balance sheet that exceeds EUR 43 million. Micro (with less than 10 employees), small (with 10 to 49 employees) and medium-sized enterprises (with 50 to 249 employees) are collectively referred to as SMEs.[51]

The share of SMEs in value added is the highest in Italy with 119 points on the benchmark, which corresponds to a share of 68%. Slovenia follows up with a share of 63% and benchmark score of 105. Germany and France both have shares of 53% and 58% respectively, which puts these countries below the EU-median. Austria is one point above the EU-median with 62%.
When differentiating by the share of SMEs in sector types (number of SMEs), Italy and Slovenia have the highest share in 'Services'. In this macro-region, Switzerland and Germany have the lowest shares. In the 'Industry' sectors, these two countries exhibit in turn the macro-region's highest share of SMEs. 'Trade' sectors have the highest share of SMEs in Italy and France.

The historic trend since 2008 shows that only Austria and Germany were able to improve their benchmarking score and thus improved their own position compared to other EU28 Member States. France's and Slovenia's position deteriorated only slightly, while Italy's position on the benchmark worsened by 8 benchmark points. Compared to 2011, in 2015 the scores remained fairly stable, which indicates that only Italy was not able to re-stabilise its position after the global economic crisis of 2008.

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[48] URL: https://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act_de

[49] URL: https://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act_de

[50] URL: http://ec.europa.eu/growth/smes/business-friendly-environment/performance-review-2016_en

[51] URL: http://ec.europa.eu/eurostat/web/structural-business-statistics/structural-business-statistics/sme

2.5.3 Transport

Completion Composite TEN-T (road, rail, water)

Figure 2-17: TEN-T Completion by country in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components.
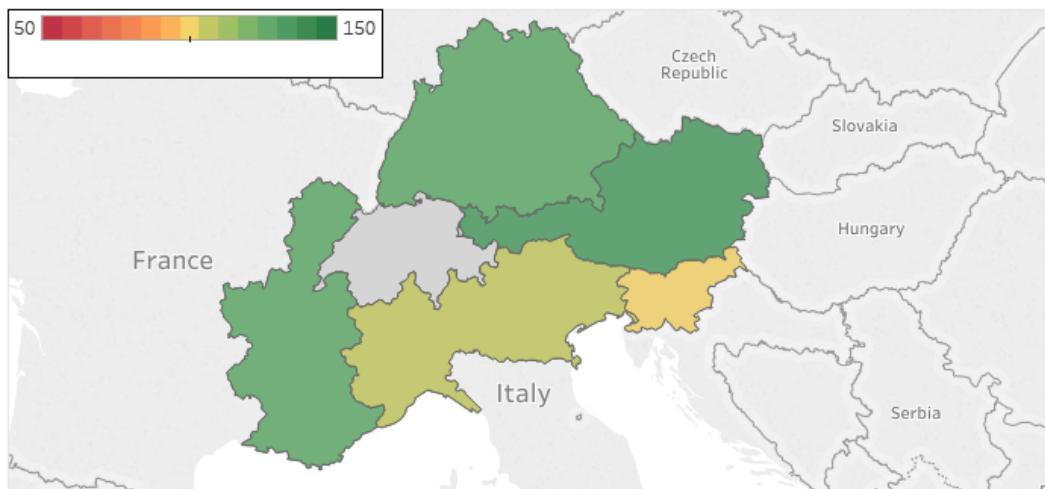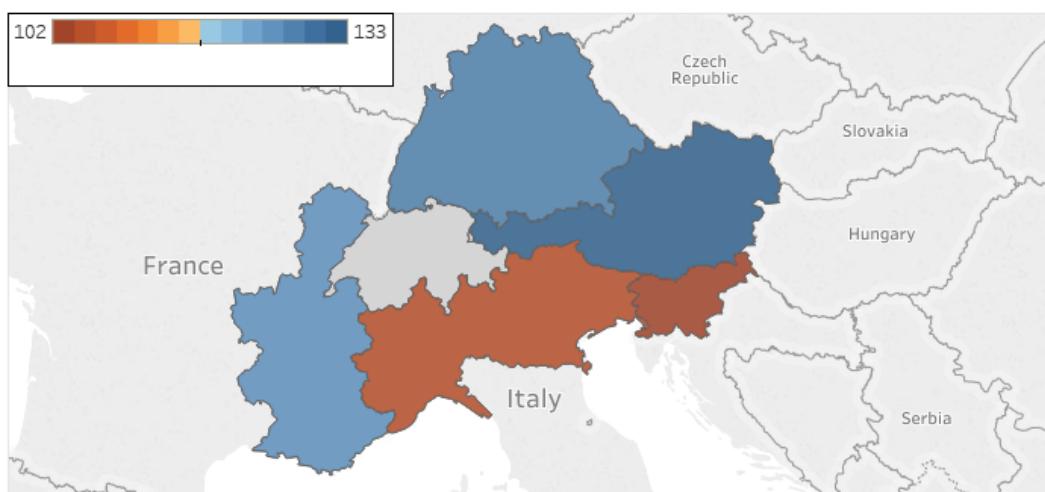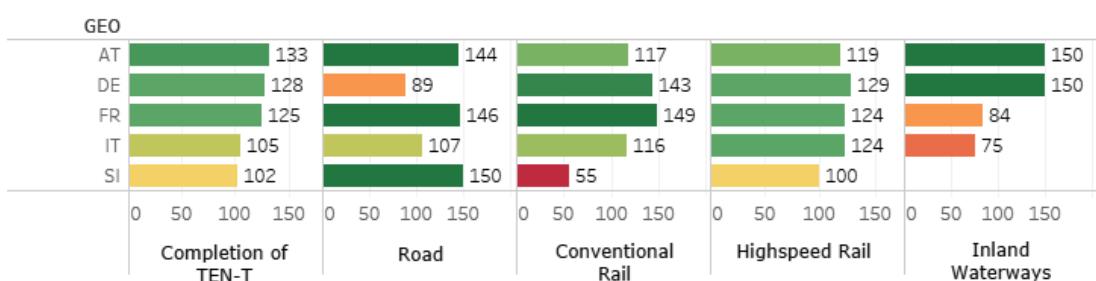
Text Box 2-16: Explanation of the indicator: 'Completion of TEN-T'

According to the European Commission, the TEN-T – the trans-European transport network - is the master plan for a comprehensive transport infrastructure development throughout the Union.[52] Availability of a well-developed infrastructure is essential for the functioning of the internal market and determines the pattern of citizens' mobility and goods' transport. On the other hand, the implementation of infrastructure projects (in the New Member States often with contributions from the Cohesion Funds) generate value-added, jobs and tax revenues in the domestic economies.[53] Thus, developing infrastructure is a key tool to foster economic growth in the EU Member States.

This chapter analysis three indicators: Completion of TEN-T Road Core Network, Completion of TEN-T Conventional Rail Core Network, Completion of TEN-T Inland Waterways Core Network. The indicators refer to the "share of the network for the three transport modes completed at the end of the respective year, compared to the total, including planned sections and sections to be upgraded."[54]

The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. According to DG MOVE TENtec "The term "completed" refers to "existing" infrastructure. This does not necessarily mean that infrastructure requirements, as stated in the regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030. Therefore the categories "completed", "to be upgraded" and "planned" give a rather general overview as defined by Member States. There is no systematic definition of these categories at EU level. Due to the geographical position and size of the transport infrastructure network of the countries concerned, there may be data discrepancies across Member States."[55]

By the end of 2014 the more advanced countries in completing the TEN-T road core network in the macro-region were Slovenia (100% of the total), France (98%), and Austria (97%). Italy (78%) and Germany (59%) ranked in the middle. France and Germany were very advanced in completing the TEN-T rail core network with a 99% and 94% level of completion respectively, followed by Austria (72%) and Italy (71%). The statistics on the completion of TEN-T inland waterways core network show a very good performance for Austria and Germany with 100% completion. Less advanced were Italy and France with 62% and 75% completion respectively.

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[52] http://www.europarl.europa.eu/cmsdata/116220/tent-issues-papers.pdf

[53] Grozea-Helmenstein, D. And Helmenstein, C. And Kleissner, A. And Moser, B. (2008): Makroökonomische und sektorale Effekte der UEFA EURO 2008 in Östereich. *Wirtschaftspolitische Blätter, 2008 (1). pp. 7-20.*

[54] URL: https://ec.europa.eu/transport/facts-fundings/scoreboard/compare/investments-infrastructure/ten-t-completion-rail-hs_en

[55] URL: https://ec.europa.eu/transport/facts-fundings/scoreboard/compare/investments-infrastructure/ten-t-completion-rail-hs_en

Logistics Performance Index (LPI)

Figure 2-18: Logistics Performance Index by Country in 2016, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components.
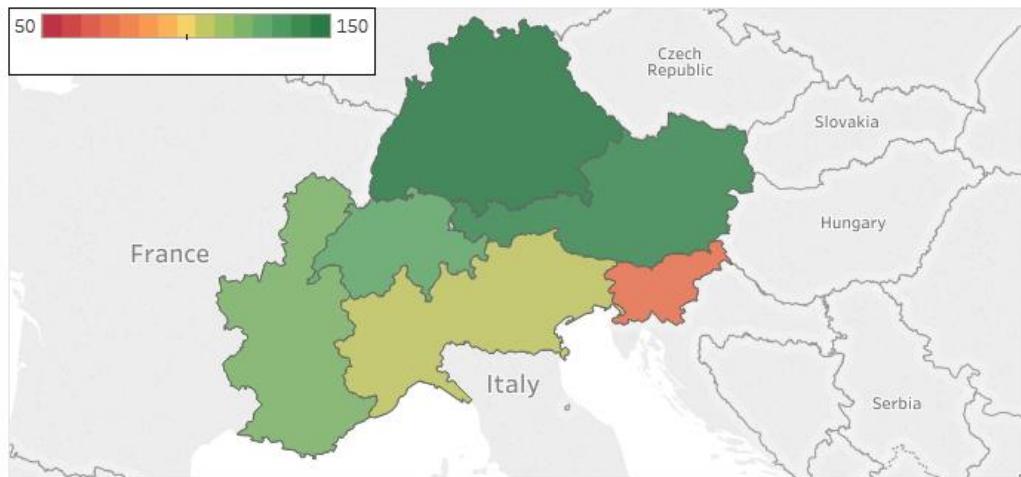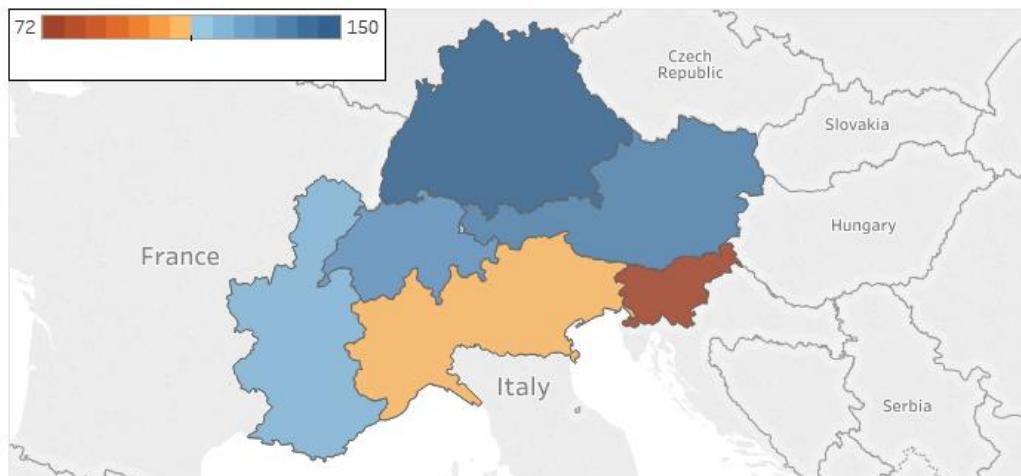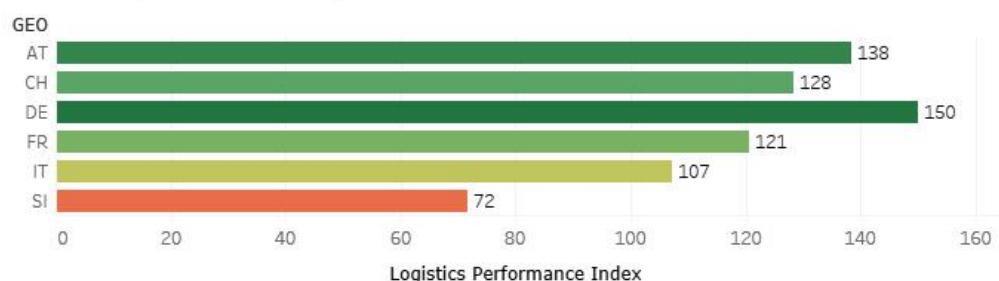
Text Box 2-17: Explanation of the indicator: 'Logistics Performance Index'

The Logistics Performance Index (LPI) is the weighted average of a country's scores on six key dimensions. These six dimensions are: Efficiency of customs and border management clearance (Customs), Quality of trade and transport infrastructure (Infrastructure), Ease of arranging competitively priced shipments (Ease of arranging shipments), Competence and quality of logistics services—trucking, forwarding, and Customs brokerage (Quality of logistics services), Ability to track and trace consignments (Tracking and tracing), Frequency with which shipments reach consignees within scheduled or expected delivery times (Timeliness).[56] The LPI consists of both qualitative and quantitative measures.

The LPI is, according to the World Bank, an interactive benchmarking tool developed to support countries "to identify the challenges and opportunities they face in their performance on trade logistics."[57] It shows the strengths and weaknesses revealing possible fields for raising the performance. The LPI ranks 160 countries on the efficiency of international supply chain.

In 2010, Germany led the ranking of the 160 countries of the world and also the ranking of the macro-region with a benchmarking score of 150 points. Overall, all countries on the northern part of the alpine mountains score strongly above the EU-median. Italy perform as the average. Slovenia scores much lower than the rest of the macro-region. One of the components of the LPI is the quality of trade and transport related infrastructure (e.g. ports, railroads, roads, information technology). The quality of transport infrastructure is lower in European comparison in the Central and Eastern European countries. This leads to a performance gap between Germany, Switzerland, Austria, and Italy on one hand and Slovenia on the other hand in the Alpine macro-region.

Compared to 2007, the scores changed only in Slovenia and Switzerland to a significant extent. Switzerland's score dropped from originally 140, and Slovenia's score also dropped from previously 82 points. In these two countries, the quality of transport thus deteriorated.

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[56] URL: http://lpi.worldbank.org/international

[57] URL: http://lpi.worldbank.org/

2.5.4 Tourism

Arrivals at tourist accommodation establishments

Figure 2-19: Tourism arrivals by NUTS-2 in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite

CO..	NUTS LABEL	Arrivals at tourist accommodation establishments
AT	Burgenland	68
	Tirol	110
DE	Oberbayern	120
	Oberfranken	89
FR	Franche-Comté	91
	Provence-Alpes-Côte d'Az..	122
IT	Valle d'Aosta/Vallée d'Ao..	73
	Veneto	122
SI	Zahodna Slovenija	100
	Vzhodna Slovenija	78

Arrivals at tourist accommodation establishments
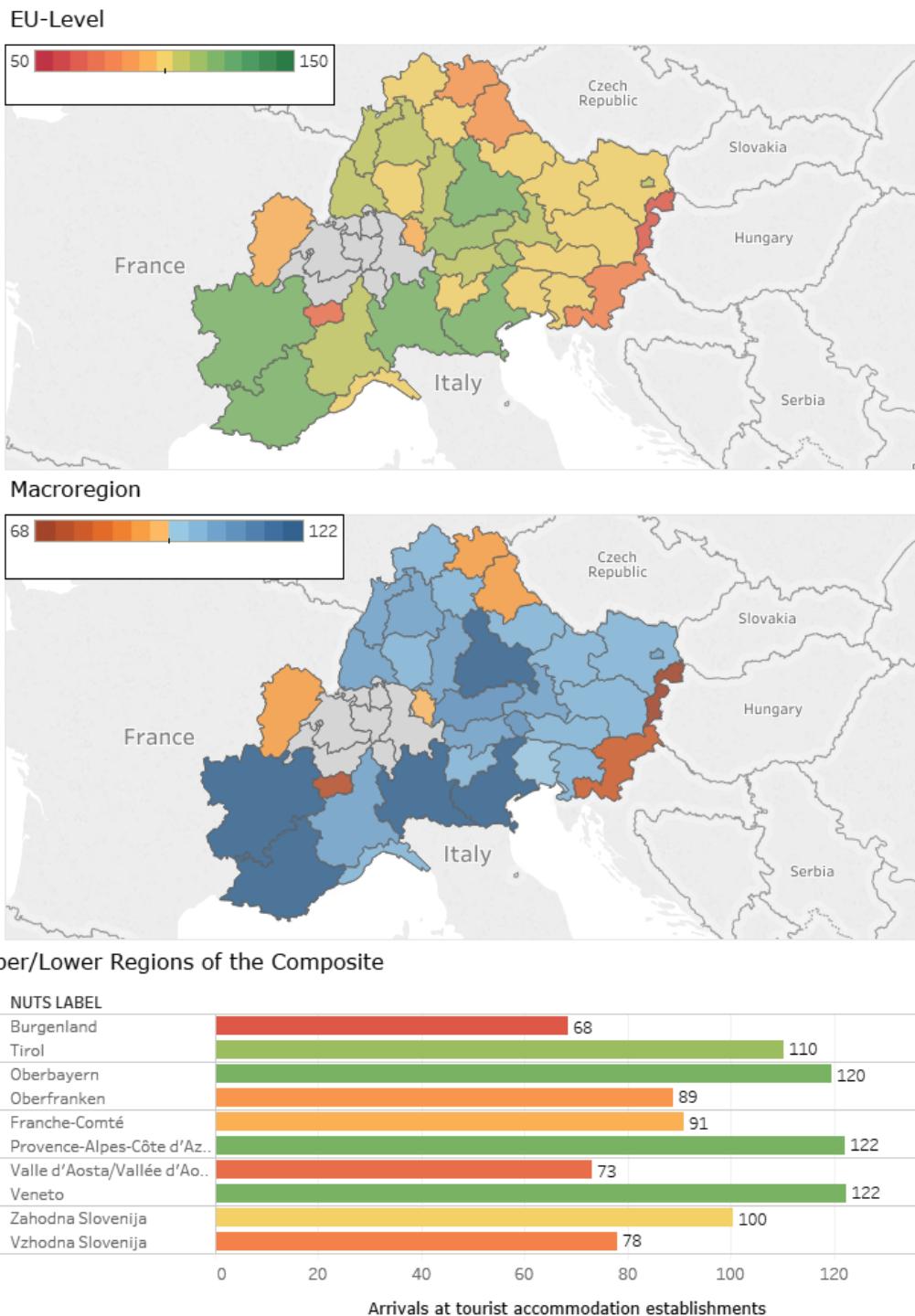
Text Box 2-18: Explanation of the indicator: 'Tourism Arrivals'

The indicator Arrivals at tourist accommodation establishments is available at Eurostat for NUTS-2 regions. Tourist accommodation establishments are defined as hotels, holiday (and short-stay) accommodations, camping grounds, recreational vehicle- as well as trailer parks.

In the Alpine region, Italy and France have the regions with the highest arrivals at tourist accommodation establishments, scoring up to 122 for the regions Veneto and Provence-Alpes-Cote d'Azur. Nearly all regions of these two countries score solidly above the EU-median, with the exception of one region each. Italy has in the whole macro-region further the highest disparity.
The German regions perform generally above the EU-median, but Oberbayern is still at the top, which is explained by its favourable proximity to Munich and the Alpine mountains.

Considering the rate of growth in the number of arrivals, the NUTS-2 regions in France have seen arrivals increase by 41% between 2008 and 2015. This is followed by Slovenia with a rate of growth at 32%. The distribution within the NUTS-2 regions in Germany and Italy show very high disparity where as in France and Slovenia they are quite evenly distributed. In Austria the distribution is less uneven than that of Germany and Italy.

Considering the fact that the number of arrivals in absolute terms does not indicate the intensity of tourist sector activity, a Defert's Tourism Function Index (Lohmann, G.; Panosso Netto, A., 2017)[58] that compares arrivals per inhabitant can describe the intensity of tourism activity better. As can be seen from the figure below, Austria shows the highest intensity followed by France. The increase in intensity of tourism sector is the highest in France followed by Slovenia.

Figure 2-20: Arrivals in the macro-region per capita (million arrivals)

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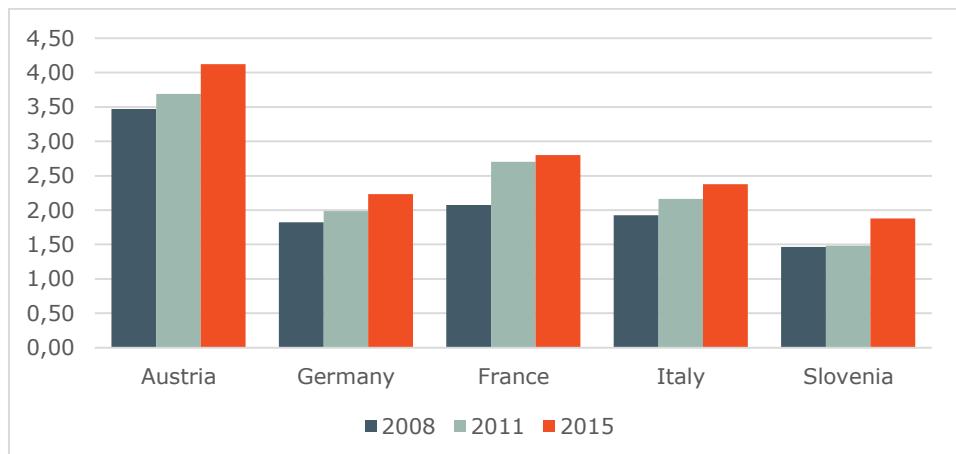
[58] Lohmann, G.; Panosso Netto, A. (2017): Tourism Theory: concepts, models and systems. ISBN 9781780647159; DOI 10.1079/9781780647159.0193

2.5.5 Energy

Energy Efficiency

Figure 2-21: Energy Efficiency Index by country. The top figure shows an EU-wide comparison while the middle map illustrates the index on the macro-regional scale. The bottom figure shows the benchmarked index values for each country, along with component indicators
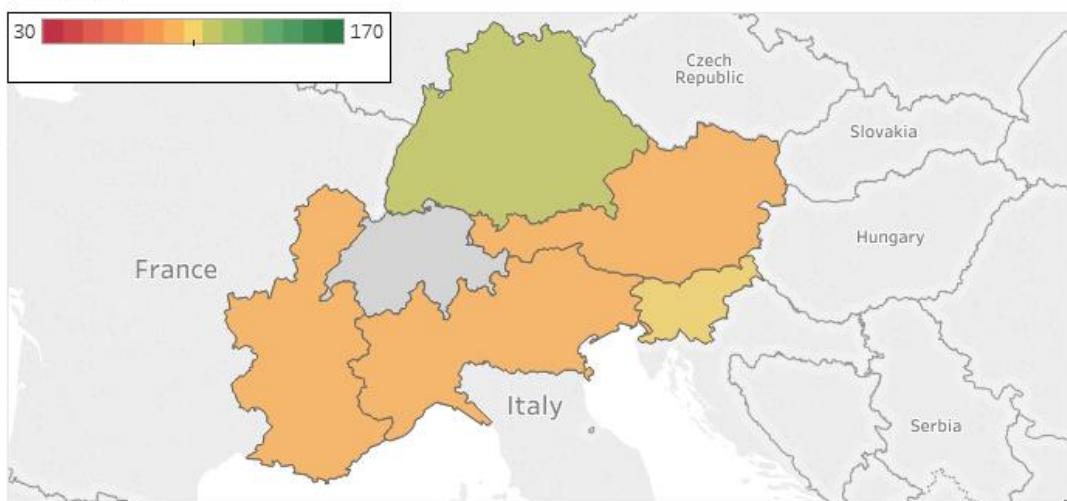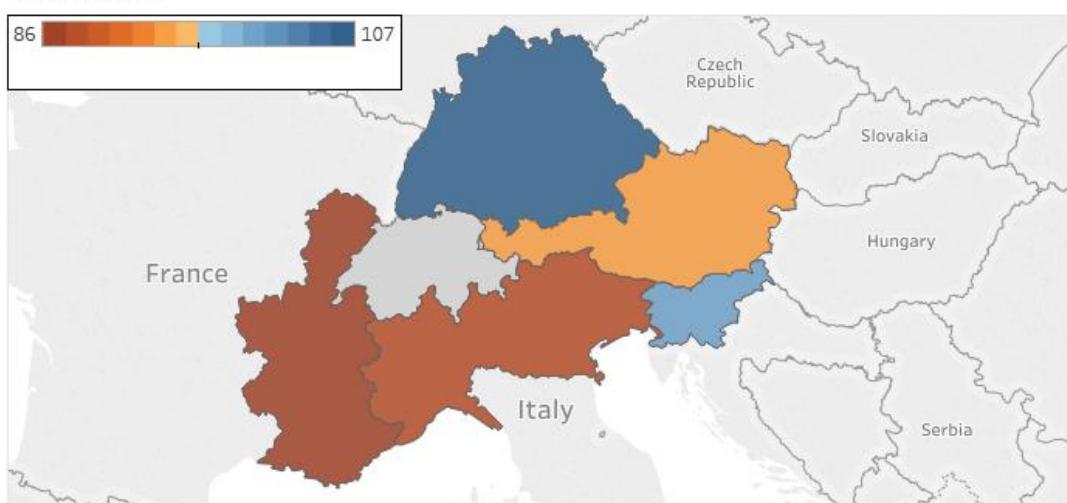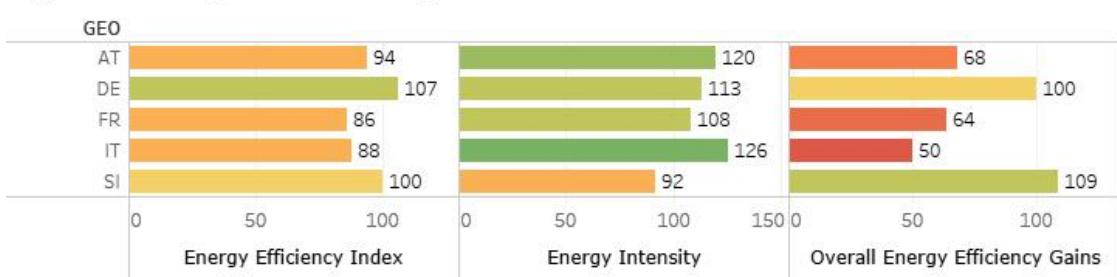
Text Box 2-19: Description of the index: 'Energy efficiency'

To assess the status on energy efficiency in the macro-region, a composite index consisting of two indicators was used. The first indicator is energy intensity of the economy, indicating to what extent economic activity is linked to energy consumption. The second indicator is energy efficiency gains. This indicator was selected to include a time dimension into the description of status in energy efficiency, showing the development of energy efficiency over time.

Energy intensity of the economy on a national level was obtained from Eurostat data. This indicator is measured in kg of oil equivalent per 1000 euros of GDP, or tonnes of oil equivalent per million euros GDP. It is calculated as a ratio of total primary energy consumption and a country's GDP and shows how much energy is required to produce a unit of GDP. Lower values indicate higher economic outputs per unit of energy consumed. Data for Switzerland and Liechtenstein is not available. Although 2015 data is available, data for 2014 was used in the composite, in order to tally with the second component indicator.

Energy Efficiency gains indicator is based on Odysee-Mure database (http://www.indicators.odyssee-mure.eu/energy-efficiency-database.html). In the Odysee-Mure project, energy efficiency gains are calculated for separate sectors, as well as for the economy as a whole. The indicator for the whole economy is calculated as a weighted average of sectoral energy consumption changes, hereby taking into account the structure of the economy. Odysee-Mure database contains values only for EU countries. Calculations are based on changes in energy intensity between 2000 and 2014.

Both indicators are benchmarked using EU median as central value (100).
For the energy intensity, lower values indicate better performance. In the benchmarking process, the scale is inverted, so that top benchmarked value (150) matches the lowest energy intensity.

The composite energy efficiency index consists of benchmarked energy intensity and efficiency gain indicators, considered at equal weights.

Energy intensity

In terms of energy intensity, the macro-region countries are relatively homogeneous, with all except Slovenia requiring 100-120 tonnes of oil equivalent worth of energy to produce a million euros worth of GDP (See Figure 2-22).

Figure 2-22: Energy intensity of the economy in the Alpine Region, 2015. Source: Eurostat

Energy intensity of GDP; toe/million euros
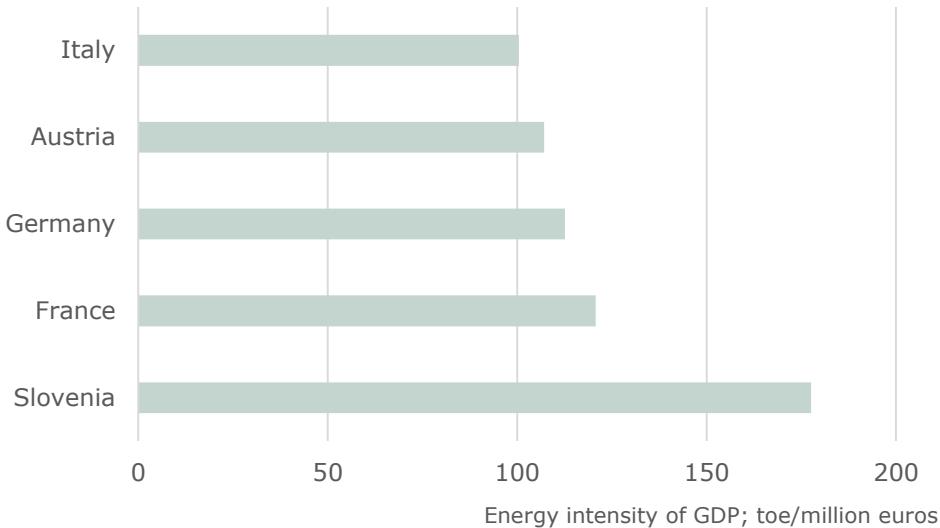
To assess the reasons for Slovenia standing out with its 177toe/million euros GDP, additional analysis would be required. This reveals a limitation of using energy intensity as proxy to energy efficiency, as energy efficiency is only one element of energy intensity. Other factors include prevalent types of economic activity, climate, size of the country and behavioural factors. On a country level, sector-level indicators could provide a more informative picture on energy efficiency, but to compare countries, overall energy intensity is a useful measure. Moreover, for the purposes of this analysis, it is complemented by the second indicator, to partially overcome this shortcoming.

Efficiency gains

The second indicator complements the energy intensity by showing the countries' progress on energy efficiency over time. In addition to that, this indicator addresses the sectoral differences in energy use (see Text Box 2-19).

Figure 2-23 shows how much lower the energy intensity was in 2014 compared to 2000 levels. Slovenia, which has the highest energy intensity, has shown substantial improvements in the period 2000-2014. The development means, that the countries are becoming more alike in this respect, and if the trend continues, these values will become even more similar in the future.

Figure 2-23: Energy intensity and improvement over time (2000-2014), based on Eurostat and Odysee-Mure data. Percentage values indicate energy efficiency gains as per Odysee index.

Composite index

The composite index shows that Germany scores highest overall, but is not much above the EU-median value. While Italy scores lowest in the region in terms of energy efficiency gains, this is due to its already very high performance in terms of energy intensity, which means that it has less space for further improvements.

Renewable Energy Use

Figure 2-24: Renewable Energy Index by country in 2014. The top figure shows an EU-wide comparison while the middle map illustrates the index on the macro-regional scale. The bottom figure shows the benchmarked index values for each country, along with component indicators
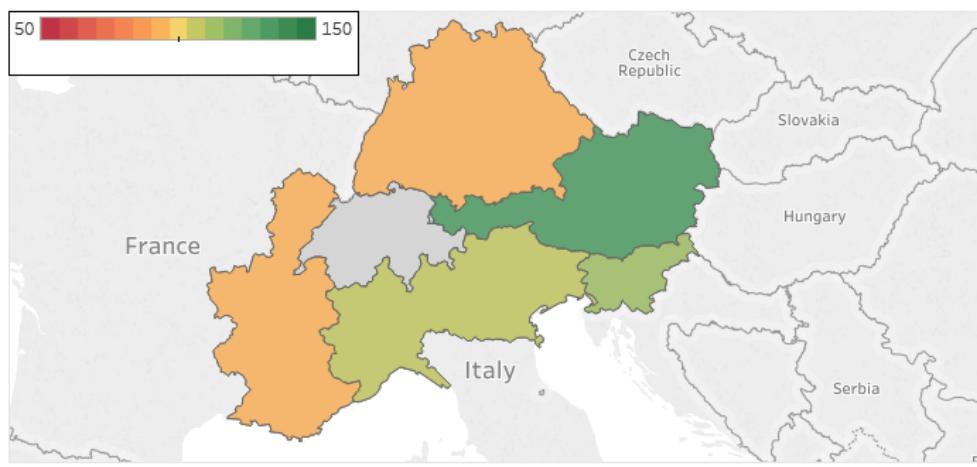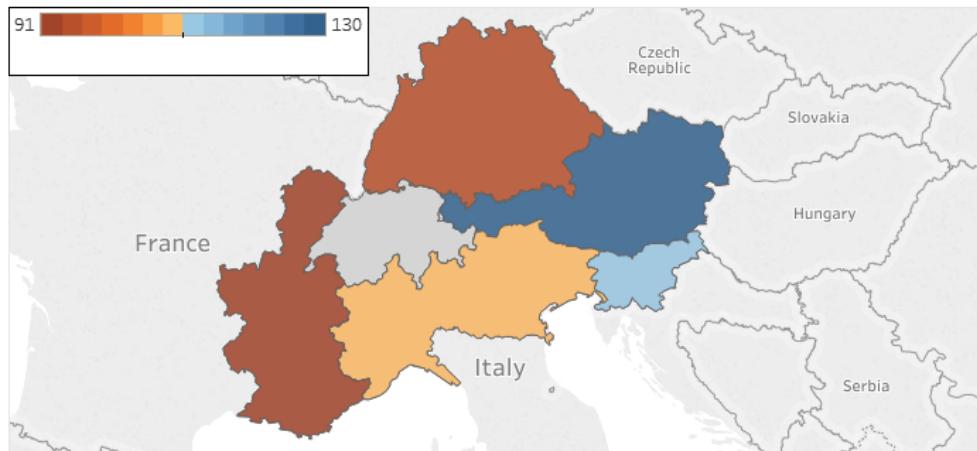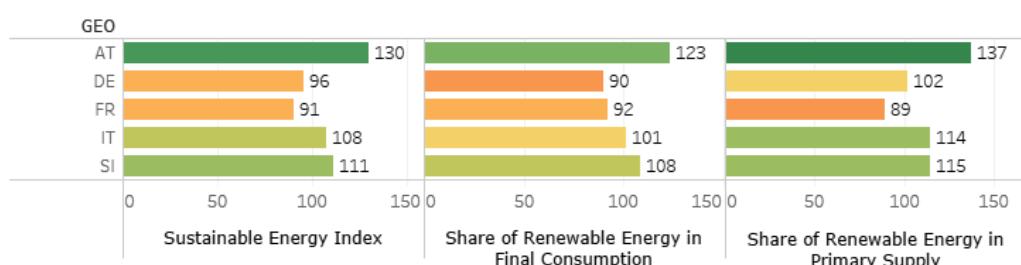
Text Box 2-20: Explanation of the indicator: 'Renewable Energy Use'

The indicator for renewable energy use is a composite indicator consisting of two separate indicators: Share of renewables in primary energy supply (expressed in %), and share of renewables in gross final energy consumption (expressed in %). The first indicator is sourced from OECD, and the second from Eurostat.

Definition of renewables in both data sources are compatible: renewables include energy produced from hydropower, wind power, solar power, as well as tide, wave and ocean energy, energy from solid biomass, biofuels and renewable waste, and geothermal energy (Eurostat classification server RAMON and the OECD database).

Share of renewables in primary energy supply.

OECD country level data for 2014 was used to obtain the indicator for the share of renewables in primary energy supply. For the purposes of this indicator, OECD defines *Primary energy supply* as the sum of energy production and imports, from which exports and bunkers are subtracted, and subsequently adjusted for stock changes. OECD provides the renewable energy indicator as percentage of primary energy supplied by renewables in the total primary energy supply.

Share of renewables in gross final energy consumption.

Eurostat data for 2014 was used, specifically indicator table t2020_31. This indicator is used to measure EU's progress towards its 2020 target, namely to achieve 20% share of renewable sources in the final energy consumption. There is no data for Switzerland for this indicator.

Composite renewable energy indicator is calculated as the equally weighted sum of the benchmarked values of the above indicators.

Renewable energy is defined by International Energy Agency (IEA) as energy "that is derived from natural processes (e.g. sunlight and wind) that are replenished at a higher rate than they are consumed"[59] This includes wind, solar, hydro, geothermal, wave and bioenergy. Renewable energy is considered an important means to improve energy security, in particular important in countries with low indigenous availability of fossil fuels, as well as pollution and climate benefits[60].

For the purpose of this analysis, two indicators were selected to measure the level of renewable energy use: share of renewable energy in primary supply and share of renewable energy in consumption. Text Box 2-20 provides more detail on the construction of the index.

Table 2-7 shows the values of both indicators for the countries in the Alpine macro-region.

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[59] https://www.iea.org/topics/renewables/

[60] IEA (2015). *Medium-Term Renewable Energy Market Report 2015*. International Energy Agency.

Table 2-7: Shares of renewables in primary supply and in consumption, 2014. Source: OECD (supply), Eurostat (consumption)

Country	Share of renewables in primary supply, %	Share of renewables in final consumption, %
Austria	30.4	33.1
France	8.8	14.3
Germany	11.6	13.8
Italy	18.1	17.1
Slovenia	18.4	21.9
Switzerland	20.1	n/a

In the Alpine macro-region there are many mountain rivers and thus a high potential for hydro energy. Among the macro-region countries, Austria and Switzerland have the highest share of renewables in their primary energy supply, while France has the lowest.

Similarly, for the share of renewables in gross final consumption, Austria shows the highest value (due to its high hydropower potential) with a share of renewable energy in final energy consumption amounting to 33%, followed by Slovenia with 22%. Large countries like Germany, France and Italy register somewhat lower shares of renewables in final consumption, as well as shares of renewables in primary supply. It might be that their NUTS-2 regions in the Alpine macro-region have higher values than the country average due to the higher hydropower potential.

All countries in the macro-region register a smaller share of renewables in primary energy supply compared to the share in the final energy consumption, except for Italy where it is an opposite situation to be noticed. The differences are small, below 5 percentage points. The share of renewables in primary energy supply is in Italy higher by 1 percentage point compared to the share of renewables in final energy consumption.

The benchmarked composite index for 2014 reveals the best performance in the macro-region on sustainable energy use in Austria followed by Slovenia and Italy with above median index values. Germany and France register the lowest values, a little below the EU-median.

2.5.6   Climate Change: Adaptation

Figure 2-25: Potential Climate Change Vulnerability by NUTS-2, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components. The analysis is from 2011, but the climate simulation for 2071-2100.

EU-level

Macroregional-level

Composites-Min/Max

CO..	NUTS LABEL	Potential vulnerability to climate change	Potential Environmental impact	Potential Economic impact	Adaptive Capacity
AT	Vorarlberg	131	136	109	121
	Burgenland	95	85	100	101
DE	Oberbayern	123	107	113	143
	Unterfranken	113	106	100	122
FR	Provence-Alpes-Côte d'Az..	85	66	79	104
	Rhône-Alpes	105	104	87	113
IT	Lombardia	88	118	70	77
	Provincia Autonoma di Bo..	50	89	27	72
SI	Vzhodna Slovenija	80	76	86	90
	Zahodna Slovenija	80	68	80	106

Text Box 2-21: Explanation of the indicator: 'Climate Change: Adaptation'

Climate change can be influenced by territorial development. Thus climate change mirrors territorial development which on the other hand can lower regional vulnerability to climate change (Schmidt-Thome and Greiving, 2013)[61]. Territorial development can contribute to developing climate change mitigation and adaptation capacities to cope with the influence of climate change (IPCC, 2007)[62]. Therefore, the ESPON Climate project calculated the potential impacts on climate change as "a combination of regional exposure and sensitivities to climate change"[63]. The exposure analysis made use of existing projections on climate change and climate variability from the CCLM climate model, which has also been used by the Intergovernmental Panel on Climate Change (IPCC). The data have been aggregated for two time periods (1961-1990 and 2071-2100) for eight climate stimuli. A region's climate change sensitivity was calculated on the basis of several sensitivity dimensions - physical, environmental, social, cultural and economic. Together, exposure and sensitivity determine the possible impact that climatic changes may have on a region. For this analysis, the Environmental- and Economic Impact are analysed as a separate component.

The ESPON Climate project analyses how and to which degree climate change will impact on the competitiveness and cohesion of the European regions and Europe as a whole. Moreover, it investigates the ways in which policy can contribute to mitigate climate change, and to adapt to and manage those results of climate change that cannot be avoided. Based on these insights, the adaptive capacity was calculated as a weighted combination of most recent data an economic, infrastructure, technological, and institutional capacity as well as knowledge and awareness of climate change[64].

Due to the fact that the adaptive capacity enhances impacts of climate change, it feeds into a region's overall vulnerability to climate change. Combined with the five types of impacts (see above), the potential regional vulnerability has been calculated (Schmidt-Thome and Greiving, 2013).

ESPON Climate's approach of disaggregating the multitude of impacts as well as assessing these on a regional scale helps to shape concrete policy implications; as is also emphasised by the European Commission and its Green Paper "*Adapting to climate change in Europe*". Therefore, it is important to analyse climate change and territorial impacts on regions and local economies in Europe. In the following, a comparison of the vulnerability to climate change among the NUTS-2 regions of the macro-region is being performed. For this analysis, NUTS-3 data has been aggregated into NUTS-2 regions.

[61] Schmidt-Thome P. and S. Greiving (2013) editors: European Climate Vulnerabilites and Adaptation: A Spatial Planning Perspective, published by John Wiley and Sons Ltd. UK. ISBN 978-0-470-97741-5

[62] IPCC (2007): Climate Change 2007, Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC (978 0521 88010-7 Hardback; 978 0521 70597-4 Paperback).

[63] URL:

https://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/CLIMATE /ESPON_Climate_Final_Report-Part_A-ExecutiveSummary.pdf

[64] *See footnote above*

Potential Vulnerability	In the Alpine macro-region the Italian regions scores on average the lowest on the benchmark (73), and are thus potentially the most vulnerable regions. Notably, the region of Bozen/Bolzano, Trento and Veneto score 60 or less. Austria is on average less vulnerable than the EU-median. Oberösterreich, Wien, and Vorarlberg have particularly scores between 114 and 131. Germany is the least vulnerable country, having all its regions score above the median. Further, the scores are very homogeneous. France exhibits a diverse vulnerability, and Slovenia scores with both regions below the median.
Environmental Impact	The ESPON Climate study evaluates that environmental changes are mainly consisting of potential changes in summer and winter precipitation, annual mean temperature and annual mean evaporation in the environment. Slovenia (average of 72), France (average of 87), and Italy (average of 93) have the highest environmental impacts of this macro-region, of which Provence-Alpes-Cote d'Azur will see the strongest impacts. Italy has a high spread, with four out of eight regions scoring below the EU-median. Austria's environmental impacts are expected in the EU-median range for most regions, with the exception of Burgenland and Steiermark, scoring below 90. The German regions have again a fairly even distribution above the median, with the exception of Freiburg, which is commonly known as the warmest region of Germany.
Economic Impact	Climate change can induce natural disasters with major economic and budgetary consequences. The expected economic impacts are the most severe in Italy, which scores on average 67 points. None of the regions scores above 90, and the bottom-end regions are Bolzano/Bozen (27) and Trento (54), separated by 14 points from next less severely impacted Italian region. Slovenia and France score on average 83 and 87. Austria's average corresponds slightly below the median. The most mountainous regions (Tirol, Salzburg, Kärnten) will have the highest economic impacts (e.g. due to landslides), with a score of 79 to 90. No region in Germany scores significantly below the EU-median, and seven regions score higher than 110 on the benchmark.
Adaptive Capacity	Adaptive capacity measures the ability of a system to adapt to disturbances and its capability to respond to changes. This concept, in recent years, has become synonymous to a yardstick of effective environmental governance. This unique measure offers a combination of various indicators to calculate the robustness of the society faced with change. The adaptive capacity in the Alpine macro-region is above the median on the northern part of the Alps, i.e. Germany (average of 127), Austria (average of 120), and France (average of 108). Notably, none of the regions scores below 100. Further, Austria and Germany have some of Europe's regions with the highest adaptive capacity, and have thus effective environmental governance in place. South of the Alps, the adaptive capacity is overall low. While Slovenia is close to the EU-median, Italy's regions have comparably a dramatically low capacity (averaging 72). In conclusion, most of the regions in the Alpine macro-region have a strong capacity to build resilience against climate change. At the same time, Italy exhibited a vulnerability that is substantially higher than the rest.

2.5.7   Climate Change: Mitigation

Figure 2-26: Climate Change Mitigation Index by Country in 2013, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
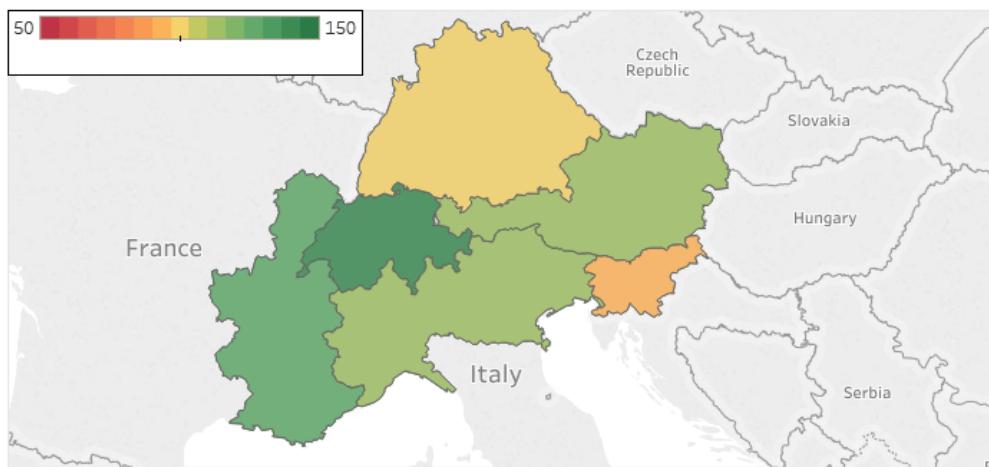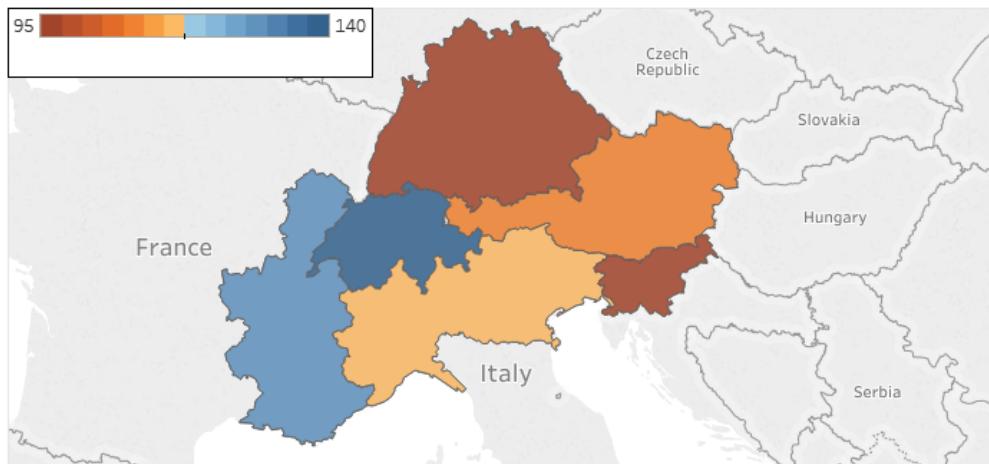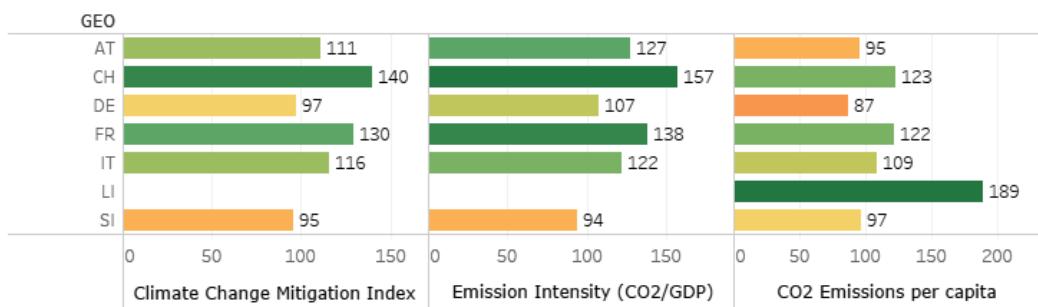
Text Box 2-22: Explanation of the indicator: 'Climate Change Mitigation'

The composite indicator for climate change mitigation is an average of two benchmarked indicators:

CO_2 emissions per capita.

CO_2 emissions per unit of GDP.

The first indicator, CO_2 emissions per capita, shows the average emissions per person in each country. This allows comparison on countries on equal terms. There is no regional data available since emissions are reported on a national level. Therefore, country level data was sourced from the World Bank's World Development Indicators database. The indicator name and code in the database: *CO_2 emissions (metric tons per capita) (EN.ATM.CO2E.PC)*. Latest available year for this indicator is 2013.

The second indicator, CO_2 emissions per unit of GDP, shows the carbon intensity of the economy: that is how much CO_2 is emitted for a monetary unit of GDP produced. There is no regional data available, since emissions are reported on a national level. Therefore, country level data was sourced from the World Bank's World Development Indicators database. The indicator name and code in the database: *CO_2 emissions (kg per 2010 US\$ of GDP) (EN.ATM.CO2E.KD.GD).* Latest available year for this indicator is 2013. For Liechtenstein, only 2010 is available.

Benchmarking: both indicators were benchmarked against the EU-level median, highest and lowest performing countries. Since the lower values of emissions are preferred, the scale was inverted during benchmarking. The resulting benchmarked figures therefore indicate better performance with higher values.

For the Climate Change Mitigation theme, two indicators were selected: CO_2 Emissions per capita and *CO_2* Emissions per unit of GDP. While several gases contribute to greenhouse gas emissions, CO_2 represents its main component in most sectors, and over 80% in the EU[65]. For a description of indicators used, see Text Box 2-22.

Among the EU countries, Luxembourg has the highest level of CO_2 emissions per capita, at over 18 tonnes per average inhabitant. Meanwhile Latvia emits the lowest amount, at 3.5 tonnes of CO_2 per capita. When CO_2 emissions are expressed per unit of GDP, Sweden is the leader in the EU at only 87 kilograms per thousand US\$ of GDP, according to the World Bank data. For this indicator, Estonia scores worst, emitting 10 times more CO_2 than Sweden per unit of economic production.

The countries in the Alpine macro-region vary widely in their performance on the first indicator, CO_2 emissions per capita. The leader is Liechtenstein at 1.4 tonnes CO_2 per capita, which is lower than the top performer in the EU. At the other end of the scale is Germany, emitting 9.4 CO per capita (Figure 2-27). Other countries are somewhat more homogenous, more below than above the EU-median value.

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[65] http://ec.europa.eu/eurostat/web/environment/emissions-of-greenhouse-gases-and-air-pollutants/air-emission-accounts/database

Figure 2-27: CO_2 emissions per capita (tonnes), in the Alpine macro-region, 2013. Source: World Bank
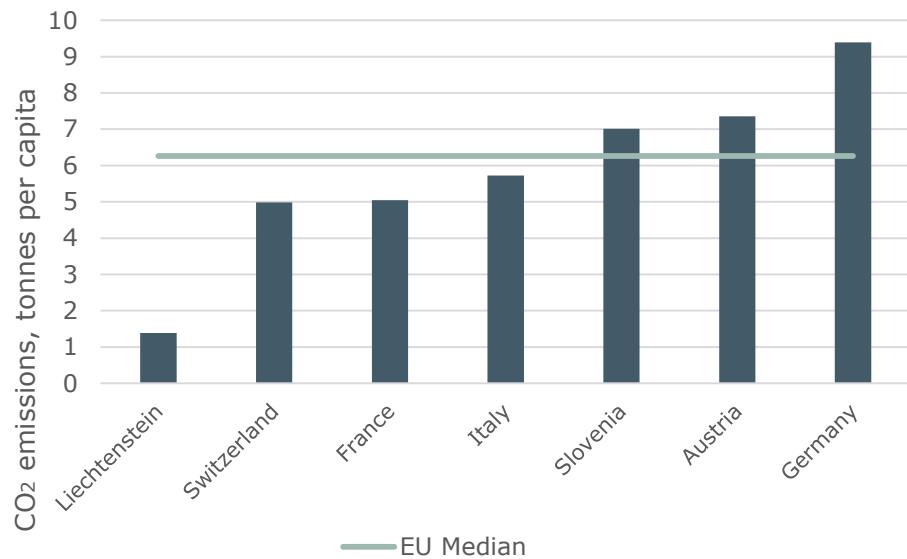
A similar picture can be seen for the emissions per unit of GDP in the Alpine macro-regions (Figure 2-28). Liechtenstein is still the top-performer (although the value shown here is for 2010), followed by Switzerland. Meanwhile Slovenia has the poorest performance with emissions per unit of GDP nearly 40% above the EU-median. It is the only country in the region exceeding the EU-median, showing a very good general performance in the region.

Figure 2-28: CO_2 emissions in kg per 2010 US$ of GDP, in the Alpine macro-region, 2013. Value for Liechtenstein for 2010. Source: World Bank
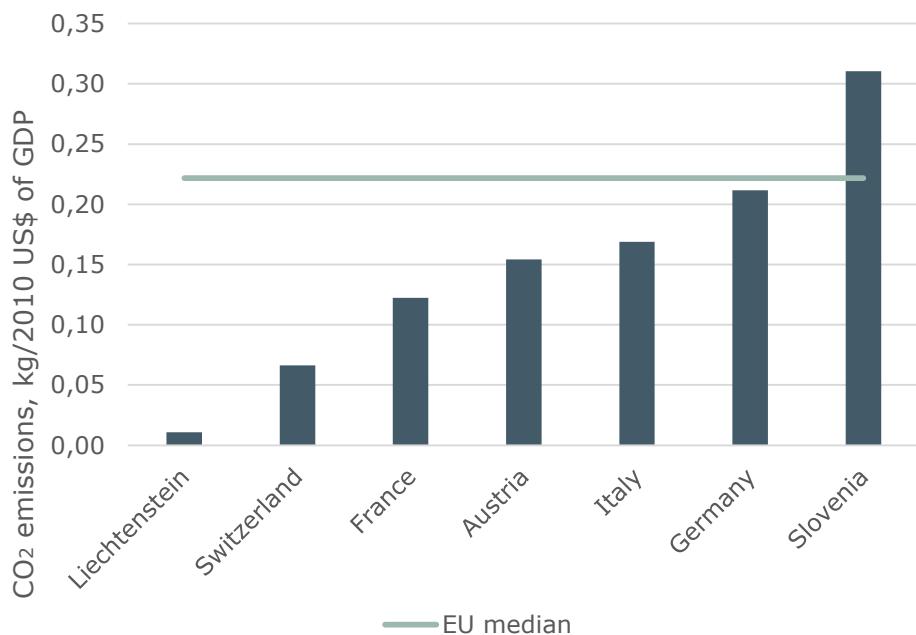
The benchmarked composite indicator which bundles the two indicators shows the best overall situation regarding the CO_2 emissions in Liechtenstein, but this

value is from 2010. Among countries for which 2013 values are available, the leader is Switzerland. In addition, France, Italy and Austria all exhibiting values above the EU-median, some of them very high. The remaining countries, Germany and Slovenia, score only a little below the EU-median. This means that overall the macro-region shows relatively low CO_2 emissions.

Figure 2-29: Benchmarked composite indicator for the Alpine region, 2013. 50-lowest performer, 150-highest performer in the EU, 100-EU-median; Value for Liechtenstein is for 2010

2.5.8   Environment: Air Quality

Figure 2-30: Air Quality Index by country in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the benchmarked values by country.
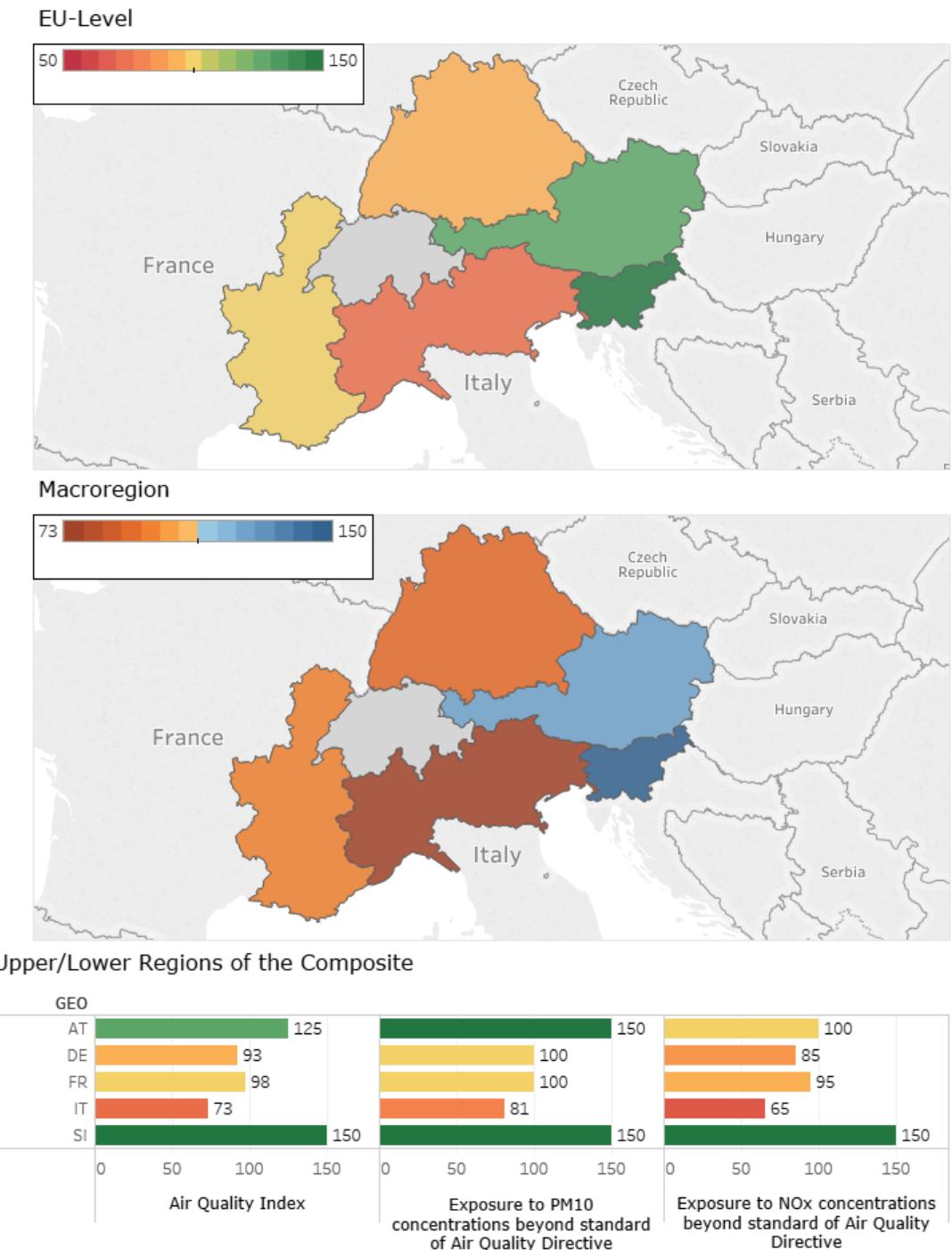
Text Box 2-23: Explanation of the indicator: 'Air Quality'

The theme Environment – Air Quality consists of 2 indicators: Share of urban population exposed to PM_{10} (particulate matter) above regulated threshold and Share of urban population exposed to NO_2 (nitrogen dioxide) above regulated threshold.

There are several air pollutants that have an adverse impact on human's health. The difference between PM_{10} and $PM_{2.5}$ is their size (in microns). These pollutants include dust, coming from construction, coal plants, bacteria and other organic dust. PM_{10} means all particles in size below 10 microns, while $PM_{2.5}$ means particles under 2.5 microns in size. Hence $PM_{2.5}$ is included in PM_{10}, and only the latter is used in this analysis. PM does not include gases like SOx and NOx; their concentration is calculated separately. While PM_{10} particles can penetrate only lungs, smaller $PM_{2.5}$ particles (visible only in electronic microscope) can pass from lungs into the blood supply.

The PM_{10} monitoring data at EEA – AirBase provide the basis for estimating the exposure of the urban European population to values of the PM_{10} higher than the daily limit value stipulated under the Air Quality Directive. This is set at 50 μg/m3 and should not be exceeded on more than 35 days during a calendar year. The exposure is estimated based upon PM_{10} measured at all urban and suburban background monitoring stations for most of the urban population, and at traffic stations for populations living within 100 meters from major roads.

The most exposed country to PM_{10} in 2014 in the Alpine macro-region is Italy with 39% of population exposed to concentrations above the reference level for PM_{10}. France and Germany follow with 1% of population while in Austria and Slovenia, none of the population is exposed to concentrations above the threshold. The exposure to NO_2 is high for Italy (15% of population) and Germany (7% of population). The exposure to NO_2 is low for France (3% of population), Austria (1%) and Slovenia (0%).

The composite indicator combining the two indicators shows Slovenia and Austria as best performers. Both have values better than the EU-median. The lowest performer is Italy. Germany and France perform just below the EU-median.

2.5.9   Environment: Air Pollution

Figure 2-31: Air Pollution Index by country in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite

GEO	Air Pollution - Carbon Monoxide	Carbon Monoxide Intensity (per unit of GDP)	Carbon Monoxide Emissions per capita
AT	89	96	81
CH	153	154	151
DE	123	128	118
FR	98	100	96
IT	110	106	114
SI	89	87	91
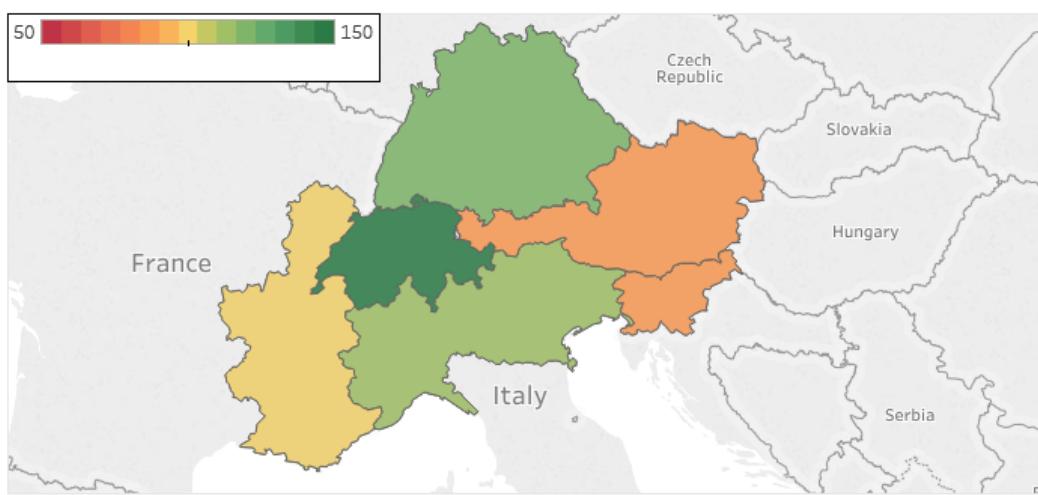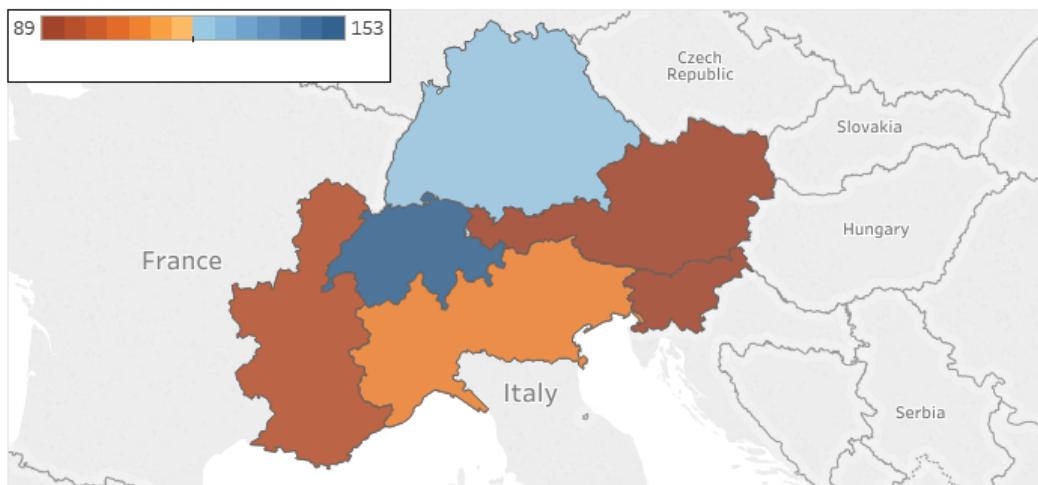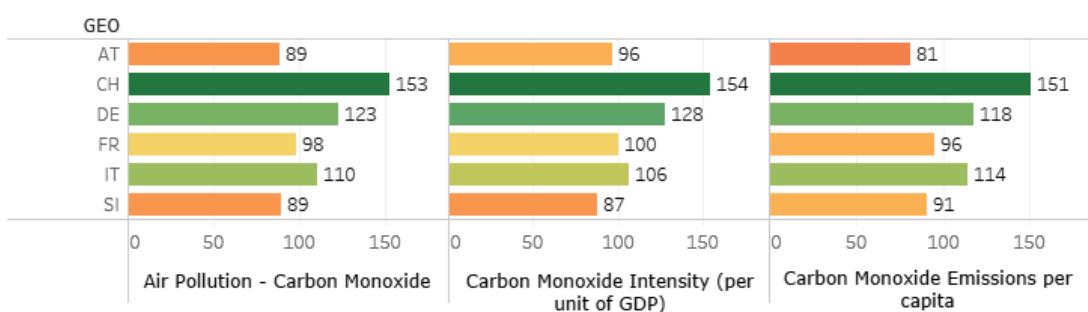
Text Box 2-24: Explanation of the indicator: 'Air Pollution'

The theme Environment – Air Quality consists of 2 indicators: carbon monoxide emissions per capita and carbon monoxide emissions per 1000 USD GDP.
To compare the carbon monoxide emissions per capita and per unit of GDP (Kg per 1000 USD) of the individual European macro-region countries, data from the Organisation for Economic Co-operation and Development (OECD) has been used. Although data have not been available for the same year for every country in the analysis, the comparison gives a picture of the situation. This analysis excludes the following countries as there were no data available: Bulgaria, Croatia, Moldova, Romania and Ukraine.

CO emissions per capita

In 2011, the countries of the macro-region produced a total of 301.63 kg carbon monoxide emissions per capita. Switzerland has the lowest value of 28.83 kg of emissions per capita. It is followed by Italy with 41.60 kg per capita and Germany with an outcome of 42.53 kg per capita. Germany is followed by France and Slovenia with values of 57.43 and 64.32 kg per capita. Austria comes in on last place with 66.92 kg per capita in 2011.

From 2011 to 2014, the countries of the Alpine macro-region were able to reduce their carbon monoxide emissions by 13%, from a combined value of 301.63 kg per capita in 2011 to a total of 262.16 kg per capita in 2014. Switzerland remains the best performing country with a total of 24.23 kg carbon monoxide emissions per capita. Also Germany and Italy were able to reduce their emissions to 36.57 and 38.06 kg per capita respectively in 2014. Also France, Slovenia and Austria reduced their carbon monoxide emissions significantly however their emissions are still relatively high with values varying from 47.94 in France to 62.95 kg per capita in Austria. This analysis excludes Liechtenstein as there are no data available for this country.

CO per unit GDP

In 2011, the countries of the Alpine macro-region produced a total of 8.21 kg carbon monoxide emissions per 1000 USD GDP. The country that produced the least amount of carbon monoxide emissions is Switzerland with a value of 0.56 kg per 1000 USD GDP, followed by Germany with a value of 1.03 kg per 1000 USD GDP. Italy and France are ranged in the middle of the ranking with amounts of 1.22 and 1.52 kg per 1000 USD GDP. In 2011, Austria and Slovenia were the countries in the Alpine macro-region with the highest carbon monoxide emissions with outcomes of 1.56 and 2.32 kg per 1000 USD GDP.

Compared to 2011, the combined amount of carbon monoxide emissions produced in the Alpine macro-region in 2014 decreased by 13% to 7.17 kg carbon monoxide emissions per 1000 USD GDP, in 2014. There has not been any change on the country ranking, Switzerland comes in first with 0.46 kg per 1000 USD GDP, followed by Germany with 0.86 kg per 1000 USD GDP. Third and fourth are placed Italy and France with values of 1.19 and 1.28 kg per 1000 USD GDP. The highest values for this indicator registered Austria and Slovenia (1.47 and 1.91 kg per 1000 USD GDP respectively). There are no data available for Liechtenstein for this indicator.

Composite   The composite indicator combining the two indicators shows for 2014
Switzerland, Germany and Italy as best performers followed by France. They all
have values better or around the EU-median. The lowest performers were
Austria and Slovenia. Compared to the year 2011 Slovenia improved while
Austria worsened its relative position. Note that the benchmarking inverts the
scale, so that higher values indicate lower emissions.

2.5.10 Environment: River Status

Figure 2-32: River Status by country, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the benchmarked indicator values by country

EU-Level
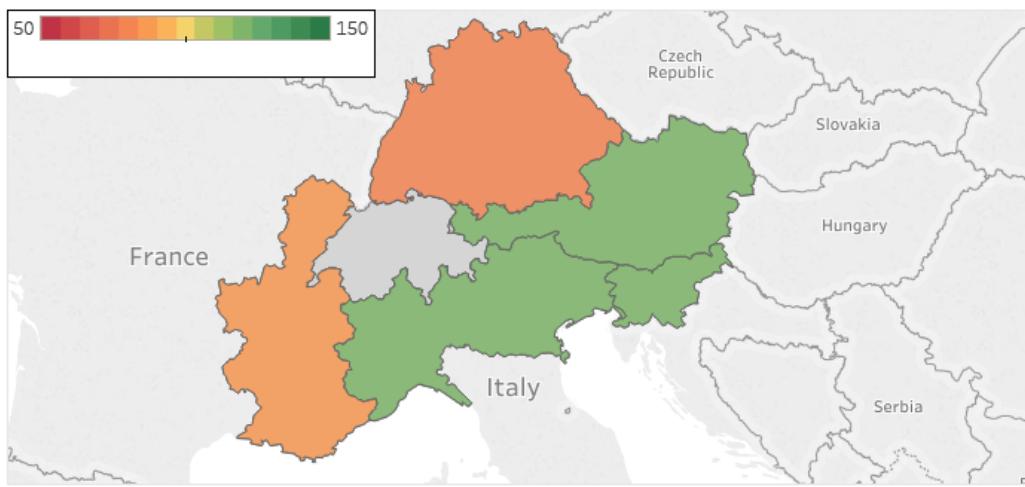
Macroregion
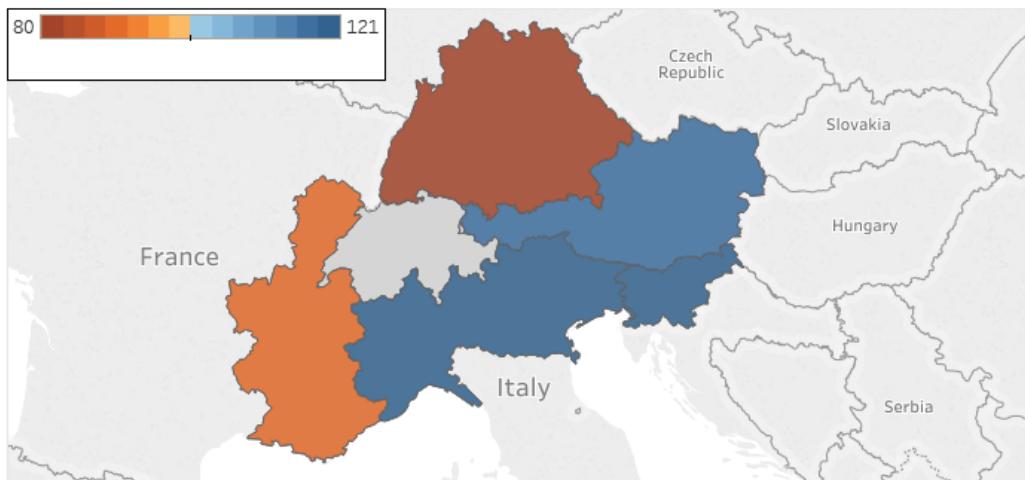
Upper/Lower Regions of the Composite
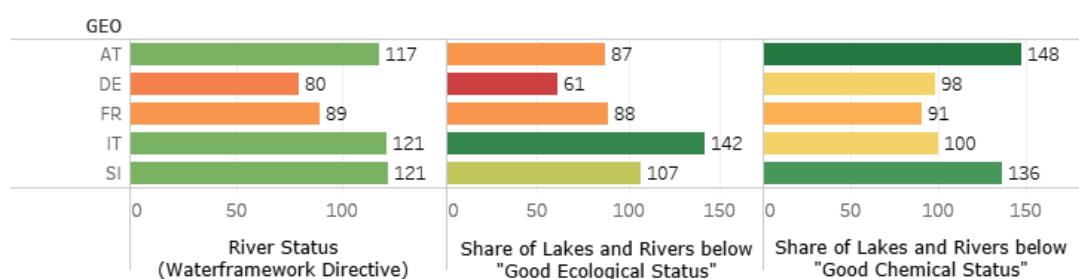
Text Box 2-25: Explanation of the indicator: 'Waterbodies'

Anthropogenic activities adversely impact the waterbodies of Europe; mostly through the use pesticides and fertilisers in agriculture. Of which the latte leads to eutrophication of waterbodies, which negatively impacts the aquatic biodiversity, due to an excessive bloom of algae's.

In order to improve European Waterbodies, the EU commissioned the Water Framework Directive, which requires the Member States to achieve at least "Good Ecological Status" and "Good Chemical Status" of surface waters[1]. Ecological Status refers to biological and hydrological quality of the water, and its "chemical characteristics"[1]. The ecological status can be classified into four categories: High, Good, Moderate, and Poor. The chemical status describes in turn the water's quality in terms of it content of chemical substances, and is classified as either Good or Fail.

The categories of surface waters under this directive are coastal waters, transitional waters, rivers, and lakes.

The Directive set 2015 as the year, until which all waterbodies had to achieve a good status. However, this was not achieved, and a re-drafting of the Water Framework Directive is scheduled before the end of this decade.

Fertiliser inputs from agriculture may also stream down into open seas. The resulting increased Nitrogen and Phosphorus concentrations promote the growth of phytoplankton. In order to estimate the biomass of phytoplankton, chlorophyll-a concentrations in water provide reliable inference [1]

The indicators in this section assess the share of waterbodies that are below good status. This is done for inland waterbodies (rivers and lakes) and sea waters (coastal and transitional waters) separately. For sea waters, also the chlorophyll-a concentrations are benchmarked.

When considering the ecological status of rivers and lakes, Italy has the lowest share of waters of moderate, poor and bad quality with about 20% followed by Greece with about 30%. Higher shares of rivers and lakes of lower quality have France (about 57%) and Austria (about 58%). The lowest ecological status can be found in Germany with about 87% water of moderate, poor and bad quality.

A look at the chemical quality of rivers and lakes in the macro-region shows the largest share of fails in France with 23% followed by Germany with about 8%, while this share in Slovenia and Austria is very low.

2.5.11 Biodiversity: Natura 2000

Figure 2-33: Natura2000 share by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the benchmarked values for each country.

EU-Level

Macroregion

Upper/Lower Regions of the Composite

GEO

AT	91
DE	93
FR	76
IT	105
SI	150

Share of Natura2000 area of terrestrial teritory
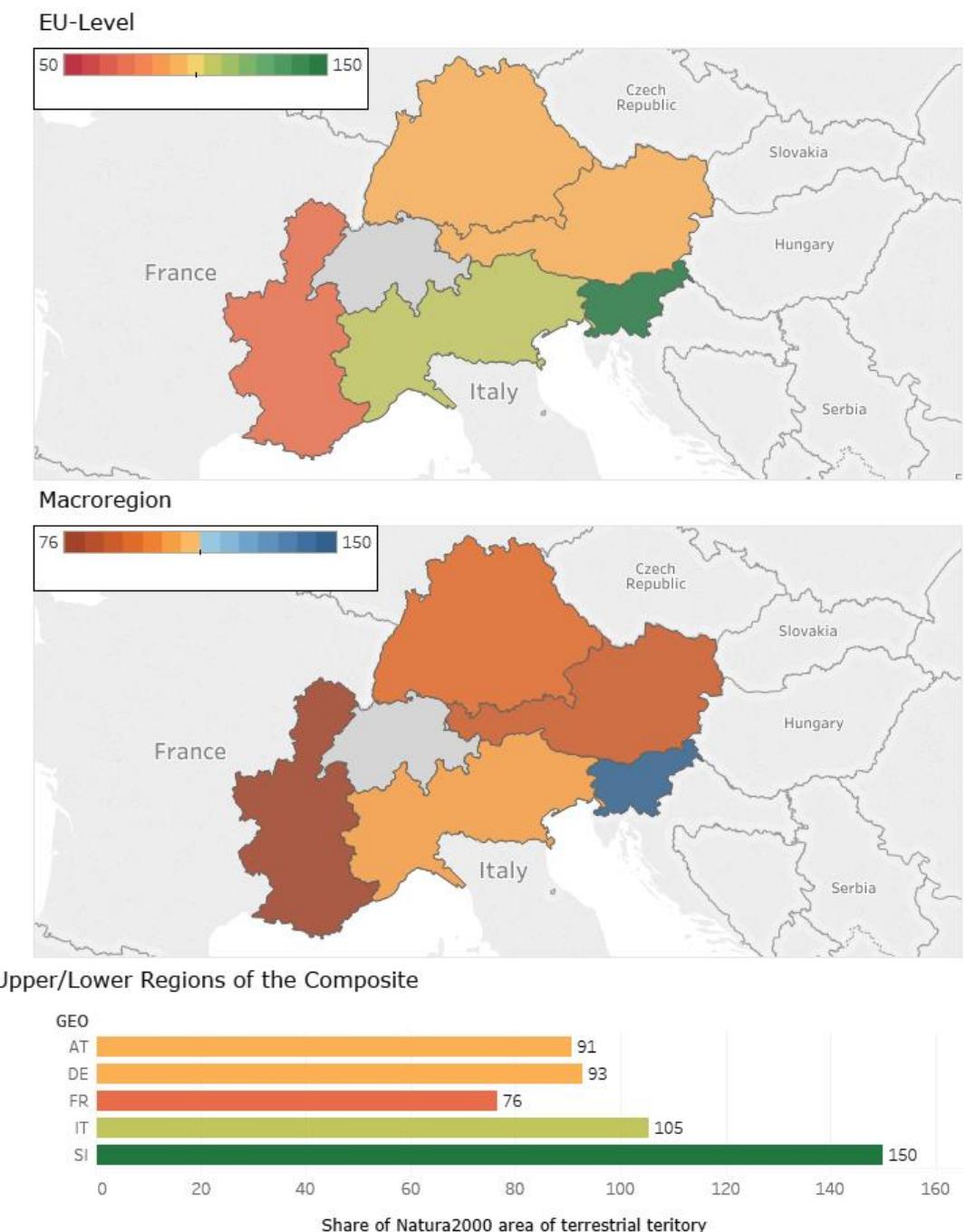
Text Box 2-26: Explanation of the indicator: 'Natura 2000'

The indicator shows what proportion of territory is covered by terrestrial Natura 2000 sites at the country level. This gives an indication of a country's efforts towards biodiversity, conservation and sustainable use of its territorial areas. It includes both sites designated under the Birds and the Habitats Directives, and accounts for any overlaps. The marine areas are not included in the proportion of land area, although some countries have designated substantial marine zones as Natura 2000 sites.

The indicator is published in the Natura 2000 Barometer (for the current value at the end of 2015) and the Natura Newsletter for other years.

Liechtenstein and Switzerland are not included in the Natura 2000 Barometer data set.

Natura 2000 is "a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right."[66] It covers both terrestrial and marine zones in all 28 EU countries. The network includes sites designated under the Birds Directive and under the Habitats Directive. The indicator used is the proportion of land area covered by Natura 2000 sites under both Directives (see Text Box 2-26).

In the EU as a whole, 18% of land area is designated as Natura 2000 sites. The top performer in the EU is Slovenia with nearly 38% of its area designated as either Sites of Community Importance under the Habitats Directive, or Special Protection Areas under the Birds Directive (or both). Denmark, on the other hand, has only 8.3% if its area designated as Natura 2000 sites. The EU-median is 17%. These values are used for benchmarking the values of each country.

In the Alpine macro-region, the countries with the largest proportion of land covered by Natura 2000 sites are those that are also in the Adriatic-Ionian Sea region, namely Slovenia and Italy. The rest have values below the EU-median, with France being the lowest performer in this region, with 13% (see Table 2-8).

Table 2-8: Indicator and benchmarked indicator values for Natura 2000 indicator

Country	% of territory designated as Natura 2000 site	Benchmarked value
Austria	15%	91
Germany	15%	93
France	13%	76
Italy	19%	105
Slovenia	38%	150

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[66] http://ec.europa.eu/environment/nature/natura2000/index_en.htm

2.5.12 Diversity of Land Cover (Shannon Index)

Figure 2-34: Shannon Evenness Index by NUTS-2 level regions in 2012, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions
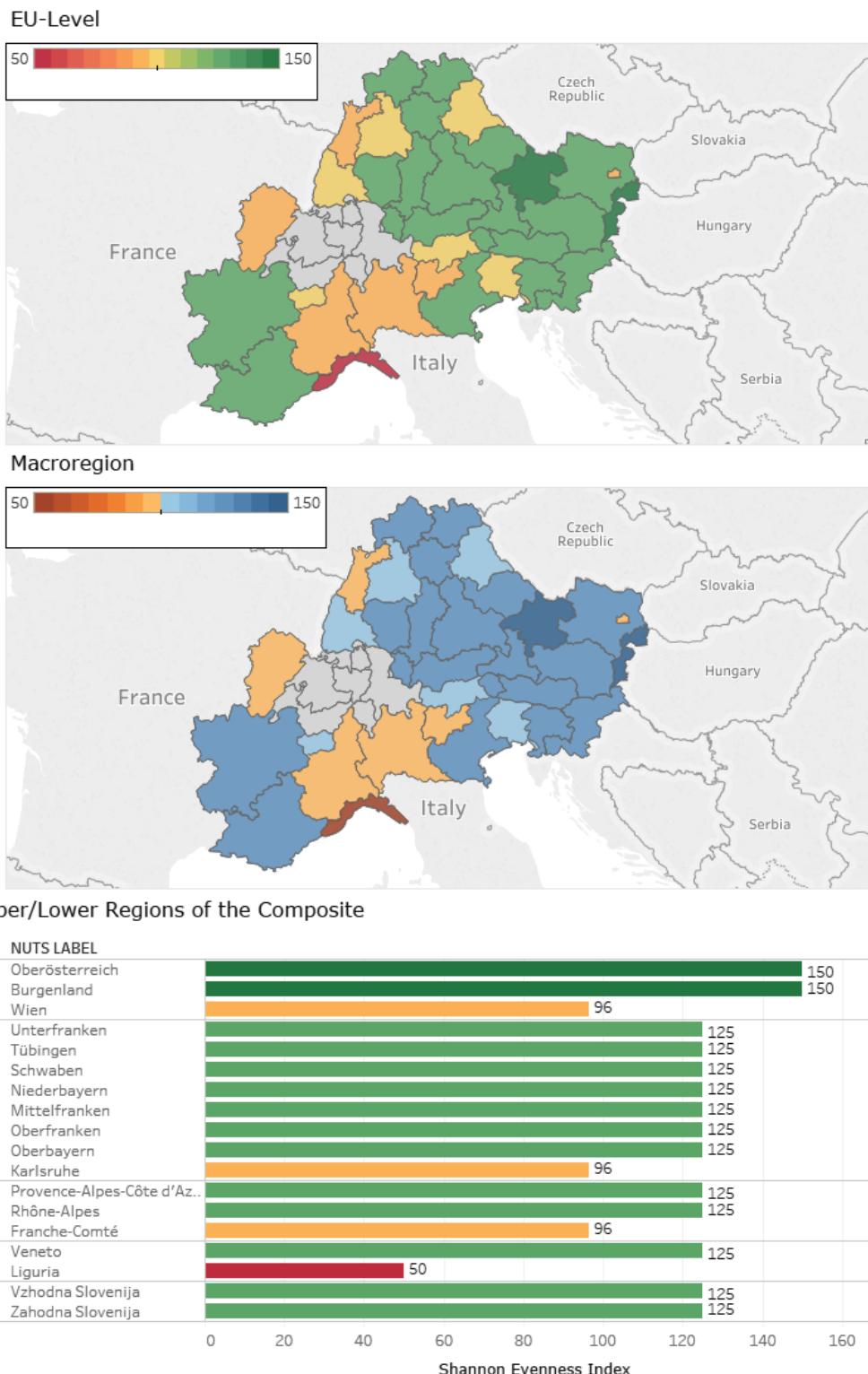
Text Box 2-27: Indicator description: 'Shannon Evenness Index'

Shannon Evenness Index (SEI) used here was obtained from the LUCAS survey data. LUCAS is carried out in the EU countries.

This index takes values between 0 and 1, where 0 represents a completely homogenous landscape, i.e. where all area has only one type of land cover. On the other hand, the value of 1 represents a perfectly heterogeneous landscape, where all considered land cover types are present at equal amounts. Therefore when interpreting the values of this index, the higher values indicate higher land cover diversity. The indicator does not by itself provide a value judgement of different landscape types.

Data is available for all EU Member States in the macro-region, but not available for Liechtenstein and Switzerland.
Note that due to the categorisation of data from the source, several regions score the same value on the benchmark. As a result, too many regions qualify as top or bottom scorers to be displayed in the bottom part of the figure.

Diversity of land cover refers to the number of different types of landscape present within a certain area. Some countries or regions might have vast areas covered with the same type of cover, others might consist of many smaller areas with a variety of types of land cover and land use.[67] Eurostat's land use/cover area frame survey (LUCAS) gathers data on land use cover, by direct observation in the field.[68] The survey is carried out every three years in all EU Member States, with latest survey conducted in 2015. However the latest published survey is from 2012, carried out in 27 EU countries, before Croatia's accession. From the data gathered in these surveys, a measure on landscape diversity – Shannon Evenness Index – can be inferred. See more about the indicator in Text Box 2-27. At the EU level this index was 0.7 according to the 2012 survey, varying from around 0.4 to over 0.8 on a NUTS-2 region level.

In the Alpine macro-region, Austria's NUTS-2 level regions are most varied in terms of diversity levels. While the capital region scores only 0.59, the regions Burgenland and Oberösterreich in the Danube valley are two of the most diverse regions in Europe with a value of 0.82. The only region in the macro-region that scores lower than the Austrian region of Wien, is Liguria in Italy which is a densely populated coastal area, 70% covered with woodland (LUCAS indicators for land cover[69]). The remaining areas in Italy's Alpine regions are close to the EU-level index value. German regions in this macro-region are mostly more diverse than Europe as a whole, but they are not far above the EU-level value. This is consistent with the country as a whole, which has a very similar national value to that of the EU. Slovenia has a relatively high landscape diversity but the

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[67] http://ec.europa.eu/eurostat/statistics-explained/index.php/Land_cover_and_land_use_(LUCAS)_statistics
[68] http://ec.europa.eu/eurostat/web/lucas/methodology
[69] http://ec.europa.eu/eurostat/cache/metadata/en/lan_esms.htm

regions are very similar in this respect. The regions in France that stretch from lowlands to the Alps are the more diverse than Franche-Comté.

Overall the countries and regions in the Alpine macro-region are more diverse than the EU as a whole, possibly due to their varied landscape stretching from valleys and coastal areas to the highest peaks in Europe.

2.5.13 Eco-Innovation Scoreboard

Figure 2-35: Eco Innovation Scoreboard by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
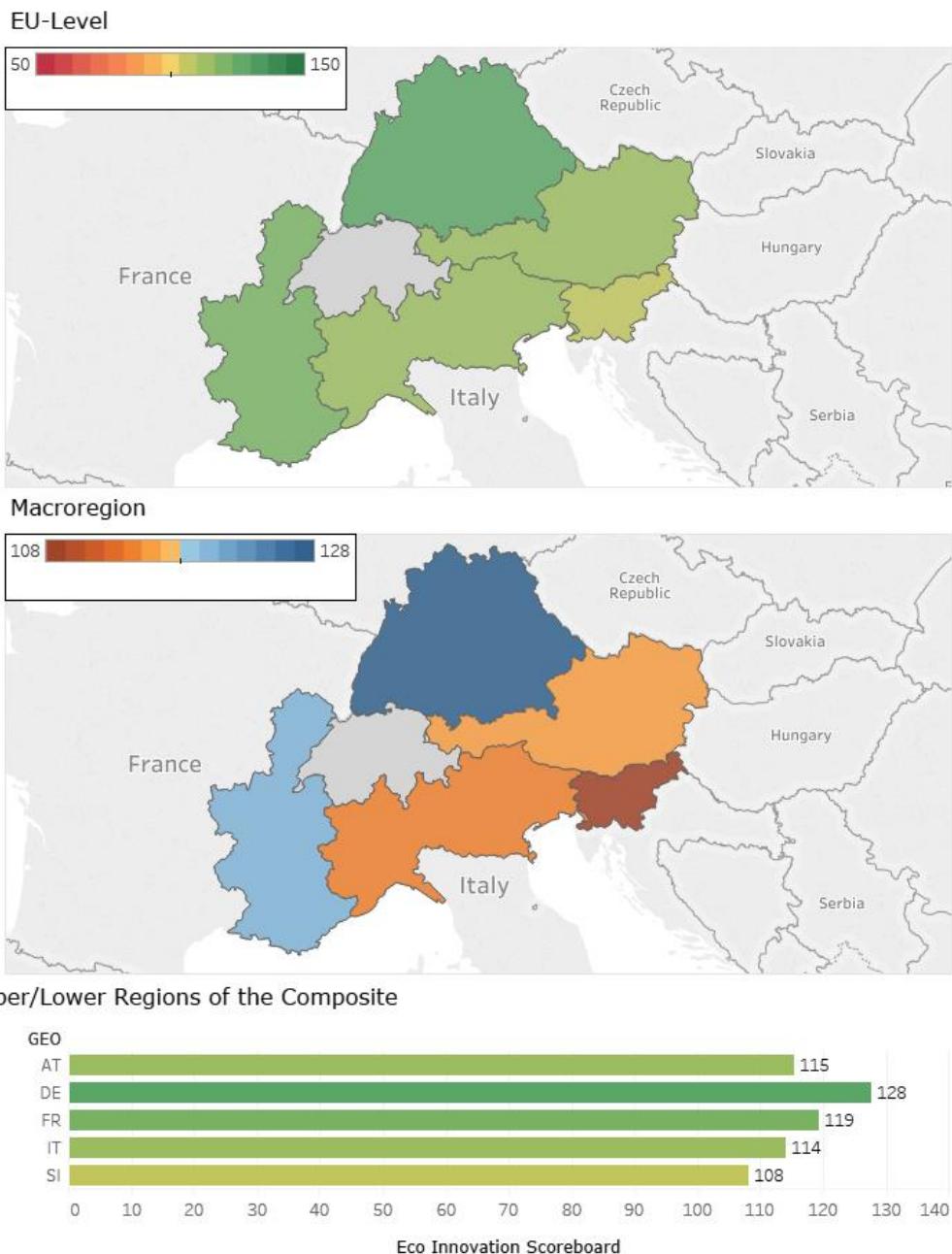
Text Box 2-28: Explanation of the indicator: 'Eco-Innovation Scoreboard'

The Eco-Innovation Scoreboard (Eco-IS) and the Eco-Innovation Index measure the eco-innovation performance across the EU Member States. Different aspects of eco-innovation are measured by using 16 indicators grouped into five dimensions: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency and socio-economic outcomes. The Eco-Innovation Index pictures the performance of individual Member States in different dimensions of eco-innovation compared to the EU average by stressing their strengths and weaknesses. The Eco-IS and the Eco-Innovation Index show a picture on economic, environmental and social performance. [1]

The Eco-Innovation Index is a composition of indices for eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency outcomes and socio-economic outcomes. Each of these indices consists of many sub-indices. It is only published for the Member States of the European Union. The latest data available refers to the year 2015. The basic value for this index is the average of all 28 Member States of the European Union.

All EU Member States of the Alpine macro-region perform better than the European average or only slightly worse. The best performing country of this region is Germany which is by 29% better than the European average. France, Austria and Italy follow. They are performing by 6% to 15% better than the average. The only country assigned to the Alpine region which performs slightly substandard is Slovenia. But the difference between the Slovenian value and the average is only 4%. The performance of the Alpine countries has changed over time. This becomes obvious by looking at the data concerning the year 2011. Then Austria was the best performing country and disclosed numbers, which were 25% above average. Germany was the second best performer with a value which was 23% above average. Slovenia worsened its position: in 2011 its value was 9% above the average. On the other hand, France and Italy improved their positions in 2015. They were ranked in 2011 slightly below the EU-average.

2.5.14 Resource Efficiency (composite of Eco Innovation Scoreboard)

Figure 2-36: Resource Efficiency by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite
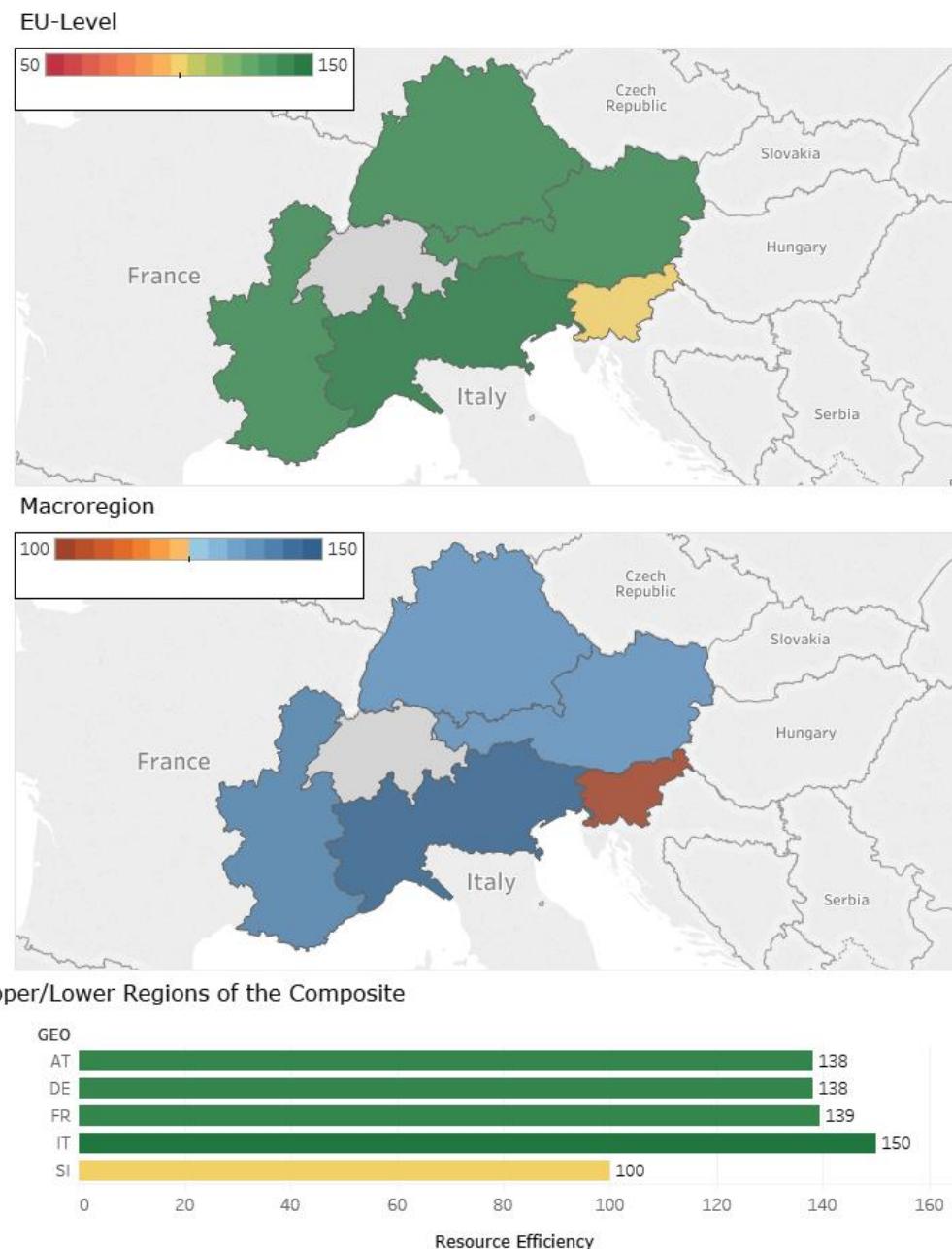
Text Box 2-29: Explanation of the indicator: 'Resource Efficiency'

Eco-innovation can at the same time rise the creation of economic value, while reducing pressures on the natural environment.[1]

"The component of resource efficiency outcomes puts eco-innovation performance in the context of a country's resource efficiency. The four indicators in the component of resource efficiency outcomes are: Material productivity (GDP/Domestic Material Consumption), Water productivity (GDP/Water Footprint), Energy productivity (GDP/gross inland energy consumption), GHG emissions intensity (CO_2e/GDP)."[1]

The Resource Efficiency Index is only published for the Member States of the European Union. The latest data available refers to the year 2015. The basic value for this index is the average of all 28 Member States of the European Union.

In the Alpine macro-region four out of five countries score above the EU-average. Italy is the best performing country in terms of resource efficiency. It scores 16% above the European average. France follows with a value which is 8% above the EU average. Austria and Germany score both 7% above the average. The worst-performing country of this region is Slovenia, which registers a value well below the EU average. There are no data available for Switzerland and Liechtenstein as they are not members of the European Union.

A comparison with the year 2011 reveals the developments that took place in the last years. In 2011 Austria was the best-performing country with a value 14% above the EU-average, followed by Italy with a value 13% above average. France and Germany were performing only slightly worse than these two countries. Slovenia's performance in 2011 was similar to that in 2015. It was below average and could not compete with the other alpine countries.

2.5.15 Agricultural Impact

Soil erosion by water

Figure 2-37: Soil Erosion by NUTS-2 in 2010, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components.

EU-Level

Macroregion

Upper/Lower Regions of the Composite

CO..	NUTS LABEL	Soil Erosion Index
AT	Wien	126
	Tirol	-21
DE	Mittelfranken	119
	Niederbayern	97
FR	Franche-Comté	115
	Provence-Alpes-Côte d'Az..	69
IT	Liguria	70
	Valle d'Aosta/Vallée d'Ao..	-7
SI	Vzhodna Slovenija	72
	Zahodna Slovenija	36
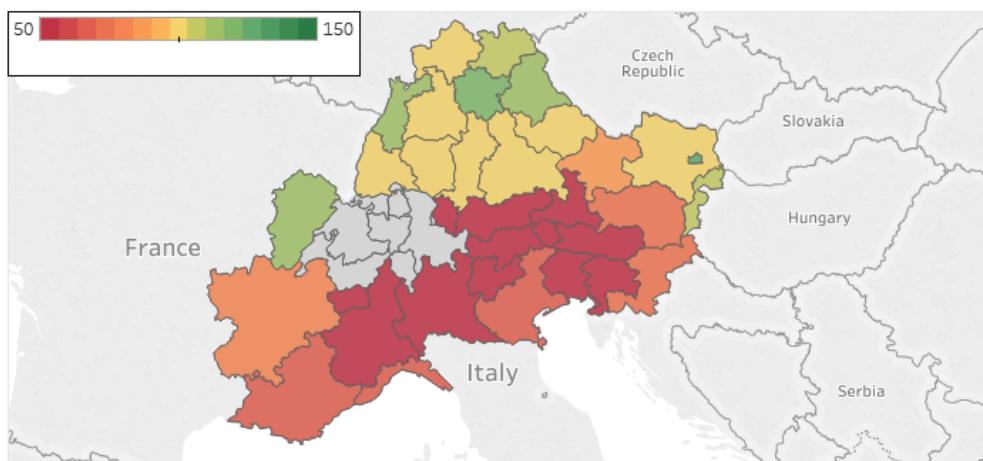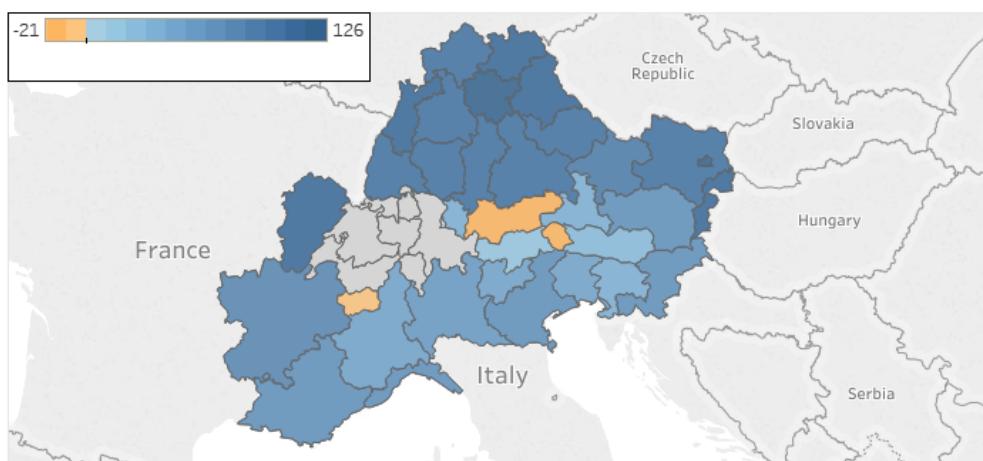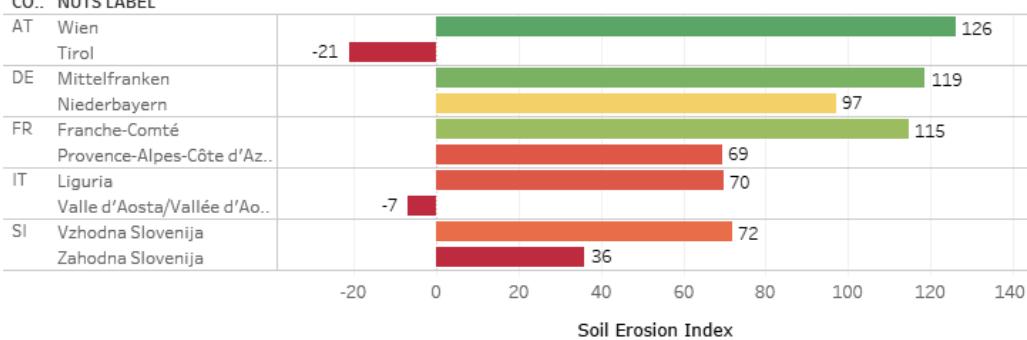
Text Box 2-30: Explanation of the indicator 'Soil Erosion by Water'

The indicator used here is one of the 28 Agri-environmental indicators used to monitor environmental aspects under the EU's agricultural policy. It is expressed as estimated erosion of soil in tonnes per hectare per year[70] (i.e. how many tonnes of soil from a hectare is removed by water and deposited elsewhere). The indicator is aggregated for NUTS-3 region level, thus allowing assessment in the macro-regions. This indicator is not measured, but modelled using the Revised Universal Soil Loss Equation (RUSLE) model, methodology developed and documented by JRC.[71] The indicator is re-published by Eurostat, dataset [*aei_pr_soiler*], with the latest year 2010 at the time of downloading. This indicator covers the territory of the EU28, hence candidate and potential candidate countries are not included in the dataset.

Higher values of this indicator show higher erosion, hence poorer performance. When benchmarking, the scale is inverted, so higher values indicate a better situation, i.e. lower erosion.

Benchmark is calculated on a country level (i.e. EU-median, top and lowest performer on a country level), therefore some NUTS-2 regions may score below the minimum benchmark (50), or above the maximum benchmark (150).

Soil erosion is defined as the displacement of material from the land surface by water (rainfall, irrigation, and snowmelt) or wind. It is considered one of the main threats to soil, as acknowledged by the European Commission's Thematic Strategy for Soil Protection[72]. The strategy stresses the importance of soil and the impact erosion and other types of soil degradation has on the climate, water quality, food safety and biodiversity. Soil formation is a very slow process, and heavily eroded or otherwise degraded soil would take hundreds of years to regenerate. The rates of regeneration differ, and are estimated to be around 1.4t/ha/year in Europe (Verheijen et al., 2009[73]). According to JRC, to protect most vulnerable soils, rates of soil erosion above 1 tonne per hectare per year should be considered unsustainable, and more than 10 t/ha/year indicate a high-risk[74]. Indicator showing specifically soil erosion by water was chosen for two reasons. First, this type of erosion is more widespread than wind erosion. Second, even though no actual measures of erosion rates exist on the European

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[70]URL: http://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicator_-_soil_erosion

[71] Panagos, P., Borrelli, P., Poesen, J., Ballabio, C., Lugato, E., Meusburger, K., Montanarella, L., Alewell, .C. 2015. The new assessment of soil loss by water erosion in Europe. *Environmental Science & Policy*. 54: 438-447

[72] Communication COM(2006) 231; http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52006DC0231

[73] F.G.A. Verheijen, R.J.A. Jones, R.J. Rickson, C.J. Smith. 2009. *Tolerable versus actual soil erosion rates in Europe*. Earth-Science Reviews, 94 (1–4) (2009), pp. 23–38. This paper defines "upper limit of tolerable soil erosion" as that equal to the rate of soil formation.

[74] JRC. 2012. *The state of soil in Europe.* A contribution of the JRC to the EEA Environment State and Outlook Report.

level, there are good quality estimates for the entire territory of the EU, at a high level of resolution. For more information on the indicator used, see Text Box 2-30.

Data shows that the average erosion in the EU28 is 2.46 t/ha/year (Eurostat; Panagos *et al*, 2015). Generally the situation is better in the northern countries than elsewhere, the country with lowest erosion rate being Finland at 0.06t/ha/yr. Italy is on the opposite end of the scale with 8.5t/ha/yr. These values as well as the EU-median (2.1t/ha/year) are used in the benchmarking.

The extent of soil erosion in the countries in the Alpine macro-region varies greatly within the macro-region. The NUTS-2 region Wien is the least affected region by soil erosion of all NUTS-2 regions within the Alpine macro-region. It shows a level of only 1.03 tonnes per hectare per year. When benchmarked, it has a value of 126, relatively high above the EU-median. However, Austria's regions are heterogeneous in this respect. Other than Wien, the other regions in the Danube valley show lower levels of soil erosion compared to the levels observed in the Alpine states of the country. Tirol lies at the extreme end of the spectrum with a level of erosion of 17.51 tonnes per hectare per year. This is more than twice the value of the highest erosion in the EU at country-level, and the benchmarked value is therefore -21. These areas are distinguished by their mountainous terrain, therefore more prone to erosion due to human and weather impacts. A similar pattern can be observed in Italy, where the region Valle d'Aosta is the one with the highest level of erosion (15.71 t/ha/yr, or -7 when benchmarked), followed by Provincia Autonoma di Bolzano/Bozen, which is a neighbouring province to Austrian Tirol.

With a level of 1.32 tonnes per hectare per year for the region Mittelfranken is the leader in Germany. Most German regions in the southern states that are part of the Alpine macro-region have soil erosion values below or around the median value (hence when benchmarked, they range from 97 to 119). There are no regions with very high values, such as those seen in Italy and Austria.

In France, the Franche-Comté region is the top performer, with a level of 1.48 tonnes per hectare per year. The other two regions in France that belong to the Alpine macro-region show lower values. Looking in more detail, this appears to be due to a similar pattern as that seen in Austria: Rhône-Alpes region is about half the size of Austria, and has a varied terrain. NUTS-3 level information reveals that the highest soil erosion within this region occurs in the Alpine areas Savoie and Haute-Savoie which are home to the Mont Blanc Massif. Similarly in Provence-Alpes-Côte d'Azur it is the Alpine areas that show the highest levels of estimated soil erosion.

In Slovenia, the region of Zahodna Slovenija has values of soil erosion higher than the lowest EU-level performer. A closer look reveals that areas defined by mountainous landscape and coastal climate within this region have the highest levels of soil erosion.

Overall, the results in the Alpine region exemplify shared cross-border challenges that are present as a result of common natural features.

Gross Nutrient Balance

Figure 2-38: Gross Nutrient Balance by country in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the benchmarked indicator values for each country
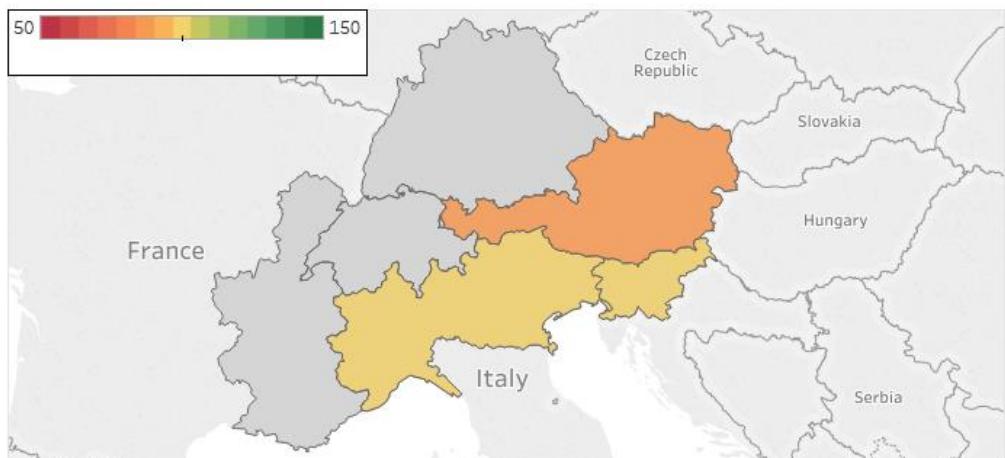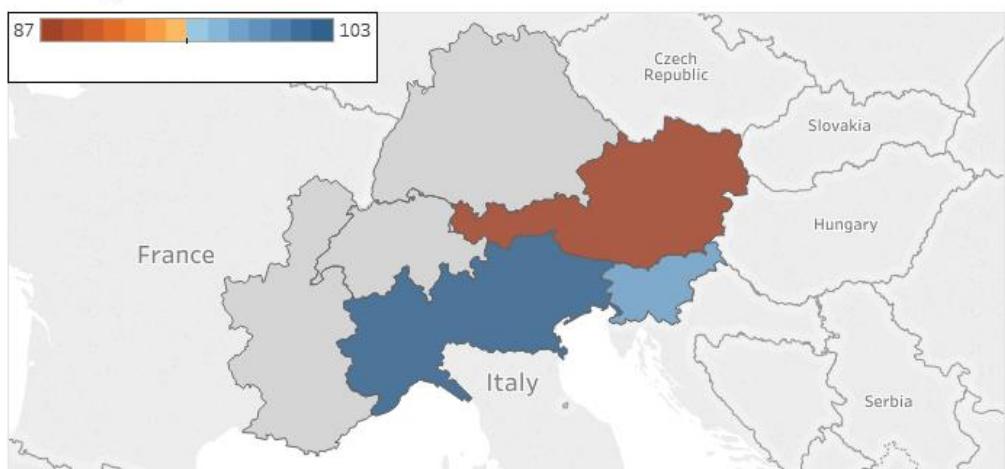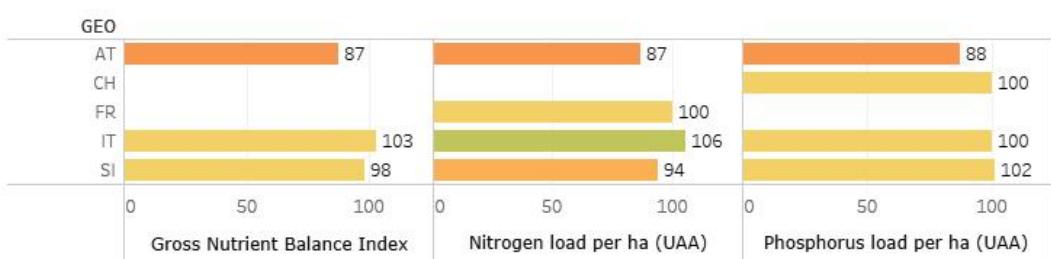
Text Box 2-31: Explanation of the indicator: 'Gross Nutrient Balance'

According to EEA[75], the indicator Gross Nutrient Balance "estimates the potential surplus of nitrogen on agricultural land". The estimation accounts for nitrogen and phosphorus additions to agricultural lands as well as the amounts that are removed from the system, via crops harvested and eaten by feedstock.

The indicator measures the balance of nutrients, expressed as kg of nitrogen and phosphorus per ha of Utilised Agricultural Area (UAA).[76]

The data is available for EU countries only.

The composite indicator is the average of benchmarked gross nitrogen balance and gross phosphorus balance values.

The strong use of artificial fertilisation for crops in Europe, or more generally a surplus of nutrients, has several implications on the environment, of which most prominent are eutrophication and nitrification. While a too high and too long a surplus is not desirable, a deficit can also have negative implications for land-use.

In the Alpine macro-region the highest gross nutrient balance is in Germany (85 kg/ha). The lowest values can be found in Austria (45 kg/ha) and in France (52 kg/ha). In the other countries (Italy, Slovenia, and Switzerland) the gross nutrient balance has quite similar values and it ranges from 64 kg/ha in Switzerland to 76 kg/ha in Slovenia. All these values are close to the EU-level median. When comparing the years 2011 and 2013, the picture is heterogeneous: while the balance in Switzerland remained almost the same, it increased in Italy, Austria, and Slovenia. In Germany and France it decreased.

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[75] URL: http://www.eea.europa.eu/data-and-maps/indicators/gross-nutrient-balance-1

[76] http://ec.europa.eu/eurostat/cache/metadata/EN/aei_pr_gnb_esms.htm

2.5.16 Forestry in the Alps

Share of Wooded Area in total area

Figure 2-39: Share of Woodland by NUTS-2 in 2012, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite

CO..	NUTS LABEL	value
AT	Wien	86
	Kärnten	134
DE	Karlsruhe	118
	Schwaben	102
FR	Rhône-Alpes	113
	Franche-Comté	119
IT	Liguria	148
	Veneto	94
SI	Zahodna Slovenija	141
	Vzhodna Slovenija	132

Share of woodland of total land cover
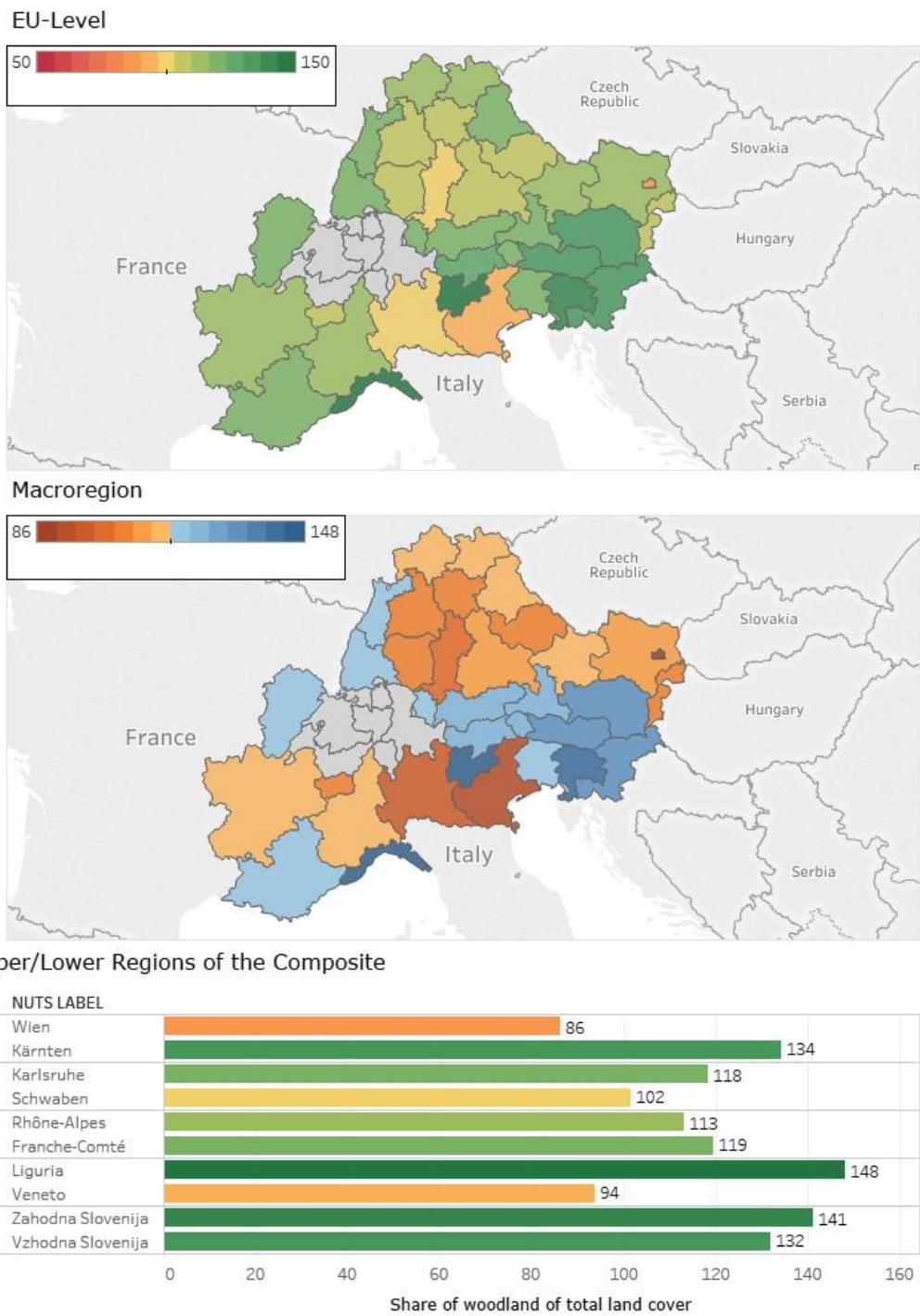
Text Box 2-32: Explanation of the indicator: 'Share of wooded area'

There are strong structural differences between the wooded areas in northern and southern European countries. While in northern Europe wooded areas consist of forests with tall trees in dense stands and little vegetation in the understory, in Southern Europe trees are generally not so tall and are usually less densely set. This leads to a "better-developed canopy on each tree, but a lower total forest canopy cover and denser vegetation in the understory".[77] Within relatively small areas rapid changes can be observed in the European landscapes. The Alpine macro-region includes the Alps, one of the biggest and highest mountain ranges in the world.

In the Alps, forestry is one of the most important type of land use. Forests, in a relatively natural state, are mainly to be found on mountain slopes, as forests in valleys have to a large extent been lost to settlements. They play an important role in protection against avalanches and rock slides. A challenge remains the restoration of biodiversity as the reforestation of large areas as monocultures reduced biodiversity.

The indicator Share of Wooded Area in total area has been calculated for the Alpine macro-region based on the data provided by Eurostat.

In the Alpine macro-region the average share of wooded area is 41%. The highest share can be found in the Italian NUTS-2 region Liguria (more than 70%, scoring nearly as high as the EU's top performing country), followed by Provincia Autonoma di Trento (68.8%, score of 146) and the Austrian NUTS-2 regions. The lowest share can be found in the Austrian capital city Vienna (almost 22%), followed by the Italian NUTS-2 regions Veneto and Lombardia with shares below 30%. A large wooded area can be found in the French NUTS-2 regions Rhône-Alpes (40.5% share) and Franche-Comté (46%). The share of wooded area in the German NUTS-2 regions takes values around the average value for the macro-regions. Schwaben registers the lowest value (31%) among the German NUTS-2 regions. Aggregating these observations to a country-level, most countries score on average between 111 and 118 points. Slovenia scores however with an average of 137 the highest.

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[77] Eurostat (2013): Land Cover Statistics. URL: http://ec.europa.eu/eurostat/statistics-explained/index.php/Land_cover_statistics

Forestry

Figure 2-40: Forestry Index by Country in 2010, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components.
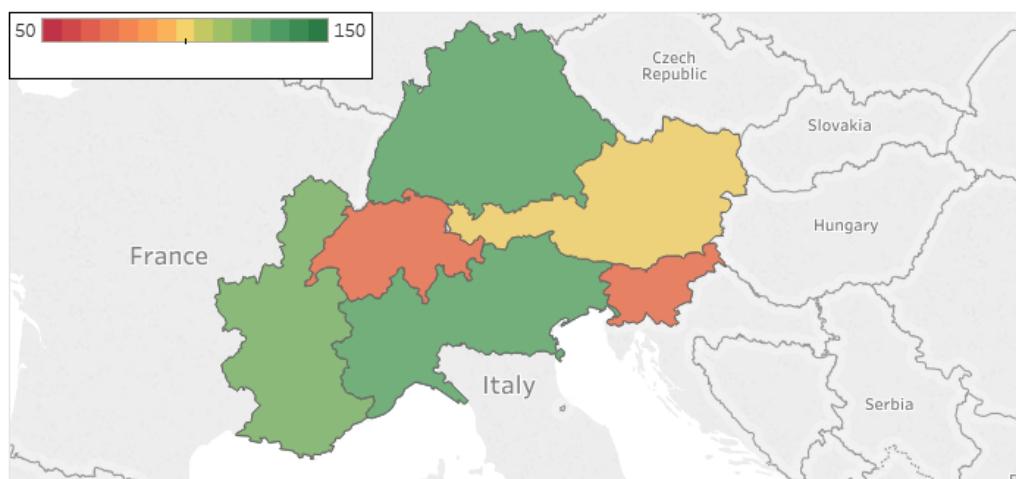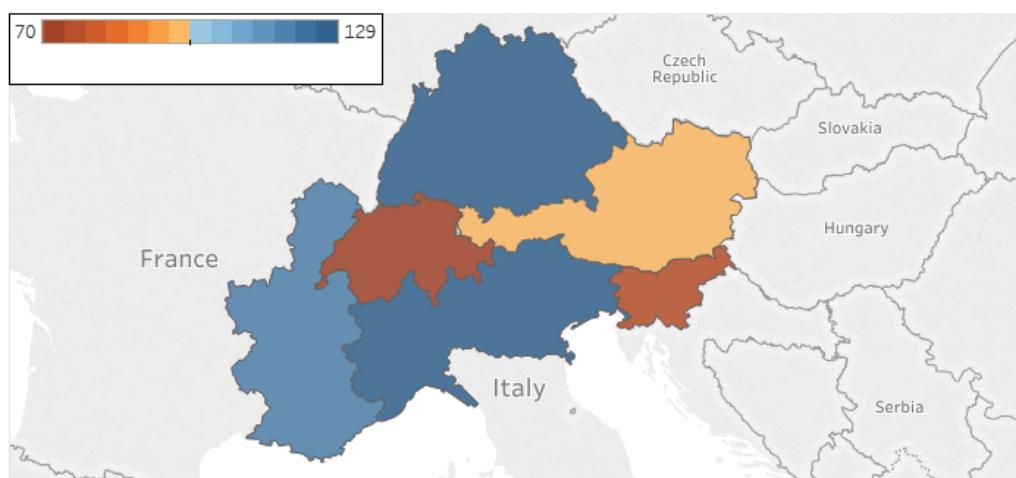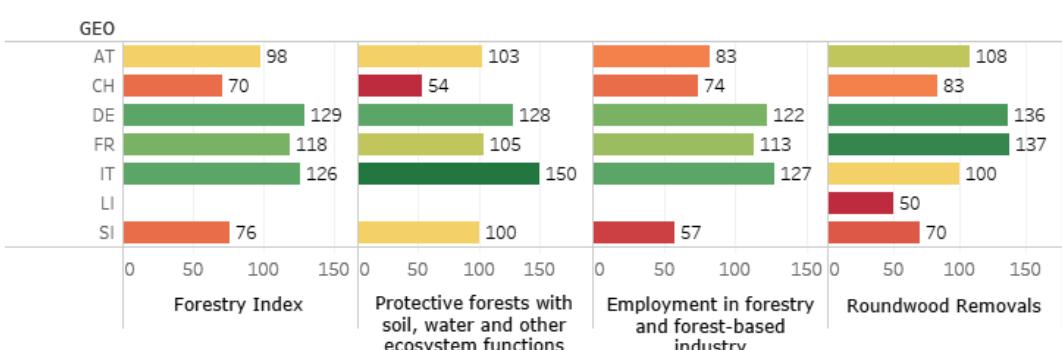
Text Box 2-33: Explanation of the indicator: 'Forestry'

The composite indicator Forestry consists of three indicators: Roundwood removals by type of wood and assortment (for all woods, in m³), Number of employed persons in forestry and logging and Protective functions of forests (in ha). The indicator seeks to provide information on the employment and environmental aspects of the forestry sector. All these indicators are available at Eurostat on country level.

An analysis of the composite indicator shows the highest values in Germany, Italy and France, separated from the other countries by at least 20 points. All three countries have a high employment in the forestry and forestry-based industry, with an importance above the EU's median. Germany and France have some of Europe's highest roundwood removals; which is explained by the large size of these countries. Germany and Italy have the region's largest areas of protective forests, followed by Austria with a value slightly below the EU-median. The lowest values (far below the average for the EU) exhibit Slovenia and Switzerland, while no data are available for Liechtenstein. The lower performance of Austria, Slovenia and Switzerland compared to Germany, Italy and France, regarding this indicator, is mainly due to the fewer employed persons in forestry and relatively lower area coverage with protective forests with soil, water and other ecosystem functions.

2.7   Political, Institutional & Governance Indicators

The political, institutional and governance indicators draw a picture on the political state of the macro-region. The indicators in this section inform about the quality of governance and the institutional capacity. In the context of Cohesion Policy, these indicators essentially reflect the likely capacity of the macro-region's countries to effectively pursue interventions on the economic, social as well as territorial cohesion.

In addition, the selected indicators in this chapter inform about the quality of civil freedom as well as the enforcement of law on macro-regionally relevant problems: Human trafficking and Drugs. The selected indicators are shown in the table below.

Table 2-9: Overview of Political, Institutional & Governance indicators

Composite	Components
Governance	Government effectiveness
	Regulatory Quality
Public Institutions	*none*
Voice & Accountability	*none*
Human Trafficking	*none*
Number of Drug Seizures	*none*

2.7.1 Governance

Figure 2-41: Governance by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components

EU-Level

Macroregion

Upper/Lower Regions of the Composite
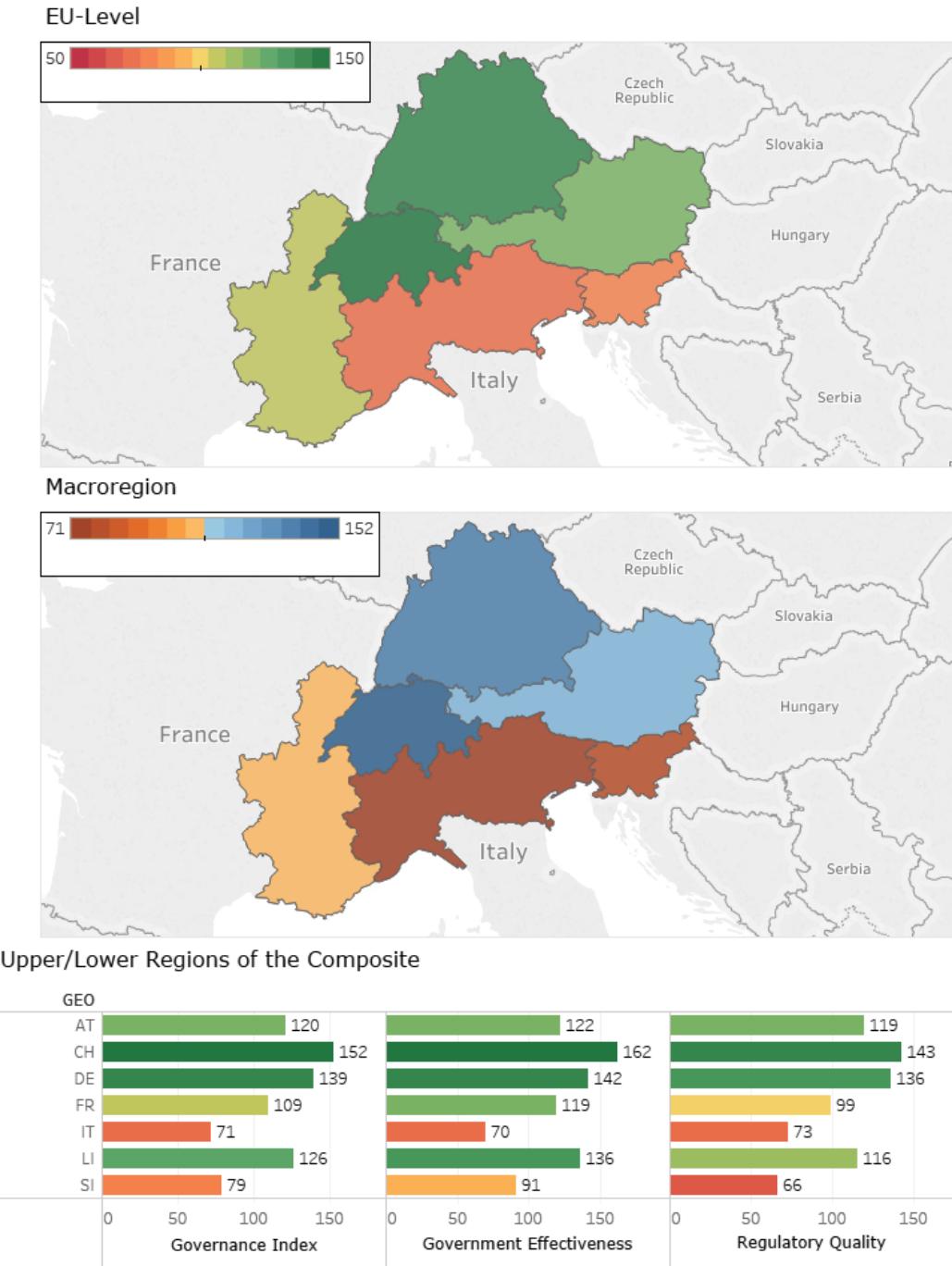
Text Box 2-34: Explanation of the indicator: 'Governance'

Governance is defined as the "processes of governing […] undertaken by a government […] over a […] territory […] through laws, norms, power or language."[78] It includes "the processes of interaction and decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions."[79] In this context, a government has the responsibility and authority to make binding decisions in a given geopolitical system (such as a state) by establishing laws.[80] Thus, Governance refers to the way the rules, norms and actions are structured, sustained, regulated and held accountable. A government may operate as a democracy, where citizens vote on the people who govern with the aim to achieve a public good.

The governance of the macro-region is analysed using two governance indicators: Regulatory Quality and Government Effectiveness. Regulatory Quality refers to "the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development"[81]. Government Effectiveness reflects the "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies."[82] Both indicators are part of the World Bank's broader Worldwide Governance Indicators (WGI) Project of the World Bank Group.[83]

An analysis of the composite indicator Governance shows a high quality of governance in Switzerland, Germany, Liechtenstein, and Austria with scores ranging from 152 in Switzerland to 120 in Austria. All countries except for Austria improved their values when comparing 2008 to 2015. The quality of Governance in France did not change in 2015 compared to 2008: The score of this indicator amounts to 109. The lowest levels are found in Slovenia (79) and Italy (71). The scores even deteriorated in 2015 compared to 2008 in both countries, mainly due to lower values for regulatory quality.

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[78] *Bevir, Mark (2013). Governance: A very short introduction. Oxford, UK: Oxford University Press.*

[79] *Hufty, Marc (2011). "Investigating Policy Processes: The Governance Analytical Framework (GAF). In: Wiesmann, U., Hurni, H., et al. eds. Research for Sustainable Development: Foundations, Experiences, and Perspectives.". Bern: Geographica Bernensia: 403–424.*

[80] Wikipedia 2017, https://en.wikipedia.org/wiki/Governance

[81] URL: http://info.worldbank.org/governance/wgi/pdf/wgi.pdf

[82] URL: http://info.worldbank.org/governance/wgi/pdf/wgi.pdf

[83] URL: http://info.worldbank.org/governance/wgi/#home

2.7.2   Public Institutions

Figure 2-42: Public Institutions by country in 2015-2016, on an EU-wide (top) and Macro-regional (bottom) comparison. The bottom figure shows the Upper/Lower Regions, including their components
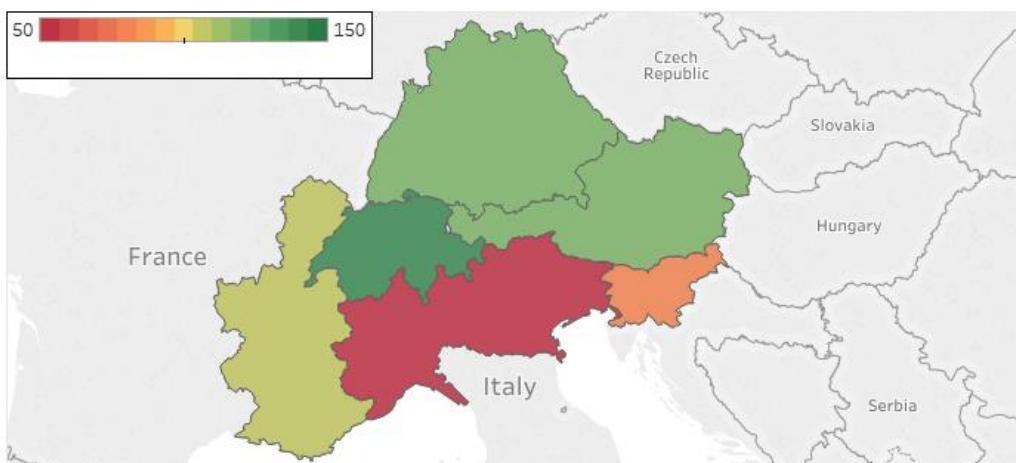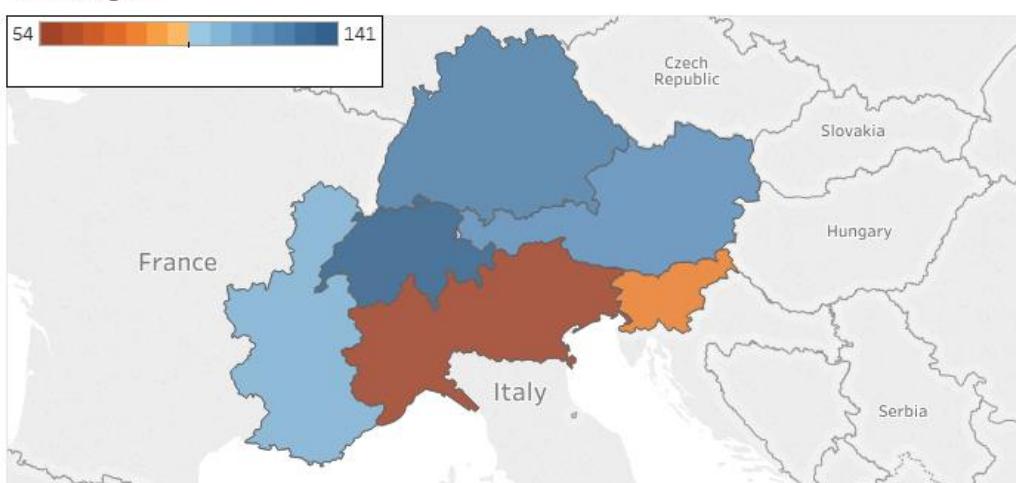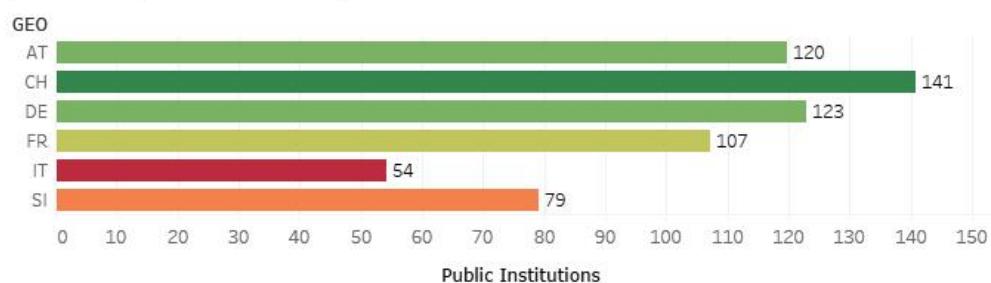
Text Box 2-35: Explanation of the indicator: 'Public Institutions'

The indicator on public institutions is a composite of the World Economic Forum's (WEF) Global Competitiveness Index for 2016[84]. This composite consists in turn of indicators on 'property rights', 'ethics and corruption', 'undue influence', 'public-sector performance', and '(public) security'. The public institutions indicator thus reflects the quality with which public entities ensure that the "basic requirements" [85] of a competitive/fair economy are upheld. Vice-versa, it also reflects how much of an existing factor unfair or preferential treatment is. To a limited degree, this indicator also reveals the institutional capacity, mostly reflected through the 'public-sector sector performance' composite. At last, this indicator provides partial inference on the compliance with the EU-Acquis, chapter 23, Judiciary and fundamental rights[86].

An analysis of the indicator Public Institutions shows a high quality of public institutions in 2016 in Switzerland (141), Germany (123) and Austria (120), who all perform well above the EU-median. France scores with 107 rather close to the EU-median. In these four countries, the "basic requirements" are thus on a European standard well upheld. However, the quality of public institutions in all countries except for Switzerland deteriorated in 2016 compared to 2008. Similar to the case of the governance indicators, Slovenia (79) and Italy (54) perform far below the standard of the top countries. As is the case with the other EU Member States, the quality of public institutions deteriorated in 2016 compared to 2008.

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[84] World Economic Forum, Global Competitiveness Index, http://reports.weforum.org/global-competitiveness-report-2015-2016/institutions/
[85] World Economic Forum, Global Competitiveness Index, http://reports.weforum.org/global-competitiveness-report-2015-2016/institutions/
[86] https://ec.europa.eu/neighbourhood-enlargement/policy/conditions-membership/chapters-of-the-acquis_en

2.7.3 Voice and Accountability

Figure 2-43: Voice and Accountability by country in 2015, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
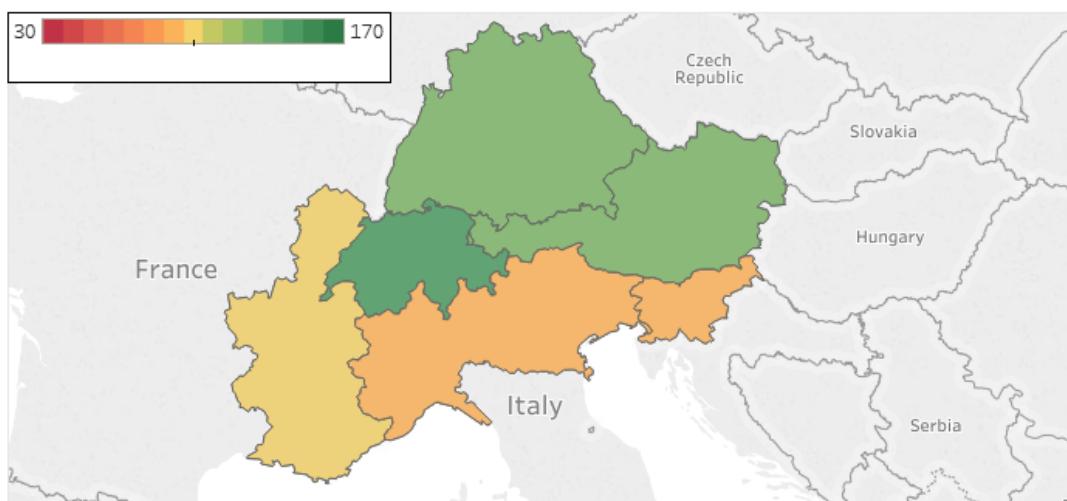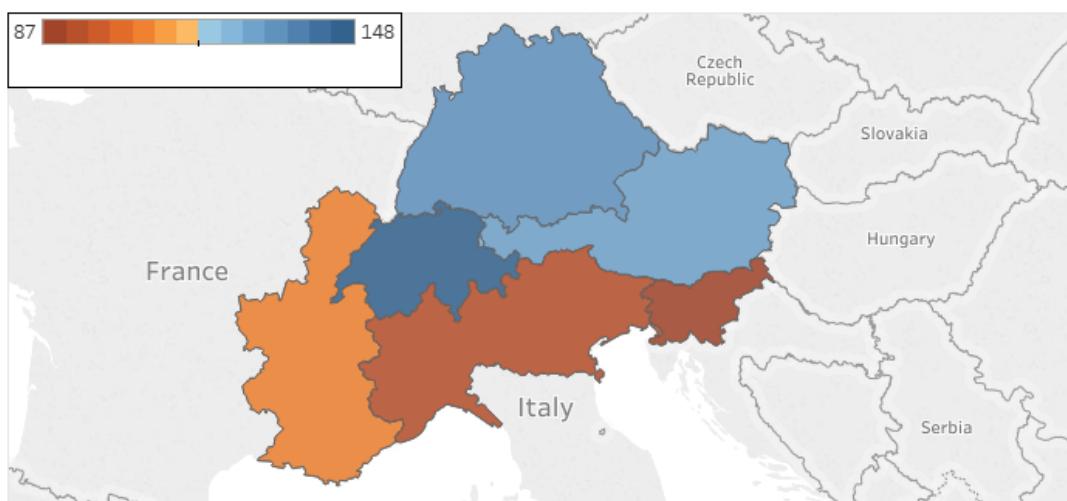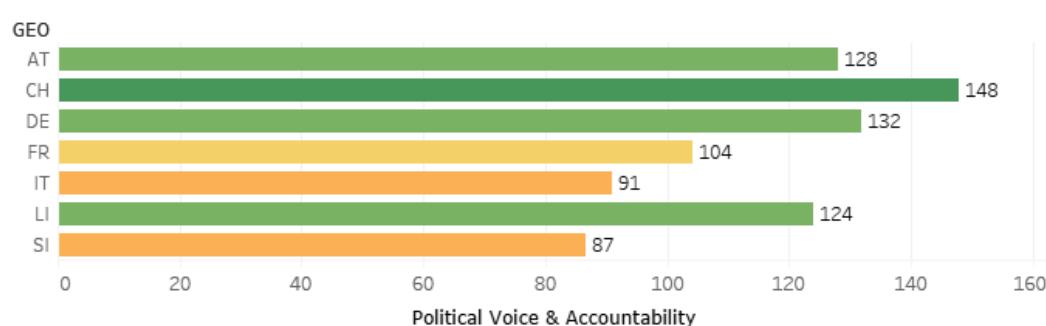
Text Box 2-36: Explanation of the indicator: 'Voice and Accountability'

The indicator Voice and Accountability mirrors "*the freedom of a country's citizens in selecting their government, as well as freedom of expression, freedom of association, and a free media*".[87] In its essence, it is an indicator on democracy, i.e. civil freedoms and the therewith indirect accountability of governments', as a result of freedom of expression and free media. As with the public institutions indicator, this indicator provides partial inference on the compliance with the EU-Acquis, chapter 23, Judiciary and fundamental rights[88] . The underlying indicator is part of the Worldbank's broader Worldwide Governance Indicators (WGI) Project of the World Bank Group.

An analysis of the indicator Voice and Accountability shows again a strong performance in 2015 in Switzerland (148), Germany (132), and Austria (128). The indicator score for France experienced a strong decline in 2016 (104) compared to 2008 (115). The lowest score for the indicator Voice and Accountability have Slovenia (87) and Italy (91). The indicator score for Slovenia deteriorated in 2015 compared to 2011.

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[87] URL: http://info.worldbank.org/governance/wgi/pdf/va.pdf

[88] URL: https://ec.europa.eu/neighbourhood-enlargement/policy/conditions-membership/chapters-of-the-acquis_en

2.7.4   Human Trafficking

Figure 2-44: Human trafficking in Europe; Source: Eurostat Report on Trafficking in Human Beings 2015

Country of origin / citizenship of victims reported	RO	BG	NL	HU	PL	FR	SK	DE	LV	CZ	RS	LT	UK	ES	EE	HR	IE	EL	SI	BE	IT	CH	FI	DK	CY	LU	MT	IS	Total Registered Victims
Romania	3 230		218	<5	65	427		434	6	<5			493	464		<5	19	126	<5	62	472	13	5	23	24	7	<5		6 101
Bulgaria		1 698	421		44	167	<5	370	35	<5			63	29			5	75	<5	49	50	13		<5	15	<5	<5		3 043
Netherlands			1 079											<5															1 080
Hungary	<5		394	153	<5	40		156					243				<5	<5	9	<5	41			<5					1 046
Poland			187		263	12		92		<5		<5	405				5			6		<5	<5	<5		<5			976
France			<5			476		<5					6													<5		<5	491
Slovakia			49				78	26		10			296					6	6	<5				<5					477
Germany		<5	19		<5			389					<5																415
Latvia			12					25	277	<5			34				<5	<5						<5	<5				355
Czech Republic		<5	26			<5		41		34			233					<5	5	<5			<5	<5					351
Serbia	<5		<5			5		20			230		<5			<5		<5	<5	5									269
Lithuania			22			<5		16				50	146					<5	<5					<5		<5			244
United Kingdom			6			<5							197							<5									205
Spain			<5		8			<5					<5	117															132
Estonia			<5					<5					<5		55							8			<5	5			77
Turkey			11					41			<5		<5							<5		<5			<5				61
Croatia			<5								<5					25				<5		<5							32
Ireland													<5				31												32
Portugal			9			<5		<5					7							<5				<5		<5			27
Greece	<5		5					<5										4							<5				14
Slovenia								<5											12										13
Belgium			<5			<5		<5					<5																8
Italy			<5		<5	<5		<5					<5																6
Montenegro								<5			5																		6
Austria			<5					<5			<5									1									4
Switzerland								<5														<5							3
Finland			<5																				1						2
Norway								<5																					2
Denmark																								1					1
Cyprus																									1				1
Total victims	3 233	1 700	2 476	156	375	1 153	79	1 626	277	87	241	51	2 138	610	55	29	66	212	40	142	522	73	20	39	47	22	4	1	15 474

Key: ■ Citizens of reporting country   ▢ 10 – 99 victims   ▢ 100 – 399 victims   ▢ 400+ victims

Text Box 2-37: Explanation of the indicator: 'Human Trafficking'

According to the Eurostat Report of Trafficking in Human Beings a person is considered to be a victim of trafficking in human beings when the crime against her/him fulfils the constituent elements of trafficking in human beings as defined in the EU Directive 2011/36 on preventing and combating trafficking in human beings, protecting its victims. An "identified victim" is defined as "a person who has been formally identified as a victim of trafficking in human beings by the relevant formal authority in a Member State". [89]

According to the Eurostat Report of Trafficking in Human beings it is generally difficult collect data on trafficking. The primary reason being that victims do not always report the crime to the police or do not even want to cooperate with the police. Registering victims in an accurate manner is further largely depended on the capacity to identify victims in the form of formal authorities or the existence of a national register[90]. The data on Human Trafficking in the EU Member States used for the current analysis cover a three year period from 2010 to 2012. To avoid population sizes of countries having an effect on the interpretation of the statistics, a registered victim prevalence rate has been calculated for victims of trafficking, by expressing the number of registered victims with citizenship of a particular country as a proportion of that country's population, averaged across 2010-2012.[91]

In the Alpine macro-region countries, large countries register the highest number of trafficking victims. Germany, France and Italy all report a high number of trafficking victims from Romania. Germany and France also reported substantial number of victims from Bulgaria and Hungary. Switzerland reports significantly lower numbers, but its reports are also dominated by Romanian, Bulgarian, and Hungarian citizens. In the case of Germany and France, a high number of victims come from the reporting countries themselves.

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[89] Publications Office of the European Union (2015): Trafficking in Human Beings, Luxembourg, 2015.

[90] Publications Office of the European Union (2015): Trafficking in Human Beings, Luxembourg, 2015.

[91] Publications Office of the European Union (2015): Trafficking in Human Beings, Luxembourg, 2015.

2.7.5   Number of Drug Seizures

Figure 2-45: Drug Seizures by Country in 2014, on an EU-wide (top) and Macro-regional (middle) comparison. The bottom figure shows the Upper/Lower Regions, including their components
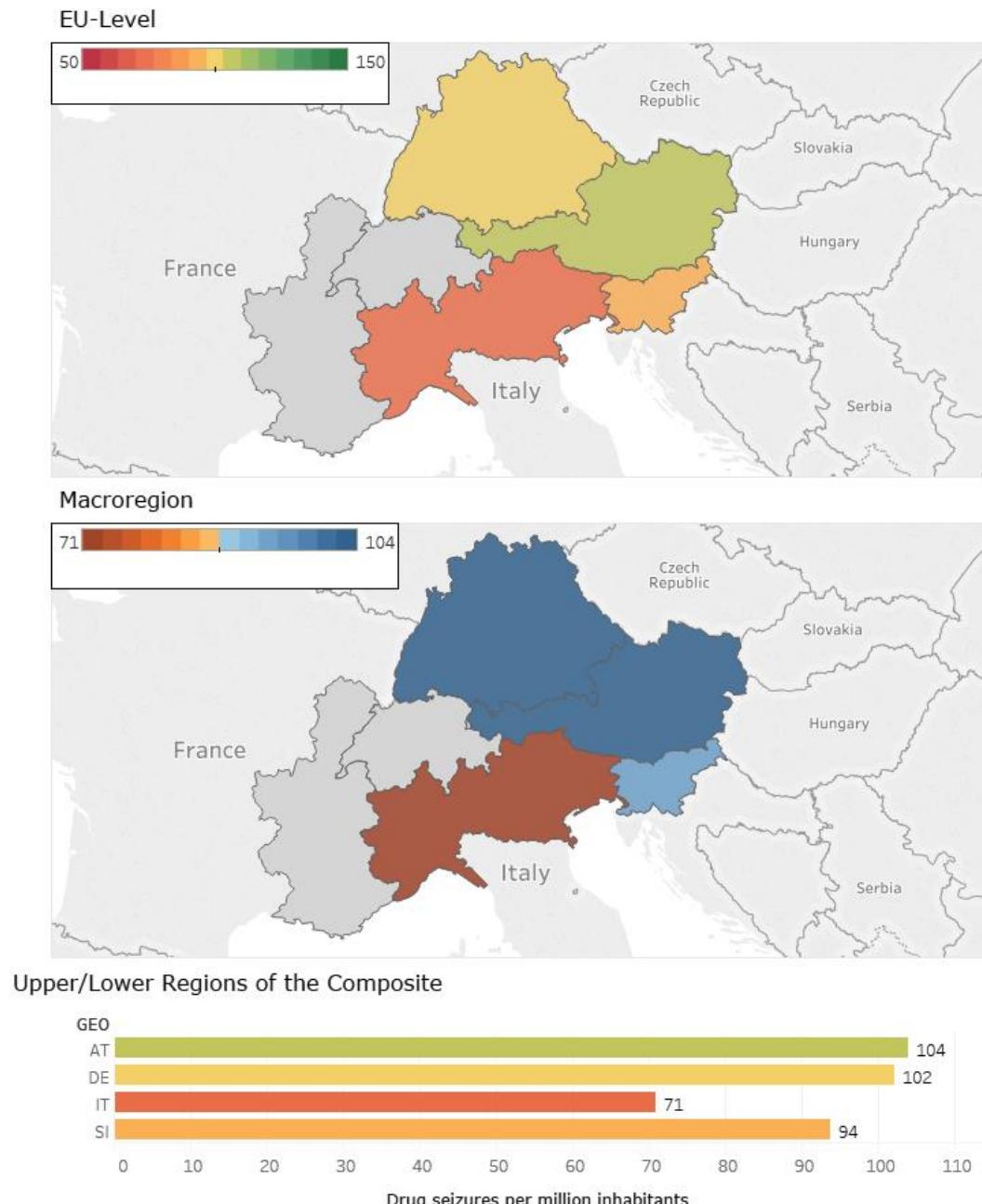
Text Box 2-38: Explanation of the indicator: 'Number of Drug Seizures'

Europe is an important market for drugs. The drugs are either locally produced or they are produced in other world regions and are trafficked in Europe. There are regional differences in stimulant consumption patterns across Europe. Cocaine use appears higher in Western and Southern European countries, while amphetamines are more used in Northern and Eastern Europe.[92]

An analysis of the number of drug seizures per 1 million inhabitants for the year 2014 gives a picture of the drug consumption and the countries' capacity to combat drug trafficking. The source of the data on the number of drug seizures is the European Drug Report 2016 and Eurostat for the data on population. The data on drug seizures are available only at country level, no data are available for NUTS-2 regions.

In the macro-region, Austria had in 2014 the most drug seizures (311 per million inhabitants and a score of 108). Germany and Slovenia however prove to be similarly active in this respect (scores of 106 and 103 respectively). Based on the available data, Italy is the only country that perform below the EU-median with 121 drug seizures per million inhabitants and a score of 80. However, despite Italy's currently low performance, regular opioid use declined from 2008 on, which however stopped again in 2014[93]

These results indicate an average performance of the macro-region as a whole, and an overall well-organised drug seizure mechanism that meets the European standard. It should however be noted that no data were available for nearly half of the countries, i.e. France, Switzerland, and Lichtenstein.

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[92] European Monitoring Centre for Drug and Drug Addiction (2016): European Drug Report, Trends and Developments, Luxembourg: Publications Office of the European Union, 2016, ISBN: 978-92-9168-890-6, doi:10.2810/04312

[93] EMCCDA, Italy country overview, http://www.emcdda.europa.eu/countries/italy#pdu

2.8   Meta-analysis

2.8.1   Macroeconomic Indicators

Regional development is a complex, multidimensional concept. Various factors such as: endowment with natural resources, quantity and quality of labour, availability of and access to capital, investment in physical and technological infrastructure, factor productivity dynamics, sectorial structure of the economy impact on regional development.[94]

Economic Performance

The countries of the Alpine macro-region are homogeneous group in terms of economic development. Within the macro-region there are mature economies, such as Germany, France, Austria, Italy, Lichtenstein and Switzerland. These countries are characterized by a high GDP per capita (well above the EU average) and labour productivity and low or moderate growth rates. These are also the countries that have advanced social systems. Slovenia is an economically advanced new Member State with lower GDP per capita and productivity levels than the rest of the macro-region. Due to the serious consequences of the economic and financial crisis and a long recovery period, the country also struggles with low GDP growth rates. Slovenia's social system needs to progress towards narrowing the gap to the advanced countries in the group.

Since its accession to the European Union, Slovenia has undergone major economic and social changes as a response to the financial and economic crisis. The crisis thus fundamentally changed Slovenia's growth model. In the period preceding the crisis, strong growth was primarily driven by private consumption and investment, fuelled by extensive crediting with money from abroad. In the aftermath of the crisis and burst of the housing bubble, economic growth became increasingly driven by exports and internal demand in Slovenia.

While the GDP per capita increased between 2008 and 2015 in Austria, Germany, and Switzerland, it almost stagnated in France and dropped in Slovenia and Italy. Italy still faces a debt and banking crisis.

Employment

While unemployment fell considerably in some countries of the macro-region (Germany, Slovenia), it increased in others (Austria, France, and Italy). However, reducing youth unemployment and long-term unemployment remain a challenge especially in Italy. There are no wide regional disparities between urban and rural regions of the macro-region, except for France. Generally, urban regions dominate the macro-region.

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[94] Nijkamp P. and M. Abreu (2003). Regional development theory. PN218MA-EOLSS. URL: ftp://dlib.info/opt/ReDIF/RePEc/vua/wpaper/pdf/20090029.pdf

2.8.2   Macro-regional Integration

During the last two decades, the fast growth of trade in intermediate inputs contributed to the enhancing growth of the countries in the macro-region. Multinational firms account for a large share of input trade. They create global vertical production networks by locating input processing in their foreign affiliates. Vertical production networks allow multinational firms to take advantage of lower wages for less-skilled labour and lower production costs, lower trade costs, and lower corporate income tax rates.[95]

Integration is very high among all countries in the macro-region, and above the EU average. This is evident when looking at trade, investment, migration, remittances and student exchange indicators. Compared to the EU average, the Alpine macro-region shows an above average integration intensity, which had slightly decreased in 2015 compared to 2008.

Labour Integration

The Alpine macro-region displays the highest degree of labour integration among all analysed macro-regions (Adriatic and Ionian Sea, Baltic Sea, and Danube). The highest values are reported in Liechtenstein, Switzerland, and Austria. Also located above the EU median are Germany, Slovenia, Italy, and France.

Trade Integration

Looking at the trade and investment relations between the countries of the macro-region, besides the strong role of multinational companies, traditional, neighbourhood and historical relations dominate the picture. Austria and Slovenia have the highest trade integration within the macro-region. About 45% of Austria's exports stay in the region. A medium degree of integration has been observed for Germany, France, Switzerland, and Italy. These countries have registered macro-regional export shares between 23% and 30%. However, compared to 2011 the share of exports within the macro-region diminished.

Capital Integration

The Alpine macro-region shows a high degree of capital integration. The macro-region scores on average almost as high as EU's most integrated Member State and significantly higher than the EU-median.

Energy Integration

On energy integration, Slovenia performs better than the EU-level top-performer, followed by Austria. The rest of the countries is either above, or just below the median, showing overall high levels of integration compared to the EU average.

Accessibility Potential

Accessibility Potential (i.e. the ease to get from one place to another place) also shows high values for the Alpine macro-region. Every country in the macro-region scores above the EU median. Best ranked is Zürich (Switzerland) followed by Vienna (Austria). Although every country performs well compared to the other regions in the EU, there are relatively wide disparities within the countries.

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[95] Hanson, G. H., R. Mataloni Jr. M. J. Slaughter (2003). Vertical production networks in multinational firms. NBER Working Paper Series. Working Paper 9723 http://www.nber.org/papers/w9723

This is due to the mountainous topography of the Alpine macro-region. Data on territorial cooperation show that organisations in the countries of the macro-region were strongly involved in the regional cooperation programmes. The Alpine macro-region comprises Zahodna Slovenija (Slovenia) which is the EU top performer in this category. There are 118 organisations participating in Territorial Cooperation. On the other hand, the Alpine macro-region also includes EU's bottom performer, Oberpfalz in Germany. On a country level, Italy hosts most organisations followed by Austria, and Slovenia.

2.8.3 Competitiveness

In recent years, efforts at regional level have been intensified to improve location-specific conditions for production and services and/or the performance of headquarters functions, which at the same time intersected with a more focused approach to attract potential investors. Regions do no longer delegate the acquisition of foreign direct investment to the national level but get themselves engaged such activities with region-specific institutions and instruments (for example in the form of an autonomous regional brand management).[96] As a result, the markets are shaped more according to regional instead of national boundaries. This implies a second level of interregional competition.

Economic Competitiveness

In 2016, the seven best performing regions on EU Regional Competitiveness Index were all located in Germany. Austria's regions Niederösterreich und Vienna were rated eight. The best performing French region was Rhône-Alpes ranked thirteen. Slovenia (Zahodna Slovenija) and Italy (Lombardia) follow on with positions as number 20 25 respectively. Italy's Valle d'Aosta/Vallée d'Aoste was found to be the poorest performing region. Unfortunately, no data were available for Switzerland and Liechtenstein.

Innovation and Digitalisation

Key factors for competitiveness are innovation and digitalisation. Among eleven NUTS-2 regions in Germany, ten are ranked as "Leader" by the Regional Innovation Scoreboard. The eleventh region, Oberpfalz, was ranked as a "Strong" innovator. All six regions in Austria and France were ranked as "Strong" innovators. Italy shows a diverse picture. Just two regions out of eight were ranked as "Strong" innovators. While remaining regions were categorised as "Moderate" innovators, no region in the Alpine macro-region was ranked as a "Modest" innovator. In terms of digitalisation, the macro-region performs averagely. Austria and Germany are the only countries that score above the EU median. Slovenia and especially Italy lag far behind. However, nearly all countries showed significant progress compared to 2014.

Education

A well-educated labour force represents a critical input to the economic performance of a region. The highest values on the composite indicator Education in 2015 are found in Switzerland, Germany, and Slovenia. The best

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[96] Grozea-Helmenstein D., C. Helmenstein, T. Slavova (2009). *Who is the best? Insights from the benchmarking of border regions.* Trames. Journal of the Humanities and Social Sciences, 13(63/58), (3). pp. 285-302.

benchmark values regarding the rate of Young people neither in employment nor in education and training (NEET) are found in Germany and Austria. The German region Oberbayern outperforms even the top benchmark country. The low NEET rates in Germany and Austria can be attributed to a well-established vocational education and training system. The lowest performing NUTS-2 regions were located in Italy. Even the best performing region in Italy is below the EU median.

| Transport | Turning to performance on transport, the countries in the Alpine macro-region can be divided into two groups: Austria, Germany, and France with very good performance rates, and Italy and Slovenia that lag behind the first group, albeit above the EU median. The Logistics Performance Index shows a similar picture. Germany tops the ranking, followed by Austria, Switzerland, and France. While Italy managed to stay slightly above the EU median, Slovenia lies far below it. |

Tourism — Italy and France top the ranking in the macro-region in terms of total arrivals at tourist accommodation establishments. Considering the number of inhabitants, Austria has the highest intensity in the tourism sector with about 4 arrivals/inhabitant, followed by France (2.8 arrivals/inhabitant).

Energy — Compared to the other macro-regions, the Alpine macro-region is quite homogenous when it comes to energy intensity. Italy, Austria, Germany, and France require between 100 and 120 tonnes of oil equivalent (toe) worth of energy to produce a million worth of GDP. Only Slovenia is standing apart with its 177 toe/million euros GDP. However, Slovenia managed to improve its energy intensity substantially compared to year 2000. The picture is more diverse in terms of usage of renewable energy in the macro-region. While Austria scores highest followed by Slovenia and Italy, Germany and France lag behind scoring below the EU median.

Environment — On the Eco-Innovation Scoreboard, the Alpine macro-region performs quite well. All the countries perform above the EU median. Except for Slovenia, the results on resource efficiency are even better. France, Germany, and Austria show quite similar values, while Italy managed to be the European top performer. However, there is still room for improvement in air quality and air pollution. Only Switzerland, Germany, and Italy were able to score above the EU median in terms of air pollution. Turning to air quality, only two countries managed to score above the EU median (Slovenia and Austria).

The extent of soil erosion in the countries in the Alpine macro-region varies greatly within the macro-region. The least affected region of all NUTS-2 regions within the Alpine macro-region is Vienna. On the other hand, Tirol is at the extreme end of the spectrum. Areas such as Tirol are distinguished by their mountainous topography and therefore more prone to erosion due to human and weather impacts.

In the Alpine macro-region, the average share of afforested areas is 41%. The highest share is found in the Italian NUTS-2 region Liguria (more than 70%), followed by Provincia Autonoma di Trento (68.8%) and the Austrian NUTS-2 regions. The lowest share is found in the Austrian capital city, Vienna.

In summary, the Alpine macro-region has above-average competitiveness. The most competitive countries in the region are Germany and Austria (and Switzerland and Liechtenstein – where data are available), followed by France. The lowest performing regions are located in Italy and Slovenia. However, the average and low performers managed to improve their scores over time.

Among the key competitiveness factors of the macro-region are the leadership role in innovation, a strong position on digitalization, good transport infrastructure, especially in air and multimodal transport modes. The macro-region shows a strong performance in education, sustainable energy use, and tourism. Performance on the completion of road transport infrastructure is mixed, while the completion of rail and water infrastructure is at a quite advanced level. Performance on eco-innovation and resource efficiency is above the EU average for most of the countries and regions.

2.8.4   Institutions, Governance, Political

Governance and Public Institutions

Overall, the macro-region can be considered effective in terms of policy implementation. The divide inside the region between Switzerland, Lichtenstein, Germany and Austria and Italy and Slovenia can be observed when looking at governance performance (government effectiveness and regulatory framework), quality of public institutions and voice and accountability, showing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and free media.

More specifically, the highest scores on the indicators 'Governance and Public Institutions' were observed in Switzerland, Germany, and Austria. Despite almost every country (except for Austria) had been able to improve its governance performance since 2008, (except for Switzerland) the quality of public institutions deteriorated in the period.

Voice and Accountability

Switzerland tops the ranking on Voice and Accountability in the Alpine macro-region. Scores for Germany, Austria, and Liechtenstein are quite similar. France also performs above the EU median. Italy and Slovenia are below the EU median.

Crime

France, Germany, and Italy are reported as destination countries for human trafficking from countries such as Romania, Bulgaria, and Hungary. Switzerland reported significantly lower numbers, but the victims registered also originated from Romania, Bulgaria, and Hungary.
When it comes to drug seizures, there are no data available for France, Switzerland, and Liechtenstein. The other countries for which data are available, show a medium performance. In 2014, Austria recorded the highest number of drug seizures in the macro-region (311 seizures per million inhabitants). Germany and Slovenia were also able to perform slightly above the EU median.

The Alpine macro-region consists of some of Europe's strongest performing countries on governance, public institutions and voice and accountability, being

most commonly Austria, Germany, Liechtenstein, and Switzerland. Italy and Slovenia are on the other hand countries that perform on these indicators below the EU-median. France exhibits a median score on all of these indicators.

REVIEW OF THE MACRO-REGIONAL STRATEGIES

EUSALP (TASK 2)

3 Review of the Macro-regional Strategies (Task 2)

3.1 Introduction to Task 2

The below sets out the key research questions that have framed the conduct of the analyses presented in this report on Task 2 for the EUSALP, as well as the sources of information that have been consulted to answer these research questions.

Each macro-regional strategy contains a range of context specific elements. Terminologies are not always the same, but in essence all strategies define their objectives, their priorities, their focus areas and provides related indicators for monitoring. In terms of governance each strategy has its own multi-layered structure which ensures transparent and consistent decision making and the ability to implement: across regions/countries and sectors, and within regions/countries. Bearing this in mind, and given that the information to inform the answering of the below research questions must to a large extent be based on primary data collection, the summaries are based on a targeted collection of data.

Approach

The approach to the analysis of the macro-regional strategies has been to select a number of policy/priority/pillars (hereafter called PAs) in each strategy as case studies. Interviews have been made around the cases PA. For the EUSALP, Action 6, Natural/cultural resources, was selected as the case study.

Outline of this report

This report is structured in four sections – one per sub-task, corresponding to the research questions as listed in Table 3-1.

Table 3-1   Overview of Task 2 research themes

		Research themes	Source of information
a		Description of objectives via relevant indicators, examination of the strategic relevance of the macro-regional level for the priorities selected	Desk review and expert interviews
b		Description of the main achievements of the strategies – content-wise and process-wise – whether it is new actions and new projects or adjustments or new developments of the policies concerned	Desk review, interviews, focus groups, case studies
c		Compare the objectives with the achievements, assess the quality of the objectives setting and the extent to which they have been achieved as well as the added value provided by the macro-regional approach for tackling the shared issues identified. Analyse in particular for which priorities the macro-regional approach proved especially relevant and providing the participating countries and regions with more effective results than would have been the case had these priorities been pursued in a different geographical scope – more limited or larger	Data gathering and analytical results from 2a and 2b, Contribution analysis, interviews, case studies, desk research, surveys
d		Description and assessment of a) whether the macro-regional strategies (MRS) have influenced the implementation of European Structural and Investment Funds (ESIF) programmes, b) Whether and how programmes are contributing the implementation of MRS – and the strengths and weaknesses of current approach and c) whether and how a macro-regional approach contributes to strengthening the territorial cohesion objectives of EU	Interviews, surveys, EU spending programmes

3.2   Methodology for Task 2

Research theme a

Task 2a reviews the objectives of each Strategy. This is done by examining the strategical relevance of each objective in the macro-regional context. In other words, this task scrutinises whether a given objective (1) corresponds to an identified need or opportunity for intervention, and (2) whether the macro-regional approach provides a concrete benefit.

The need for intervention

The need for intervention is primarily identified through a pre-defined set of indicators that have been developed and are reported on in section 2 of this report. Where needed, additional indicators or external literature supplement the judgement. The need for intervention is considered at three geographical levels: i) the macro-region as a whole, ii) the macro-region's individual countries, and iii) internal levels (e.g. urban vs rural).

The macro-regional relevance

The macro-regional relevance is established through expert knowledge and external literature. The results of the review were tested and discussed with independent regional experts on each of the four macro-regions.
The review applies a traffic light methodology to categorise each objective in terms of need and macro-regional relevance. Further details about the methodology as well as the detailed results of this task can be found in Appendix A.

Research theme b

The focus of Subtask 2b is to describe the implementation of concrete activities linked to the policy fields covered by the strategies. This provides an understanding of the progress towards achieving the specific objectives set out in the formative strategic documents.

We illustrate the actual performance of each strategy at the PA level through a set of case studies. These case studies investigate the ways that the MRS structure facilitates, and otherwise affects, the cooperation between stakeholders towards achieving progress in the PAs at an 'operational level'. From these, we can then develop concrete examples of the various factors that contribute to the achievements. A particular focus will be on the way that contents and processes of the strategies helped stakeholders to drive progress. The application of case studies brings about additional advantages, which mostly evolve from generating an insight into specific contextual mechanisms and the ways in which the frameworks provided by the MRSs support progress in the PAs, especially concerning cooperation.

The core research team will prepare the frameworks for processing the data we obtained in the interviews. The responses will be integrated to facilitate the sorting of qualitative responses across different countries and stakeholder types.

Organising and documenting the findings

Information from the cases, interviews, and desk research is synthesised into evidence matrices, which each provide overviews of the results and impacts for each MRS. The developed intervention logic provides the typology of categories for the types of results and impacts observed. Information from the cases will be extracted to demonstrate the areas in which stakeholders created new actions, projects, adjustments, or policies. All examples of results and impacts will be summarised in the evidence matrix, and the source of evidence will be identified.

Research theme c

This section includes an analysis of the objectives (from the Action Plan), targets (from road maps or workplans)[97], achievements (progress reports), and indicators (where available) of the PAs analysed for the four macro-regional strategies. These are illustrated in a logframe for each PA. For each PA, the progress towards targets and objectives is tracked through examples of achievements and progress registered in the progress report. The achievements are discussed drawing on the analysis of the achievements in Section 3.1.

Verifiable indicators

Where possible, the progress towards achieving the objective has been illustrated via one or more objectively verifiable indicators (OVI). The indicators used are either those included in the target by the PAs (where available), or examples of those that were identified/analysed in in Task 1 and Task 2a. To the

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[97] List of European Union Strategy for the Danube Region (EUSDR) Targets. Validated in the meeting of national Coordinators and Priority Area Coordinators held in Bratislava on 23 May 2016.

extent possible, data for two periods is included for the indicators in order to describe the progress. These periods are however not identical for all indicators but span the period 2010-2017.

Research theme d

Subtask 2d Impact of MRSs on ESIF and vice-versa

This subtask focusses on analysing the linkages between the MRSs and the ESIF programmes that support territorial cohesion.

The coordination between the structures of the MRSs and the relevant Operational Programmes in the Member States and ETC programmes is examined to determine the influence of the MRSs on the formation of the OP and the impact they have had on complementary spending programmes.

Activity 2.12 Linkages between MRSs and EU spending programmes

The first part of this analysis will look at the extent to which the MRSs are used to influence the design of ESIF programmes in the macro-regions. Influence shall be defined as the (used) possibility of the MRSs to steer/guide the activities funded under the ESIF programmes. This would be done either through incorporating the priorities of the MRSs or securing that the actions/activities of the spending programmes support the objectives and PAs of the MRSs. The analysis will concentrate on a desk review of programme documents and programme portfolios.

Data collection methods

This analysis report is based on an integrated data collection framework, driven by the approaches used to address the analytical tasks and intended to provide a picture as comprehensive as possible. This task draws on evidence through three major stages of data collection: desk research, an interview programme with 82 stakeholders, and a survey of approximately 6000 actors. The interview programme and survey have be used to gather qualitative data to answer questions related to each research theme and sub-themes, i.e. the research themes analysed in this report, as well as research themes relating to Task 3 and Task 4.

Desk research

As a first step, a desk research of the strategies has been conducted, relying on existing data. This has been accomplished by studying, in particular:

> the strategy's Action Plans (and other strategic documents),

> the work plans of the individual PAs, and

> the progress or implementation reports of the PAs

> supplemented with other data, e.g. from the strategy's or individual area's websites and publications.

Most of the reviewed data is published and thus readily available, but particularly with respect to the progress and implementation reports, much of the information material we have relied on concerns draft versions requested from the individual area's coordinators.

Appendix A presents a list of sources consulted. It includes for example several documents produced as part of various evaluation initiatives for cohesion policy programmes, as well as academic and analytical publications on the MRSs. Further, also documents have been analysed that outline the European policy framework related to cohesion policy, such as Communications, regulations, and evaluations linked to specific regional programmes. These documents support the analysis of the context in which the strategies have been developed as well as the rationale for the development of MRSs in addition to or instead of initiatives taken at the local, national, or European level.

Identification of case studies	Twelve case studies have been conducted in order to investigate the ways that the MRS structure facilitates, and otherwise affects, the cooperation between stakeholders towards achieving progress in the PAs at an 'operational level'.
	Initially, a pre-selection of the case studies was made based on preliminary desk research (as presented in the inception report), which subsequently was elaborated based on explorative interviews with key stakeholders and representative at EU level. Accordingly, the final and current selection of cases was made informed by inputs from key stakeholders and the Commission. The case are presented in fact-sheet and used in the analysis across case studies.
Interviews	The interviews have been carried out in a structured format. They cover the core analytical themes and issues identified in through the desk research and through explorative interviews. Standard interview guides have supported us in addressing the identified analytical dimensions. In addition, the guides have assured conformity of the interviews with the objectives of assigning attribution, evaluating progress and outlining the value-added of each strategy.
	The interviews with relevant stakeholders were conducted in the 12 selected policy/priority/thematic/action areas (case studies). Interviewees were identified and selected in cooperation with the relevant Directorates-General (DGs) as well as the PAs' coordinators. The interview period runs over a span of five months, namely from April 15th to September 15th. For each area, an average of 6-7 interviews have been conducted.
Validity and bias of interview finding	The interview findings are used in the analysis as a key source. All interviews are recorded by the study team in reports. Throughout the analysis, selected interview findings are present in tables and text (shortened and adapted by the team in order not to reveal the identity of the interviewee). The study team has identified relevant interview statements (answers to the question, which reflect the content of the question). To the extent possible, the selected statements reflect a condensation of both positive and negative assessments and opinions of the interviewed stakeholders (where available). A certain bias may be inherent in the statements as those stakeholder, who agree to partake in an interview, are often more involved and active stakeholders and thus generally more positive (biased).
	In the table below, an overview of the case studies and the respective interviews conducted is presented.

Table 3-2   Overview of case study interviews conducted

Strategy	Policy Area / Priority Area / Pillar / Action	No. of interviews conducted
EUSBSR	PA Education	8
	PA Innovation	7
	PA Nutri	6
	PA Safe	8
	PA Transport	10
EUSDR	PA 1A Waterways mobility	5
	PA 4 Water quality	6
	PA 7 Knowledge Society	5
	PA 9 People and skills	11
	PA 11 Security	4
EUSAIR	Thematic Steering Group (TSG) 4 Sustainable tourism	5
EUSALP	(AG) 6 Natural / cultural resources	5
Explorative Interviews		9
Total		**88**

Survey

The third part of the data collection framework consists of conducting a survey of approximately 6000 stakeholders – comprising key actors such as the PAs' coordinators and steering group members, as well as other stakeholders. Lists[98] of stakeholders were provided by each strategy (PA coordinators or communication officers) or the EU Commission.

The questionnaire used for the survey was initially drafted based on the findings of the desk research. Subsequently, it was further elaborated based on the explorative interviews/case study interviews and the first analysis, and was finalised in accordance with comments from DG REGIO.

The survey has been designed with the objective to test the insights already gained through desk research, case studies and interviews with regard to the intervention logic of the macro-regional strategies and the PAs. Therefore, the survey serves to verify and confirm findings and thus validate the evidence upon which the analysis of Task 3 and Task 4 is based. Moreover, the survey has provided the opportunity for stakeholders to contribute with additional insights through open answers and commenting opportunities, which numerous respondents have taken advantage of.

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[98] Based on conference participation, newsletter subscription lists, among others.

The survey respondents consist of different types of stakeholders in the four strategies, and have been sent an electronic invitation to participate in the online-survey based on their association with a (or several) strategies. The table below presents an overview of how many stakeholders the invitation was sent to as well as the number of respondents. This report is based on the final survey data extracted on 14.09.2017.

On the survey closing date, 14 September 2017, 999 respondents (Table 3-3) had answered the survey (around 16%). The names and contact data of the 6000 respondents invited to answer the electronic survey were provided by the four macro-regional strategies. It is assumed that these lists cover a representative selection of actors in the four macro regions. Data is drawn at strategy level, as the numbers per policy/priority/thematic/pillar vary considerably. An uneven level of responses may bias the results. Across the four strategies more respondents at policy level than project level have answered. Since the questions for policy and project area are separated, this should not result in a bias.

Table 3-3   Overview of survey recipients and respondents

Strategy	No. of recipients to whom the survey was sent	No. of answers received[99]
European Union Strategy for the Baltic Sea Region (EUSBSR)	3891	429
European Union Strategy for the Danube Region (EUSDR)	927	233
European Union Strategy for the Adriatic-Ionian Region (EUSAIR)	1003	258
European Union Strategy for the Alpine Region (EUSALP)	264	79
Total	**6085**	**999**

Finally, Table 3-4 below provides a brief overview of the timeline of the survey.

[99] On survey closing date, 14.09.2017

Table 3-4   Timeline of survey

Event	Date (2017)
Survey open & invitations sent	7 July
1st reminder sent	21 July
2nd reminder sent	4 August
3rd reminder sent	21 August
4th reminder sent	6 September
Survey closing date	14 September

3.3   Review of the EUSALP (Task 2a) – Summary

Contents of section

This section contains a summary of Task 2a, the review of the EUSALP. The main report, as well as the methodological framework applied, can be viewed in Appendix A below.

Review of EUSALP (summary)

The table below shows the summarised results of the review of the EUSALP's actions through relevant indicators. The review concludes that, in about half of the cases, the actions do not correspond to an identified need, but in all cases they demonstrate clear macro-regional relevance.

The macro-region's composition of many of Europe's most developed regions (Austria, Southern Germany, Switzerland, Liechtenstein, and Northern Italy) leads in numerous cases to strong performances on the applied indicators. This leads in five out of nine cases to the conclusion that actions do not correspond to an identified need according to the assessment criteria. This does, however, not question the legitimacy of these actions, as they are merely not relevant under the overall objective of Cohesion Policy. Action on these themes can therefore still be relevant.

All actions of this Strategy are macro-regionally relevant in various forms. Examples are:

> Responding to the opportunities and challenges that arise from the EU Single Market (esp. Actions 1, 2, 3);
> Enforcing territorial cohesion (esp. Actions 4, 5);
> Addressing issues that are not affected by national boundaries (esp. Actions 7, 8); or
> Building on the advantages of a wider geography or existing common features (esp. Actions 1, 3, 6). [100]

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[100] 1.1 Effective Research and Innovation Ecosystem, 1.2 Increase of the economic potential of strategic sectors, 1.3 Improvement of the adequacy of labour market, education and training in strategic sectors; 2.4 Promotion of inter-modality and interoperability in passenger and freight transport, 2.5 Connecting people electronically

The following paragraphs elaborate on the justifications for those actions that have been assessed not to correspond to a need.

Action 1 (Effective Research and Innovation Ecosystem) does not correspond to a need, according to the indicators, as the Regional Innovation Scoreboard rates DE, FR, AT and a part of SI as strong to leading innovators. Moreover, CH has been rated the most innovative country in the world for several years in a row. Only IT and a part of SI fall in the category 'moderate'. Accordingly, the Region as a whole as well as the majority of its parts do not exhibit a need for increased research and innovation. The development of an effective research and innovation ecosystem is, however, relevant on the macro-regional level, since it is likely to better connect the different parts of the Alpine Region and yield synergies. The latter applies in particular to research addressing the regional challenges of the Alpine Region, e.g. concerning climate change.

The data on action 2 (Economic Potential of Strategic Sectors) illustrates certain variations between the individual countries of the Alpine Region. The level of competitiveness index of the macro-region as well as the majority of the individual countries designates the Alpine macro-region as a top performer. However, the sectors pointed out by the Action Plan as eligible for particular attention (agriculture and sustainable-forestry sector-based products and services, tourism, energy, health, and high-tech) are indeed sectors with strategic relevance for the Alpine macro-region in general and would thus benefit from cooperation and coordination across the macro-region.

The indicators on action 4 (Promotion of inter-modality and interoperability in passenger and freight transport) show that the Alpine Region seems to have successfully addressed its challenges related to its mountainous and hard-to-reach parts, as neither an aggregate nor an individual need for intervention is indicated by the benchmark scores on 'Accessibility Potential' for multimodal, rail and road transport. Nevertheless, as the different parts of the Alpine Region all face the same or very similar challenges with respect to ensuring efficient and affordable inter-modal and important cross-border transport solutions, a high level of cooperation within the Region is required and macro-regional cooperation thus highly relevant.

The assessment criteria for action 7 to improve 'ecological connectivity' are not fulfilled, flagging no need for intervention. The landscapes in the Alps are in the EU-wide comparison less fragmented. The fact that no need has been identified does, however, not imply that this Action is irrelevant. As natural habitats are

and promoting accessibility to public services; 3.6 Preservation and valorisation of natural resources, including water and cultural resources, 3.7 Development of ecological connectivity in the whole EUSALP territory, 3.8 Risk management and better management of climate change, including major natural risks prevention, 3.9 Making the territory a model region for energy efficiency and renewable energy

not influenced by national, but geographic borders, action to reduce fragmentation through, for example, green infrastructures is macro-regionally relevant. The reason being that it offers species a higher diversity of geographical migration options than separate, nationally focussed approaches.

Table 3-5: Summarised review of the EUSALP's Actions

Actions	Theme of intervention	SWOT	Traffic Light
1.1 Effective Research and Innovation Ecosystem	Research & Innovation	Strength	Macro-regionally relevant
1.2 Increase of the economic potential of strategic sectors	Sectoral + SME Performance	Strength	Macro-regionally relevant
1.3 Improvement of the adequacy of labour market, education and training in strategic sectors	Labour Market	Threat	Corresponds to need + Macro-regionally relevant
2.4 Promotion of inter-modality and interoperability in passenger and freight transport	Transport	Weakness	Macro-regionally relevant
2.5 Connecting people electronically and promoting accessibility to public services	E-connectivity & e-services	Weakness	Corresponds to need + Macro-regionally relevant
3.6 Preservation and valorisation of natural resources, including water and cultural resources	Natural & Cultural Resources	Strength	Corresponds to need + Macro-regionally relevant
3.7 Development of ecological connectivity in the whole EUSALP territory	Ecosystem Connectivity	Weakness	Macro-regionally relevant
3.8 Risk management and better management of climate change, including major natural risks prevention	Climate Change Adaptation & Environmental Risks	Threat	Corresponds to need + Macro-regionally relevant
3.9 Making the territory a model region for energy efficiency and renewable energy	Sustainable Energy	Weakness	Corresponds to need + Macro-regionally relevant

The result of the survey shows that a high share of the respondents agrees that the Strategy's Action Plan reflects the macro-region's major challenges: Only 11% disagree. The standard deviation, which is clearly below 1, reinforces that the opinion is broadly uniform. Furthermore, the Action Plan addresses the future global challenges for the macro-region: 43% strongly agree and 43% somewhat agree. The agreement that the Action Plan is regularly adapted to changing needs is, compared to the other questions, low. The share of respondents indicating 'do not know' is also high, and can be partly explained by the young age of the action plan.

The views on whether the action plan addresses themes suitable for regional cooperation are fairly uniform, as the small standard deviation (of 0.63) suggests, and to the greatest part (60%) agree to a somewhat extent. The identified needs are in the views of most respondents somewhat coherent (63%) with the national/regional priorities. One fifth of the respondents disagree, however, most of which to a somewhat extent.

The survey does in conclusion support the above assessment that all Actions are macro-regionally relevant. The finding that four out of nine Actions do not correspond to a need contradicts, however, the survey's result that a strong majority thinks that the Action Plan covers the major challenges.

Table 3-6   *Survey: Does the action plan for the policy/priority/pillar/thematic area include needs relevant for the macro-region?*[101]

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Do not know	Respondents	Standard deviation
The major challenges for the macro-region are reflected in the action plan	31%	57%	11%	0%	0%	35	0,62
There is a regular revision/update of the action plan to adapt to changing needs	9%	57%	20%	0%	14%	35	1,13
Needs identified in the action plan are well-suited for regional cooperation	17%	60%	23%	0%	0%	35	0,63
The needs identified for the macro-region reflect future global challenges affecting the area	43%	43%	14%	0%	0%	35	0,7
The needs identified are coherent with national/local priorities	14%	63%	17%	3%	3%	35	0,81
					Total	35	0,87

3.4   Achievements of the EUSALP (Task 2b)

For the analysis of the EUSALP, one Action area was selected for a case study: AG 6 natural resources. An analysis of the achievements of these thematic areas is presented in the sections below. The section is divided into two subsections: 1) achievements content-wise (subsection 3.4.1) and 2) process-wise (subsection 3.4.2). The tables included in the following subsections show the key findings from the interviews, the survey and the desk study. The AG 6 is described in a factsheet at the end of the chapter (section 3.7).

3.4.1   Achievements – content-wise

Content achievements of the EUSALP (2b)

The achievements of the EUSALP as such are so far limited due to the strategy's short life so far. The achievements of the analysed action area are summarised via the survey results presented in Table 3-7 and the key recent examples presented in Table 3-8. A more detailed discussion on the aspect of achievements (content-wise) follows below.

Progress in the initial years

On the question of progress in the AG during the first 1-2 years (Table 3-7), the survey results clearly indicate improvements on all issues, although only to a certain extent. All of the respondents were able to answer these questions investigating the initial achievements of the AG, i.e. none of the respondents stated 'do not know' for any of the questions.

A clear majority of the respondents –70% or more – answered that they agree (strongly or somewhat) with four of the five statements included in the questions. The results indicate a positive development in capacity and tools for

[101] Results per 14.08.17

cooperation, bringing together stakeholders, and, most significantly, advancements with respect to developing common strategies, work plans or road maps. The only area lacking somewhat behind concerns the development and implementation of rules, procedures, and processes for cooperation. It is the question on which the most respondents disagree – albeit only relative to the other questions on initial progress, as the majority of respondents (59%) still agrees that some progress has occurred here.

A more detailed analysis of each of these aspects will complement this assessment through the case studies in the section below Table 3-7.

Table 3-7   Survey results (EUSALP): What is/was the progress in the initial years (the first 1-2 years) in your policy/priority/pillar/thematic area?[102]

Percentage distribution of answers/ Sub-question	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Do not know	Respondents	Standard deviation
Increase in capacity for cooperation	17%	54%	22%	7%	0%	46	0,79
Developed common strategy/work plan/road map with common sub-objectives	33%	52%	9%	7%	0%	46	0,81
Developed tools for cooperation (websites, platforms, labels)	20%	50%	24%	7%	0%	46	0,82
Bringing stakeholder of the macro-region together through activities	35%	43%	15%	7%	0%	46	0,87
Rules, procedures, and processes for the cooperation are developed and functioning	24%	35%	33%	9%	0%	46	0,92
Total						46	0,84

The following table (Table 3-8) presents an overview of key recent examples of content-wise achievements of Action Group 6, natural/cultural resources, of the EUSALP.

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[102] Survey results per 14.09.17 (policy level)

Table 3-8   EUSALP summary table: Findings from interviews, survey and desk research – examples of achievements content-wise

(Types of) achievements content-wise	Results – examples from progress report[103]	Interviews – selected findings[104]	Survey – results[105]
Policy dialogue	First draft of Alpine wide political declaration on how to intelligently reduce land use and on soil protection	Thinks the dialogue already existed. This helped that so quickly, the work programme of AGs have been created, programmes have been started Policy tries to concentrate on certain fields of action, so it's always more or less a political decision where the concentration of activities takes place	35% and 50% of the respondents at policy level strongly or somewhat agree that the MRS process facilitates synergies between policies; helps better understand the big picture at the policy level
Mobilisation of finance	Exploration financing mechanisms for AG6 sub-topics Dialogue for alignment of funding programmes	Too early to say – labelling has been discussed We have no finance for the projects, so we can only bring project ideas to a real project, knowing who will use it	17% and 43% of respondents at policy level strongly or somewhat agree that the MRS process facilitates access to funding (the cooperation leads to an increase in funding)
Joint development of projects and generation of project ideas	Section on AG 6 on EUSALP knowledge platform Selection criteria for endorsement by EUSALP AG 6 SG2 of projects etc.	We have a Work Programme/plan in the AG, which is adopted, with several project ideas. Plan is not public yet, as more proper definitions are needed first Our ideas and activities are based on AG work programme, which was developed in the beginning	17% and 54% of respondents strongly or somewhat agreed to that there is an increase in capacity for cooperation
Cooperation on major issues in the macro-region	Thematic sub-groups established (SG1: Spatial development + soil conservation, SG2: future oriented farming + forestry and integrated, SG3: sustainable water management)	Cooperation – leads to increase on major issues Included in the joint work programme – (it is adopted)	33% and 57% of respondents strongly agree or somewhat agree that the major challenges for the macro-region are reflected in the action plan
Implementation of (regional/EU) polices in the macro-region	Implementation of strategic concept ("green infrastructure") (planned)	Too early to say	The survey showed that 37% of the respondents (9% and 28% strongly or somewhat agreed) thought that an increase in implementation of EU policies in the macro-region would be the outcome in the medium term (3-5 years)

Policy dialogue

The first achievement in terms of policy dialogue or common policy has already been developed. A first draft of an Alpine-wide political declaration on how to intelligently reduce land use and on soil protection has been drafted, according to the progress report. This was possible as the dialogue already existed, according to one interviewed stakeholder. The existing policy dialogue also helped to quickly create the work programme of AGs. Other interviewed stakeholders find that the focus on certain fields of action is already an expression of the political dialogue, as is the focus on cooperation between the inner part of Alps and the outer big cities of the Alps. At any rate, 35% and 50% of the respondents at policy level strongly or somewhat agree that the MRS

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[103] First Report on the implementation of the EU-Strategy for the Alpine Region, April 2017; and European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June 2016 – June 2019 [Work Plan] – incl. Appendix 2

[104] Interviews with policy areas stakeholders May-September 2017

[105] Survey results per 14.09.17 (policy level)

process facilitates synergies between policies and helps better understand the big picture at the policy level (Table 3-8). However, some of the stakeholders found that it was too early to assess whether policy dialogue and improved or common policy had been developed.

Mobilisation of finance

Also regarding the question of funding, some of the interviewed stakeholders found that it was too early to assess whether the mobilisation of finance had improved. The labelling of projects has been discussed in the action group. Interviewed stakeholders also found that financing for projects was an issue (i.e. it was difficult) and that the expectation that the strategy would (automatically) attract or bring financing had not been met.

According to the survey, however, more than half of the respondents at the policy level (17% and 43% strongly or somewhat) agree that the MRS process facilitates access to funding (the cooperation leads to an increase in funding). Furthermore, the progress report mentions ongoing work concerning exploring financing mechanisms for AG6 sub-topics as well as dialogue for alignment of funding programmes (Table 3-8).

Joint development of projects and generation of project ideas

Several stakeholders point to the adopted Work Programme/Plan's several project ideas. The focus topic for AG 6 is: "Next Generation", addressing the needs and ideas of the young generation for a good future of Alpine farming. For this topic, a project has been developed, according to the one stakeholder (Table 3-13). Furthermore, the selection criteria for endorsement of projects by EUSALP AG 6 SG2[106] have been developed. One stakeholder found that it was too early to answer, as they had only had a few meetings in the AG. Yet, the survey results indicate a rising tendency for collaborative activities, since 17% and 54% of the respondents at the policy level strongly or somewhat agreed that there is an increase in the capacity for cooperation (Table 3-8).

Increased cooperation on major issues in the macro-region

Thematic sub-groups have been established on key spatial development, soil conservation, future-oriented farming, and stakeholders see this as an indicator that the programme will address major issues. Also, the survey confirmed this: 33% and 57% strongly and somewhat agreed that major challenges for the macro-region are reflected in the action plan (Table 3-9Table 3-8).

[106] First Report on the implementation of the EU-Strategy for the Alpine Region, April 2017; and European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June 2016 – June 2019 [Work Plan] – incl. Appendix 2

Table 3-9   Survey results (EUSALP): Does the action plan for the policy/priority/pillar/thematic area include needs relevant for the macro-region?[107]

Percentage distribution of answers/ Sub-question	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Do not know	Respondents	Standard deviation
The major challenges for the macro-region are reflected in the action plan	33%	57%	10%	0%	0%	49	0,61
There is a regular revision/update of the action plan to adapt to changing needs	12%	53%	18%	6%	10%	49	1,11
Needs identified in the action plan are well-suited for regional cooperation	18%	59%	18%	4%	0%	49	0,72
The needs identified for the macro-region reflect future global challenges affecting the area	37%	47%	16%	0%	0%	49	0,7
The needs identified are coherent with national/local priorities	20%	57%	16%	4%	2%	49	0,84
Total						49	0,8

Increase in implementation of (regional/EU) polices in the macro-region

There are no findings in relation to the issue of implementation of regional/EU policy – this is too early to discuss, according to one interviewed stakeholder. Clearly, the work of the action group is in its initial stages and the actors are developing the first cooperation projects, which may lead to an increase in the implementation of EU Policy at a later point. Indeed, the survey showed that in the EUSALP, 37% of the respondents (9% and 28% strongly or somewhat agreed) thought that an increase in implementation of EU policies in the macro-region would be the outcome in the medium term (3-5 years) (Table 3-8).

3.4.2   Achievements – process-wise

Process achievements of the EUSALP

The achievements in Action Group (AG) 6 are illustrated in (Table 3-11) below. The AG, like the rest of the action groups under the EUSALP, has just started work in 2016, and the first year has focused on setting up the working structures and processes of the action group. One project has also already been developed under the areas of the AG 6.

The analysis finds process-wise achievements for AG6 in several areas. The survey shows that the value added of the EUSALP in particular lies in 'bringing together new actors across sectors' and 'bringing together new actors across countries'. These two sub-questions score very high with both 98% of respondents, who agree either strongly or somewhat (Table 3-10).

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[107] Survey results per 14.09.17 (policy level)

Table 3-10   *Survey results (EUSALP): What is the added value of cooperation under the macro-regional strategies (MRS) in the policy/priority/pillar/thematic area?* [108]

Percentage distribution of answers/ Sub-question	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Do not know	Respondents	Standard deviation
The MRS process brings together (new) actors across sectors (cross-sectoral cooperation)	52%	46%	0%	2%	0%	46	0,62
The MRS process brings together actors across countries	63%	35%	2%	0%	0%	46	0,53
The MRS process brings together actors across levels (national/regional) and type (public/private)	41%	41%	17%	0%	0%	46	0,73
The MRS process facilitates access to funding (the cooperation leads to an increase in funding)	17%	43%	20%	9%	11%	46	1,19
The cooperation brings legitimacy to the work and increases recognition of issues/needs/challenges	17%	59%	13%	4%	7%	46	1
The MRS process facilitates/deepens cooperation with third countries	33%	37%	20%	4%	7%	46	1,12
The MRS process facilitates synergies between policies; helps better understand the big picture at the policy level	35%	50%	11%	2%	2%	46	0,85
Total						46	0,86

The following table (Table 3-11) presents an overview of key recent examples of process-wise achievements of Action Group 6, natural/cultural resources, of the EUSALP.

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[108] Survey results per 14.09.17 (policy level)

Table 3-11   EUSALP summary table: Findings from interviews, survey and desk research – examples of achievements in EUSALP process-wise

(Types of) achievements content-wise	Results - example s from progress report[109]	Interviews – selected findings[110]	Survey – results[111]
Building on collaboration in topic/area which already existed in the region (before the strategy)	Knowledge creation / collection (good practices for e.g. 'green infrastructure')	Lot's already existed before, but now we are able to get partners on the outer rim to understand our specific problems The ALP region has had cooperation for very many years, so EUSALP continues already existing cooperation Cooperation did not really exist in the macro-region. Had some other partners, but only by chance, was not a structured process	40% and 49% of the respondents at policy level strongly or somewhat agree that they are continuing on from previous cooperation and building on existing transnational networks
The MRS–process brings together (new) actors across sectors and countries	AG6 Kick-Off Conference Thematic analysis and consultation documents (assessing priority topics)	Increase in cross – sectoral cooperation Working a lot on this cross-sectoral approach; it's the only way to actually create results at the regional/local level… thinks that this is increasing	52% and 46% of the respondents at policy level strongly or somewhat agree that the MRS process brings together (new) actors across sectors (cross-sectoral cooperation) 63% and 35% of the respondents at policy level strongly or somewhat agree that the MRS process brings together actors across countries
The MRS-process brings together actors across levels (national/regional) and type (public/private)	Improved horizontal + vertical dialogue (planned)	NGOs are allowed in the AG meetings, which is a change to before. This mix of participants is good So what now should happen, with this broader geographical borders, including also metropolitan areas -> want more people from these areas to cooperate (always a competition between core zone of the Alp – exploited but the MET area)	41% and 41% of the respondents strongly or somewhat agree that the MRS process brings together actors across levels (national/regional) and type (public/private)
Increase in cooperation with sector relevant EU Commission service	Dialogue for alignment of funding programmes	DG REGIO yes – DG ENV, DG MOVE, DGAGRI – little cooperation here DG REGIO colleagues are very much involved, different people attending workshops etc.	Not covered by survey
Cooperation with third-countries	Too early to be included in progress report	Cooperation with the non-EU members goes well – they participation in almost everything Monaco is a part of the AG, but not member of the MRS – does not know why French participation is lacking in all AGs, because of their political change during the last years. So this is a bit of a problem, because there lacks one part of the Alps in the discussion on the different topics In AG 6, e.g. not all regions and countries are represented. It really much depends on the personal way to deal with the topic. […] In ALP and all others, it really depends on the regions and how much they want to participate Yes, they are involved. Not so easy (obviously) for LI to participate, but CH quite involved. But no country outside the MRS	33% and 37% of the respondents strongly or somewhat agree that the MRS process facilitates/deepens cooperation with third countries

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[109] First Report on the implementation of the EU-Strategy for the Alpine Region, April 2017; and European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June

[110] Interviews with policy areas stakeholders May-September 2017

[111] Survey results per 14.09.17 (policy level)

Building on collaboration in topic/area which already existed in the region (before the strategy)	Cooperation in the Alpine region has existed for many years through the Alpine Convention. Interviewed stakeholders generally confirm this: The cooperation already existed before, but now we are able to get partners on the outer rim to understand our specific problems. One stakeholder also found that the EUSALP was a result of three different processes coming together. Regional actors, the Alpine Convention, and the Alpine Space Programme all had an interest in the development of a strategy. Another interviewed stakeholder said that the people are almost the same and have very long experience in the area, in the Alps. Interestingly, the interviewed stakeholders did not find that cooperation was very developed and did not find the process very structured prior to the development of the EUSALP and the cooperation of the Action Groups. Nevertheless, the survey results clearly emphasise that the EUSALP builds on collaboration in a topic/area, which already existed previously in the region – with 40% and 49% of the respondents at policy level strongly or somewhat agreeing (Table 3-11).
The MRS process brings together (new) actors across sectors and countries	According to the survey results, stakeholders clearly agree (98% of respondents agreeing strongly or somewhat on both sub-questions) that the EUSALP bring actors together across sectors, countries and levels. Building on the existing cooperation, also the interviewed stakeholders find that the cooperation in the framework of the EUSALP bring new people, new geography (Baden-Württemberg), new actors (NGOs) and links to other sectors (cross-sectoral cooperation), as well as new networks. The mixture of participants is good, and brings a new drive to the cooperation. Interviewed stakeholders find that cross-sectoral cooperation in particular has increased. One of them states that cross-sectoral cooperation in fact is the only way to create results at the regional/local level – bringing in new themes and topics in the MRS, which were not previously the subject of cooperation (Table 3-11). An increase in actors and more cross-sectoral cooperation calls for coordination and better cooperation from the participants, which can be provided by the EUSALP.
	On the project level, the involvement of new actors (across new geographies) is also indicated as important by the survey results, albeit not nearly as strongly as the survey results for the policy level. Asked about the added value of running a project within the macro-regional strategy, 38% and 31% of the respondents from the EUSALP strongly and somewhat agreed, respectively, that they were able to involve new partners and increase the geographical scope (Table 3-12).

Table 3-12   Survey results (EUSALP): What is the added value of running a project within the macro-regional strategy (MRS) in your area?[112]

Percentage distribution of answers/ Sub-question	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Do not know	Respondents	Standard deviation
We were able to involve new partners and increase the geographical scope (working within new thematic areas and/or geographical regions)	38%	31%	19%	0%	13%	16	1,29
We have been able to develop new concepts/ideas for tackling issues	31%	44%	19%	0%	6%	16	1,03
We have been able to attract new or additional funding	6%	38%	31%	6%	19%	16	1,2
We have developed new skills for cooperation on the issues in the area/topic	13%	56%	19%	6%	6%	16	0,99
We have been able to involve different levels of government/administration (multi-level governance)	13%	63%	19%	0%	6%	16	0,9
Total						16	1,08

The MRS process brings together actors across levels (national/regional) and type (public/private)

One of the key features of the cooperation within the EUSALP is, according to interviewed stakeholders, a broader geographical focus, which also includes the metropolitan areas. There is a need for cooperation between the inner part of the Alps and the outer big cities of the Alps. (There was always a competition between core zone of the Alps and the metropolitan area). It is important that the major cities are also part of the MRS, as these will gain a better understanding of regulations required in the MRS, said one interviewed stakeholder. MRS makes the cooperation less formal and thus easier. New networks and platforms are starting up to involve more stakeholders on different levels – central government, regional/local stakeholders and NGOs. Especially NGOs play a bigger role now as these also take part in steering groups.

The survey results show that 41% and 41% of the respondents already strongly or somewhat agree that the MRS process brings together actors across levels (national/regional) and type (public/private), while the progress report additionally stresses that work on improving the horizontal as well as the vertical dialogue is planned (Table 3-11).

Increase in cooperation with sector-relevant EU Commission service

The progress report of AG 6 point towards a certain cooperation with Commission services, namely in terms of a dialogue concerning the alignment of funding programmes. Some stakeholders see DG REGIO as being rather involved in the cooperation, attending workshops etc. The involvement of other DGs (DG ENV, DG MOVE, and DG AGRI) is not seen as very strong, according to interviewed stakeholders (Table 3-11).

Cooperation with third countries

Stakeholders of AG 6 point out that there is little cooperation as yet outside the EUSALP countries (third countries) – except with Monaco to a certain extent, which is a part of the Alpine Convention, but not a member of the EUSALP. Yet,

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[112] Survey results per 14.09.17 (project level)

according to the survey, 33% and 37% of the respondents strongly or somewhat agree that the MRS process facilitates/deepens cooperation with third countries. It may, however, be that this results refers to the non-EU Members (Switzerland and Liechtenstein) among the EUSALP countries rather than countries outside the macro-region.

Between the participating countries, there is a very good cooperation with Switzerland, according to several of the interviewed stakeholders. Not all Member States and regions are participating at the same level. France, for instance, has been absent from meetings and the like because of national elections. Some regions are not very active either; this seems to be depending on the level of interest in the particular topic. For many regions, it is not possible to participate in all topics and groups, even when this may be relevant, due to capacity issues. In some cases, this means that part of the actors from the macro-region are missing in an important topic (Table 3-11).

3.5   Comparison of objectives of the EUSALP with achievements (Task 2c)

Comparison of objectives of EUSALP with achievements (2c)

As the work in general in the EUSALP and the AG 6 did not start until 2016, a comparison of objectives of the Action area with achievements will not show much progress. The objectives and indicators used in the action plan (see Table 3-15) may or may not be used for measuring progress. AG 6 is currently discussing the development of indicators. AG 6 took part in a seminar regarding development of an indicator system.

Verifiable indicators

The action plan includes five targets. Targets are a mixture of impact, output and results targets. Some of the targets include a measurable indicator, and two of these can be verified externally. The other indicators are either internal – can be verified from the reporting of the AG – or not measurable (missing an indicator, or not time bound, etc.).

Reporting and indicators

The AG6 was recently established and procedures were agreed in 2016. There is very little/limited recording/documentation of the achievements of PAs (reporting). The report does not include progress on the targets or indicators.

AG6 Natural/cultural resources – Objectives vs. achievements

AG6, Natural/ cultural resources

The overall mission of Action Group 6 is to provide valuable contributions to an Alpine strategic framework that allows the establishment of sustainable and balanced models of resource management and production. Thus, Action Group 6 aims at preserving and sustainably valorising the Alpine natural and cultural heritage to enable future generations to enjoy the unique living space of the Alps. AG6 is to focus on the following three priority topics, dealt with by the corresponding sub-groups: Spatial planning and soil conservation, Future oriented farming and forestry, and Integrated and sustainable water management.

AG6 projects

Currently, AG6 is only part of one on-going project, namely the ALPGOV, which is a horizontal project of the Alpine Space programme, covering all the working

groups of the EUSALP. The ALPGOV project mainly focuses on designing and testing appropriate governance structures and mechanisms, mainly on the level of action groups. The ALPGOV project provides support to appropriate funding schemes and facilitating policy discussion by involving of relevant stakeholders. An example of a project currently under development by AG6, addressing stakeholders from both the EUSALP and the ARGE ALP region, is presented in Table 3-13.

Table 3-13   EUSALP AG 6 –Strategic project

Project	Short description
Next generation – Mountain farming 2030	The project aims to increase the dialogue between the young generation of mountain farmers as well as other occupations working in the mountainous parts of the Alpine Region, promoting their professional involvement in the political decisions affecting the Region and encouraging them to partake in developing new processes and solutions for alpine farming.
	The project contains four Work Packages (WPs), the first of which concerns workshops with experts and young alpine farmers for pinpointing important topics and actions. The second WP plans for a study on the situation of the young generation of alpine farming, after which expert workshops (WP 3) and a conference (WP 4) follow-up on the study.
	Planned project duration is 24 months, with a project volume of 150.000 EUR. The major part (135.000 EUR) is financed by the Working Community of Alpine Regions Arge Alp (www.argealp.org).

The logframe for AG6

The work of AG6 has so far focused on setting up the structures and network, agreeing on the work programme and some initial project generation, including a common application to the Alpine Space programme. The thematic sub-groups have been established, and various reports have been developed (Table 3-14).

Table 3-14   Logframe for AG 6 Natural/cultural resources[113]

Input	Examples of activities	Examples of outputs/results	Targets
People/ organisations Funding Other (e.g. infrastructure, facilities, services)	• Capacity building of AG • Preparation and organization of conference • Thematic analysis and consultation documents (assessing priority topics) • Contribute to EUSALP knowledge platform • Development + update of information / communication material (e.g. AG6 section in EUSALP platform) • Explore financing mechanisms for AG6 sub-topics • Dialogue for alignment of funding programmes • Development of endorsement criteria • Development of toolbox ("less land take" for stakeholders) • Drafting of political declaration • Knowledge creation / collection (good practices for e.g. 'green infrastructure') Planned initiatives: • Organisation of awareness raising events • Technical assessments (functions of agricultural soils)	• AG6 Kick-Off Conference (2016) • Thematic sub-groups established (SG1: Spatial development + soil conservation, SG2: future oriented farming + forestry and integrated, SG3: sustainable water management) • Work Plan for AG6 with strategic goals) • Report about data collected by the adoption of urban sensing softwares (2016) • Section on AG 6 on EUSALP knowledge platform • First draft of Alpine wide political declaration on how to intelligently reduce land use and on soil protection (strategic goal) • Selection criteria for endorsement by EUSALP AG 6 SG2 of projects etc. Planned outputs / results: • Implementation of strategic concept ("green infrastructure") • Strategy for water-demand and supply management • Improved horizontal + vertical dialogue • Knowledge network implemented	Development of label and award of this label to at least 150 products or services over 5 years 2 new nominations of UNESCO World heritage sites by UN (especially of trans-boundary and serial transnational sites) 100 % of drinking water supply under state supervision Network established with relevant public institutions from all EUSALP countries represented Joint ['identity'] plan developed 200 enterprises involved in investments Increase in the percentage of the surface of agricultural and forestry areas under commitments supporting biodiversity in line with the EU Biodiversity Strategy, the EU Forest Strategy and the EU Rural Development Policy as laid down in the Rural Development Programmes

Measuring progress via indicators

Progress towards the targets is not measured in the progress report yet. The indicators in Target 1 and 2 (impact) can be verified with data from Tasks 1 and 2a. The progress towards Targets 3 and 7 (impact) can possibly also be verified by external data. The other targets are mostly output or result targets directly related to AG6 actions. These targets can be measured using future monitoring data from the TSG. (An overview of objectives, targets and progress is presented in table Table 3-15 below.)

The young age of the EUSALP limits the degree to which externally verifiable evidence is available in the form of progress impact indicators. The verifiable indicators applied aim therefore to provide only a context.

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[113] First Report on the implementation of the EU-Strategy for the Alpine Region, April 2017; and European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June 2016 – June 2019 [Work Plan] – incl. Appendix 2

The 'Eco-Innovation Scoreboard' assesses and measures eco-innovation inputs, activities, outputs, and outcomes. It therefore provides information on the creative potential and target 1. The macro-region scored 117 points on the benchmark in 2015, and is therefore stronger than the median EU-wide Eco-innovation performance. Austria, France, and Italy have similar scores, while Germany and Slovenia, respectively, are only moderately stronger and weaker.

Target 2's objective is to obtain new nominations of UNESCO world heritage sites. These nominations should ideally be of a trans-boundary/-national character. The comparison with the official World Heritage Site list shows that one site was nominated between 2015 and 2017. This one site is located inside Germany, far from national borders, and is not characterised by a trans-boundary/-national character.

Table 3-15   Progress on targets – AG 6 Natural/cultural resources

Objectives	Targets[114] and indicators	Progress according to progress report[115]	Progress towards objectives via indicators (OVIs)
(1) Unlocking creative potential in the development of products and services, building on natural and cultural resources through the development of an 'Alpine innovation label' for products from the 'green economy sector' building on natural and cultural resources including bio-based products in the bio-economy sector	Development of label and award of this label to at least 150 products or services over 5 years	Due to the newness of the work plan the progress is not recorded yet.	'Eco-Innovation Scoreboard' (Benchmark) 117 (2015)
(2) Improved valorisation of the Alpine resources at an international level through improved representation of the Alpine Sites within the UNESCO world list	2 new nominations of UNESCO World heritage sites by UN (especially of trans-boundary and serial transnational sites)	Due to the newness of the work plan the progress is not recorded yet.	1 Nomination (non-transboundary, non-transnational)[116] (2017)
(3) Guaranteed long-term access to drinking water through public water supply is (completely) organised by public institutions in order to ensure equal accessibility	100 % of drinking water supply under state supervision	Due to the newness of the work plan the progress is not recorded yet.	-
(4) Watershed management systems are established at transnational and cross-sectorial level through the establishment of an international stakeholders' network for integrated water management for the Alpine Region	Network established with relevant public institutions from all EUSALP countries represented	AG6 specific target will/should be monitored by the progress report (too early to measure)	-
(5) Joint integrated 'identity' plan for a sustainable development and attractiveness of the Alpine Region based on richness of different natural, bio-based, cultural values and typical products	Joint plan developed	AG6 specific target will/should be monitored by the progress report (too early to measure)	-
(6) Investments in valorisation of cultural and natural heritage, in ecosystem services and green infrastructures	200 enterprises involved in investments	AG6 specific target will/should be monitored by the progress report (too early to measure)	-
(7) Protect and enhance agricultural and forestry systems of high natural value	Increase in the percentage of the surface of agricultural and forestry areas under commitments supporting biodiversity in line with the EU Biodiversity Strategy, the EU Forest Strategy and the EU Rural Development Policy as laid down in the Rural	Due to the newness of the work plan the progress is not recorded yet.	-

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[114] Targets 1-7 are example targets from the EUSALP Action Plan, Targets 8-10 are from the AG6 Work Plan, Appendix 2. Targets 1 and 6 are also mentioned in the Work Plan. No documentary evidence was found with a comprehensive list of the actual Targets.

[115] First Report on the implementation of the EU-Strategy for the Alpine Region, April 2017; and European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June 2016 – June 2019 [Work Plan] – incl. Appendix 2

[116] According to the World Heritage List as of 21.08.2017; http://whc.unesco.org/en/list/&order=year; Nominated site: Caves and Ice Age Art in the Swabian Jura, Germany

	Development Programmes		
(8) Strengthening soil protection and sustainable land use, in particular regarding the issues of land take and soil sealing.	No targets (may not be included)	-	-
(9) Involvement of stakeholders, social partners and private-sector actors, the scientific community and civil society.	No targets (may not be included)	-	-
(10) Enhancing a stronger connection between the core Alpine area and surrounding urbanised areas	No targets (may not be included)	-	-

3.6   EUSALP and ESIF (Task 2d)

To date, only few projects have been developed and funded within the framework of the EUSALP. On the website of the EUSALP and the action groups, only one project is presented, namely the horizontal project ALPGOV, which covers all the action groups and concerns the development of the capacity of the action groups, as well as common approaches and standards. This project is funded by the Interreg Alpine Space programme.

The projects/activities of the Action Group 6, Natural/cultural resources, have until now primarily been planned/funded by the Alpine Space Programme and various CBC programmes. Specific initiatives have been undertaken by Action Group 6 to explore financing mechanisms for AG6 sub-topics[117].

Table 3-16 below provides an overview of the findings from the interviews, the survey and desk research on funding issues in the EUSALP.

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[117] First Report on the implementation of the EU-Strategy for the Alpine Region, April 2017; and European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June 2016 – June 2019 [Work Plan] – incl. Appendix 2

Table 3-16   EUSALP: Findings from interviews, survey and desk research – summary table for ESIF and EUSALP

Question	Results – examples from progress reports[118]	Interviews – selected findings[119]	Survey – results[120]
It is difficult to find financing for the projects	Explore financing mechanisms for AG6 sub-topics	Alpine Space is the only obvious financing possibility, or possibly LIFE. Others don't cover the whole region AG 6 seems to not have any money, although great work plans (nobody wants to invest). So only tool to finance is the Alpine Space programme Cross-border IT-CH projects (CBC) on their way, also going in the direction of the strategy There are really many programmes. Of course approval not guaranteed, but one has to try. CH – national gov. pays for the CBC and Alpine Space programme. - Adm. burden for CH projects lower. Also funding from cantons – not directly for EUSALP – regional development programme in the CH can also help. We only have 50% co-financing	31% and 47% of the respondents strongly or somewhat agree to that it is difficult to find financing
The MRS-process has help reflect MRS priorities in the ESIF programmes in the macro-region	AG 6 comprises representatives of officials from the Joint Secretariat of the Alpine Space	There is a possibility for transnational calls. We are doing a feasibility study to identify funding possibilities, in order to establish a guideline. It's currently under process Most of the ESIF programmes were already in place when the MRS came to life – will change in the future Specific objectives are reflected in the other strategies, but not sure about ALP	Not included in survey
There is an increase in alignment between ESIF funding - it has become easier to combine different EU funds	Dialogue for alignment of funding programmes	No alignment yet This is on-going discussing. Alpine Space was not really aligned with EUSALP (call came a bit too early). Also geographical alignment not quite the same	4% and 24% of the respondents strongly or somewhat agree that there is an increase in alignment between the macro-regional strategy and ESIF funding – it is easier to get ESIF funding
MRS-actors have been involved in programming of ESIF and/or are in dialogue with Managing Authorities (MA) for ESIF		It is partly the same persons therefore [yes]	35% and 50% of the respondents strongly or somewhat agreed to that the MRS process facilitates synergies between policies; helps better understand the big picture at the policy level
Funding has been obtained from other EU programmes	AGs will carry out in-depth study on available financing mechanisms (collect + analyse information on specific funding schemes on all levels and formulate recommendations)	No funding from EU Programmes obtained Maybe LIFE	53% and 31% of the respondents strongly or somewhat agree that the competition for funding is very high in EU Programmes (Horizon 2020, LIFE, etc.)
It has been possible to attract outside financing (financial institutions, national/regional resources, other international (non-EU) and private	Results of studies (see above) will be discussed in two workshops + AG 9 will organize a workshop on non-EU financing opportunities.	Working community of Alpine region, a project developed by us – future of Alpine agriculture – new project (will start in the actions) Nobody wants to invest. Funds from national governments (yearly budget for these kinds of projects). Also funding from the Cantons, not directly for EUSALP, but related to the Interreg programme, or regional development programmes Private investors are important, and for their (AG 6) topic, it's not	25%, 41%, 13% of the respondents have obtained funding from other sources (IFI, national/regional, private)

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[118] European Union Strategy for the Alpine Region, EUSALP, Action Group 6, June 2016 – June 2019 [Work Plan] – incl. Appendix 2

[119] Interviews with policy area stakeholders May-September 2017

[120] Survey results per 14.09.17 (policy level)

funding		so easy to interest + integrate private co-investors (that's easier for economic projects)	

It is difficult to find funding for the projects

It is early days with regard to the funding issue in the EUSALP, as activities have started only recently. Nevertheless, there is a feeling that the funding could be an issue, and the competition for funds in the Alpine Space Programme may be high. In the survey, a relatively high share of respondents (31% or 47%) strongly or somewhat agreed that it is difficult to find funding (Table 3-17). Some interviewed stakeholders expressed disappointment, as they had understood that there would be specific funding available for the implementation of the EUSALP. On the other hand, respondents are more positive than in other strategies in relation to the added value of being part of the macro-regional strategy when applying for funding. Only 11% and 22% strongly or somewhat agree that there is no added value (Table 3-16).

Table 3-17   Survey results (EUSALP): Is financing available for collaboration within the policy/priority/pillar/thematic area?[121]

Percentage distribution of answers/ Sub-question	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Do not know	Respondents	Standard deviation
It is difficult to find financing for the projects/activities	31%	47%	9%	7%	7%	45	1,12
Funding for the administration and the coordination is not available or difficult to find	22%	58%	11%	7%	2%	45	0,89
The competition for funding is very high in EU Programmes (Horizon 2020, LIFE, etc.)	53%	31%	4%	0%	11%	45	1,25
There is an increase in alignment between the macro-regional strategy and ESIF funding – it is easier to get ESIF funding	4%	24%	22%	7%	42%	45	1,36
There is no added value being part of a MRS when applying for EU funding (labelling does not make a difference)	11%	22%	38%	11%	18%	45	1,22
Total						45	1,17

Alpine Space Transnational Programme

The Interreg Alpine Space programme is, according to the survey results, the most likely programme for funding in the EUSALP. 64% and 45% of the respondents, at policy and project level, respectively, have marked the transnational programme as source where financing has been obtained. The various CBC programmes as well as ERDF and national funding also score relatively high. The results of the survey in regard to this should be taken as indicative, as there is little experience to date with finding finance in the framework of the EUSALP. Many of the answers are probably based on previous experience in other contexts, such as the Alpine Convention or the Interreg programmes. Additionally, the low number of respondents at project level does not permit any significant conclusions from the survey results concerning financing sources for projects within the EUSALP (Table 3-18).

[121] Survey results per 14.09.17 (policy level)

Table 3-18   Survey results: Funding for EUSALP activities (policy and project level)[122]

Survey results	a. The policy area has received funding from the following sources		b. Projects in the policy area have applied for or tried to get funding from the following sources – without success or with limited success		Number of respondents[123]	
	Policy level	Project level	Policy level	Project level	Policy level	Project level
Interreg: Transnational	64%	45%	31%	18%	36	11
Interreg: Cross-Border Cooperation	45%	0%	23%	0%	31	6
ERDF/CF	44%	60%	8%	0%	25	5
EAFRD	25%	0%	17%	0%	12	0
ESF	33%	0%	13%	0%	15	1
IPA/ENI Cross-Border Cooperation	0%	0%	30%	0%	10	0
IPA/ENI	0%	0%	40%	0%	10	0
Horizon 2020	20%	20%	20%	40%	25	5
LIFE	22%	0%	11%	0%	18	2
Erasmus	31%	0%	19%	0%	16	0
International Financial Institution (loans)	30%	0%	10%	0%	10	0
National/regional	38%	38%	23%	0%	26	8
Private	16%	0%	21%	0%	19	1
Other	8%	25%	25%	0%	12	4
I do not know	44%	50%	75%	75%	16	4
					41	14

ESIF and the EUSALP

According to a survey conducted by the EU Commission, based on 14 (out of 78) relevant programmes, 6 programmes replied that they have taken measures to support the implementation of the EUSALP.[124] The report assesses that this low participation, or lack of positive feedback, is due to the fact that the EUSALP was not approved until 2015, i.e. after the implementation of the OPs had begun. Only 4% and 24% of the respondents strongly or somewhat agree that there is

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[122] Survey results per 14.09.2017 (policy and project level)

[123] Please note that this column states the number of respondents who have selected any of the *three* questions for each type of financing – although only two of the questions (the middle columns, a. and b.) are shown here for convenience reasons. The third question, for which the answers are not shown in the present table, is "c. The project(s) would be relevant for funding under these programmes (in the future)". The responses to this question are presented and discussed under Task 3, i.e. in the main Final Report.

[124] European Structural and Investment Funds programmes' contribution to the EU macro-regional strategies. DG REGIO 16.02.17

an increase in alignment between the macro-regional strategy and ESIF funding. Interviewed stakeholders did generally not provide a detailed answer to questions regarding alignment of funding from ESIF to AG6 (Table 3-16).

Table 3-19   ESIF contribution to EUSALP (findings of survey conducted by the EU Commission)[125]

Types of alignment between ESIF and MRS	Number of programmes
The programme has invited the EUSALP Action Group leaders (AGL) to elaborate a specific project which shall help to ease and coordinate their work and will be funded by the programme under priority 4.	Interreg Alpine Space Programme
Inclusion of key implementers of the strategy in their Monitoring Committee	Only two programmes (the Interreg Alpine Space Programme and the Investments in Growth and Employment Austria 2014-2020 - Operational Programme for the use of the ERDF funds)
Have been attributed extra points to specific measures supporting the EUSALP.	Only two programmes (Employment Austria 2014-2020 - Operational Programme for the use of the ERDF funds and 2014-2020 Rural Development Programme for the German Land Bavaria)
Reported having already financed 10 EUSALP projects through Cohesion Fund for a total amount of 205.541.121 euros.	1 Slovenian programme

Community programmes

In the survey for the EUSALP, 53% and 31% of the respondents strongly or somewhat agree that the competition for funding is very high in EU Programmes (Horizon 2020, LIFE, etc.). Interviewed stakeholders were generally not so aware of the possibilities in other EU Programmes, such as Horizon and ERASMUS+. One stakeholder suggested that the LIFE programme would be a possible funding source for activities under AG6 (Table 3-16).

Other funding

National and local regional funding will be a key source for financing of AG6 activities. Also, private investors are mentioned by interviewed stakeholders as important sources.

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[125] European Structural and Investment Funds programmes' contribution to the EU macro-regional strategies. DG REGIO 16.02.17

3.7   EUSALP AG 6 – factsheet

Table 3-20   Profile/factsheet of the Action Group 6 Natural/Cultural Resources

	Name of macroregional strategy: EUSALP		Policy/Priority/Pillar/Action: AG 6 Natural/Cultural Resources
Description	The overall mission of Action Group 6 is to provide valuable contributions to an Alpine strategic framework that allows the establishment of sustainable and balanced models of resource management and production. Thus Action Group 6 aims at preserving and sustainably valorizing the Alpine natural and cultural heritage to enable also future generations to enjoy the unique living space of the Alps[126]	Drivers/barriers	• One of the main features of the Alpine Region are its outstanding natural and cultural resources. The ways in which these resources have been transformed into economic assets have varied through history and had distinctive effects both on the Alpine environment and on the resources itself. • There are also conflicts of interest between the elements to protect natural resources and their economic use.
Objectives	• "Spatial development and soil conservation" (sub-topic 1) • "Future oriented farming and forestry" (sub-topic 2) • "Integrated and sustainable water management" (sub-topic 3)	Indicators	Indicators are under development – may or may not be those of the action plan
Targets/Outputs	Phase 1: Rules and procedures Work plan	Targets/Results	Indicators are under development – may or may not be those of the action plan
Operational aspects:	Work plan/programme has been developed (not seen by the consultant)	Organisation:	PACs: Steering committee: not everybody is active – often members are not specialised in the topics or international cooperation.
Projects:	• BSR Stars • The SUBMARINER Network • ScanBalt® fmba • Baltic Science Link • BSR City Innofund • Cross-border e-services	Flagships/labelled projects	Labelling has to be developed (part of action plan and ALPGOV projects)
Financing:	• Interreg Alpine Space • Other (will get link)	Phases/development	The work in this area started one year ago and it is too early to say much apart from that the group is working. Phase 1.

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[126] https://www.alpine-region.eu/action-group-6

APPENDICES

EUSALP

Appendix A   TASK 2a: Review of the EUSALP

A.1   Introduction

Task 2a reviews the objectives of each of the four Macro-regional Strategies. This is done by examining the strategical relevance of each objective in the macro-regional context. In other words, this task scrutinises whether a given objective (1) corresponds to an identified for intervention, and (2) whether the macro-regional approach provides a concrete benefit.

The (1) need for intervention is primarily identified through a pre-defined set of indicators that were developed in Task 1 of this study. Where needed, additional indicators or external literature supplement the judgement. The need for intervention is differentiated on three geographical levels:
i) the macro-region as a whole, ii) the macro-region's individual countries, and iii) internal levels (e.g. urban vs rural).

The (2) macro-regional relevance is established through expert knowledge and external literature. The results of the review were tested and discussed with independent regional experts for each macro-region.
The review applies a traffic light methodology to categorise each objective in terms of need and macro-regional relevance.

A.2   Methodological Framework

A.2.1   Review of objectives

The review of the objectives hence utilises the previously gained insights to the degree possible. In some cases, literature had to be used instead. In order to provide an appropriate judgement on the objectives, which were defined in 2009 for the EUSBSR, the indicator data uses the years 2008 – 2010 (where possible).

Each objective is categorised into 'themes of intervention', to support a suitable choice for the relevant indicator. The themes generalise the objectives into broader categories such as RDI, competitiveness, or the aquatic environment.

The review occurs on three strands of needs:

> i) Aggregate,
> ii) Individual, and
> iii) Internal.

The Text Box below provides an explanation on the logic behind this definition.

Text Box 3-1: Explanation on the terminology used for the scopes of need

> The preceding task benchmarks the four macro-regions on three strands:
>
> i) Macro-region against Europe,
>
> ii) Country against macro-region, and
>
> iii) Internal differences (e.g. rural-urban, where applicable).
>
> These three strands essentially analyse the i) **aggregate** performance of an entire macro-region, ii) the performance of the macro-region's **individual** countries, and lastly iii) the macro-region's **internal** performance (to the extent possible).

The underlying review uses judgement criteria to provide a justified traffic light assessment. The judgement criteria are as follows:

Table 3-21: Judgement criteria and associated indicators

Judgement criteria	Indicators
1) To which extent does the objective reflect an actual need for intervention?	The entire macro-region is a "bottom-performer" according to scope **i)** (see next section)
	A significant number of countries are "bottom-performers" according to scope **ii)** (ca. > 1/3 of the countries)
	Internal "bottom-performance" according to scope **iii)** (e.g. rural-urban)
2) Is the objective strategically relevant in a macro-regional context?	There is concrete evidence of an advantage in the macro-regional context (e.g. synergies, opportunities to learn from others, improved competitiveness of one country benefits all others)

The traffic light ruling is as follows in the table below.

Table 3-22: Traffic Light Ruling

Number judgement criteria fulfilled	Traffic Light
2	Corresponds to need + Macro-regionally relevant
1	Corresponds to need - OR – Macro-regionally relevant
0	No need + Not macro-regionally relevant

A.2.2 Composite Benchmarks

Composite Indices

Composite indices bundle separate (component) indicators into one index which allows the values of the whole bundle expressed as only one measure[127]; examples of such indices are the Human Development Index, Environmental

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[127] See http://www.investopedia.com/terms/c/compositeindex.asp

Sustainability Index, and stock indices like the NASDAQ Index. In the course of gathering indicator data, the data have been grouped into sets of related indicators according to appropriately identified themes.

Composite Benchmarks

The benchmarking analysis focuses on the four macro-regions and the four dimensions inside each macro-region compares countries and/or NUTS-2 regions inside the individual macro-region based on a common reference framework of EU countries. The reference framework for each component indicator or composite index is delineated by the "top performer" of EU28 countries (benchmarked at 150), the "lowest performer" (50) and the median performer(s) at 100[128]. Throughout this analysis, a 'bottom performer' refers to a score below 100, while a 'top performer' refers to a score above 100. A high benchmarking score always reflects a more "desirable" situation. Taking unemployment rates as an example, higher scores reflect lower unemployment rates. In this way, the benchmarking results can always be read as showing whether – and to what extent – they are above or below the median in the EU at country level. This common framework enables observations to be made across different regions, even though the main focus remains within each macro-region.

The benchmark is always scaled on a country level against all EU28 Member States. The benchmarking score hence indicates a country's or region's relative position to all EU28 countries. This means in turn that one can observe values above 150 and below 50 in the cases summarised in the table below.

Table 3-23: Cases with benchmarking scores above 150 and below 50

Case	Explanation
Regional analyses (NUTS-2 level)	A NUTS-2 region may out-/underperform its country. Such as Stockholm (SE), performing higher than Sweden as a whole.
Non-EU countries	A non-EU country is not included in the benchmarking scale. Thus, a country like Ukraine may score above 150 or below 50, as they are not included in the scaling.
Macro-regional Integration analyses	Countries that are stronger/weaker integrated in a macro-region than the EU's 'top performing'/'bottom performing' country is integrated in the EU28 (see paragraphs below). For example, Germany's trade integration with countries in the Danube region comprises only a small share of its trade with all EU28 countries and is at the same time lower than that of the EU's 'bottom performer'.

Integration Indices

The chapter on integration includes new integration indices. These IHS-proprietary indices cover respectively Labour Integration (three indices plus a composite of these 3 components), Capital Integration (Foreign Direct

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[128] The median is the point in a dataset in which a split of that dataset results in two sets with an equal number of data points. See http://www.investopedia.com/ terms/m/median.asp for more details

Investment (FDI), Energy Integration, and Trade Integration. Each of these seven indices is constructed on a similar principle, which is outlined as follows.

When the amount or value of labour, capital etc. supplied by a country to another country (a 'partner'), or, equivalently, received from a partner, increases, it can be said that the level of integration between the two has increased. Considering a particular group of countries, the focus is on the bilateral flows between them. For the task of estimating integration within macro-regions, i.e. between individual countries belonging to the macro-region in question, the first step is the development of a "Bilateral Flow Matrix", as shown in the table below.

Table 3-24: Energy Integration Example (Baltic Sea), energy exports (kTOE)

Partner	Denmark	Germany	Estonia	Latvia	Lithuania	Poland	Finland	Sweden
Denmark	0.0	1,917.4	0.0	0.0	0.0	0.0	505.6	3,503.5
Germany	3.5	0.0	0.0	0.0	0.0	916.5	0.0	0.0
Estonia	0.0	0.0	0.0	522.7	0.0	0.0	25.6	0.0
Latvia	0.0	0.0	0.4	0.0	293.9	0.0	0.0	0.0
Lithuania	0.0	0.0	79.7	14.4	0.0	51.4	0.0	0.0
Poland	0.0	251.7	0.0	0.0	5.6	0.0	0.0	1.7
Finland	0.0	0.2	432.8	0.0	0.0	0.0	0.0	0.1
Sweden	477.6	168.3	0.0	0.0	0.0	302.0	1,484.4	0.0

Immediately, certain strong relationships between certain country-pairs are visible. What such a table of absolute values does not make clear is the 'importance' of a bilateral relationship for a specific country. A second step therefore converts the data to a relative share of all its exports (or foreign investments, migration flows, remittances) (in worldwide).

Table 3-25: Energy Integration Example, Share of total exports to partner country (in %)

Partner	Denmark	Germany	Estonia	Latvia	Lithuania	Poland	Finland	Sweden
Denmark	0.0	11.8	0.0	0.0	0.0	0.0	3.1	21.5
Germany	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
Estonia	0.0	0.0	0.0	24.8	0.0	0.0	1.2	0.0
Latvia	0.0	0.0	0.0	0.0	13.8	0.0	0.0	0.0
Lithuania	0.0	0.0	0.9	0.2	0.0	0.6	0.0	0.0
Poland	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Finland	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0
Sweden	2.6	0.9	0.0	0.0	0.0	1.6	8.1	0.0

The new integration index provides a common basis for measuring integration in each of the four macro-regions, just as the case for every other indicator considered in this study. Given that the number of countries in the macro-regions vary, the total share of e.g. energy exports to the macro-region would grow with the number of member countries. Therefore, to provide a measure of integration that is not affected by the size of a macro-region, the chosen

measure for each country's degree of integration within its macro-region is its per partner share (ppShare); i.e. the average flow to a destination country.

Table 3-26: Energy Integration Example, resulting per partner share

Partner	ppShare
Denmark	5.21
Germany	0.22
Estonia	3.72
Latvia	1.98
Lithuania	0.23
Poland	0.18
Finland	0.83
Sweden	1.90

Benchmarking Integration Indices

In the case of integration indices, the procedure to establish the benchmark is identical in formation as for the other indices, except that in this case the bilateral flow matrix is 28 x 28 for the EU28. Thus, the benchmark is defined by the average share that each Member State exports to the EU28 countries. This results in a per partner share of each Member State, but to the whole EU28, instead of a macro-region.

In other words, using the per partner share as a unit of measure enables the degree of integration within each macro-region to be benchmarked against the degree of integration in the EU as a whole. This provides a deep insight into the question of whether the common geographical basis (and more) for the macro-regions is actually, and to what extent, of particular relevance compared to the entire setting of all EU countries, which may in general cover a more or less contiguous area, but which course also comprise (even more) multiple regional contexts. As mentioned in Table 2-1 above, there are many cases found to score well below 50 or well above 150. This is entirely consistent: The reason, expressed mathematically, is that the two-dimensional flow matrices gives rise to country index values in macro-regions that are not subsets of the EU index; for non-integration indices, in contrast the (EU) country indicator values form by definition a subset of the EU28.

A.3   Objective 1: Fair access to job opportunities

A.3.1   Research and Innovation ecosystem (Action 1)

Assessment Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-27: Summary of Assessment – EUSALP – 1. Development of an effective research and innovation ecosystem

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	1. Effective research and innovation ecosystem	**X**			
Theme of intervention		**Indicator**			
Research & Innovation		'Regional Innovation Scoreboard'			
Judgement on the strands of need					
Aggregate	The Alpine Region is a 'strong' innovator on the scale of the Regional Innovation Scoreboard and there thus appears to be no immediate need for increased levels of research and innovation.				
Individual	While there are some differences between the Region's countries, the majority performs well in terms of innovation: DE is an innovation leader, FR and AT are strong innovators, and only Italy and a part of Slovenia score 'moderate' on the Innovation Scoreboard.				
Internal	*Not addressed*				
Traffic Light	Macro-regionally relevant				
Justification	The Regional Innovation Scoreboard rates DE, FR, AT and a part of SI as strong to leading innovators. Moreover, CH has been rated the most innovative country in the world for several years in a row. Only IT and a part of SI fall in the category 'moderate'. Accordingly, the Region as a whole as well as the majority of its parts does not exhibit a need for increased research and innovation.				
	However, developing an effective research and innovation ecosystem is relevant on the macro-regional level, since it is likely to better connect the different parts of the Alpine Region and to yield synergies. The latter applies in particular to research addressing regional challenges of the Alpine Region, e.g. concerning climate change.				

Theme of Intervention & Relevant Sources	This Action, building on the Alpine Region's strength within research and innovation (R&I), aims to increase cooperation between its different parts so as to exploit synergies and increase the Region's innovation potential.
	The indicator applied to review this Action is the 'Regional Innovation Scoreboard' (measured by categories: leader, strong, moderate, and modest). It should be noted, however, that no data is available on Switzerland and Liechtenstein, and that the available data are from the year 2016.
Strand of Need: Aggregate	On average, the Alpine Region is a 'strong' innovator on the scale of the Regional Innovation Scoreboard. Rather than displaying a need in terms of innovation and research activities, it appears that this Action is looking to develop a particular strength of the aggregate Region.
Strand of Need: Individual	There are some differences between the Region's countries. Yet, this difference mainly lies in whether countries are innovation leaders (DE) or strong innovators (FR and AT). Only Italy and a part of Slovenia score 'moderate' on the Innovation Scoreboard. In accordance with the present judgement criteria, a need on the individual scale is not present.
Strand of Need: Internal	*Not addressed*
Final Assessment	› *To which extent does the objective reflect an actual need for intervention?*

The Regional Innovation Scoreboard rates Germany, France, Austria and partly Slovenia as strong to leading innovators. Moreover, Switzerland has been rated the most innovative country in the world for several years in a row[129]. Only Italy and a part of Slovenia fall in the category 'moderate'. Accordingly, the Region as a whole as well as the majority of its parts does not exhibit a need for increased research and innovation.

> *Is the objective strategically relevant in a macro-regional context?*

Performing strongly on research and innovation does not mean that nothing can be gained from increased cooperation. Developing an effective R&I ecosystem is likely to better connect the different parts of the Alpine Region, to potentially lift up the 'moderate' parts to a higher level of performance and to yield synergies. The latter could be expected in particular from the exchange of knowledge and cooperation on research addressing regional challenge, such as climate change, of the Alpine Region.

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[129] Global Innovation Index, by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO) - http://www.wipo.int/publications/en/details.jsp?id=4064

A.3.2   Economic Potential of Strategic Sectors (Action 2)

Assessment
Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-28: Summary of Assessment – EUSALP – 2. Increase of the economic potential of strategic sectors

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	2. Increase of the economic potential of strategic sectors	**x**	(x)		
Theme of intervention		**Indicator**			
Sectoral + SME Performance		'Regional Competitiveness Index' and 'Share of SMEs'			
Judgement on the strands of need					
Aggregate	Overall, the macro-region's businesses are relatively competitive. Whereas the SME share of the Region lies below the EU median, and thus seems to justify a focus on developing the opportunities for start-ups and SMEs, the overall competitiveness level indicates a strength of the Alpine Region rather than a need for intervention.				
Individual	The same indicators pinpoint certain differences at a country level – namely in Italy and Slovenia concerning competitiveness and France and Germany in terms of SME share. However, although these regional individual differences should certainly be taken into account, they exist only in a minority of countries (on which benchmarks are available) and thus do not point towards a definite need for intervention.				
Internal	*Not addressed*				
Traffic Light	Macro-regionally relevant				
Justification	While the data illustrate certain variations between the individual countries of the Alpine Region – in fact large enough to place the entire region below the EU median in terms of SME share – the level of competitiveness index of the macro-region as well as the majority of the individual countries designates the Alpine Region as a top performer.				
	However, the sectors pointed out by the Action Plan as eligible for particular attention (agriculture and sustainable forestry sector based products and services, tourism, energy, health, and high-tech) are indeed sectors with strategic relevance for the Alpine Region in general and would thus benefit from cooperation and coordination across the macro-region.				

Theme of
Intervention &
Relevant Sources

This Action involves the provision of support to – and the development of economic potential of – specific sectors, focussing on start-ups and SMEs in particular. It aims to increase the competitiveness of these sectors, adding value by fostering cooperation between and providing better conditions for SMEs and other businesses, in order to make better use of Alpine-specific resources.

As the specific sectors suggested (agriculture and sustainable forestry sector based products and services, tourism, energy, health, and high-tech) cannot be considered in detail here, the 'Regional Competitiveness Index' (RCI) and the 'Share of SMEs' benchmarks are chosen as indicators that can provide an overview of the competitive status of and conditions for businesses in the Alpine Region. The 'Share of SMEs' indicator is only used as a supportive indicator, as this aspect is not of decisive importance.

Strand of Need:
Aggregate

Overall, the macro-region's businesses are relatively competitive with an average benchmark score of almost 110 in 2016 – however not including data

for Switzerland and Liechtenstein. On the other hand, the share of value added by SMEs in the Region lies below the EU median, at an average benchmark score of approximately 96[130]. This seems to justify a focus on developing the opportunities for start-ups and SMEs, although the competitiveness level of businesses indicates a strength of the Alpine Region rather than a need for action.

Strand of Need: Individual

When considering the same indicators at a country level, they pinpoint certain differences. All but one Italian regions as well as one Slovenian region are benchmarked below 100 in terms of competitiveness. Also, France as well as Germany in particular have a rather low share of SMEs, with benchmark values of approximately 87 and 71, respectively. These regional individual differences should certainly be taken into account, but appear in too few countries to point towards a definite need for intervention.

Strand of Need: Internal

Not addressed

Final Assessment

> *To which extent does the objective reflect an actual need for intervention?*

While the data illustrate certain variations between the individual countries of the Alpine Region – in fact large enough to place the entire region below the EU median in terms of SME share – the level of competitiveness index of the macro-region as well as the majority of the individual countries designates the Alpine Region as a top performer. Consequently, no need for intervention is indicated according to the present criteria, although a certain focus on the conditions for SME development appears warranted.

> *Is the objective strategically relevant in a macro-regional context?*

The sectors pointed out by the Action Plan as eligible for particular attention (agriculture and sustainable forestry sector based products and services, tourism, energy, health, and high-tech) are indeed sectors with strategic relevance for the Alpine Region in general. The businesses within these sectors, likely to operate under similar conditions and/or dealing within similar products / services, will face similar challenges across the entire Alpine Region. Hence, cooperation across the macro-region with the aim of supporting the development of these sectors and SMEs in particular – e.g. in the form Alpine Region brands – appears a relevant approach for strengthening the competitiveness and economic potential of these strategic sectors.

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[130] Based on estimated data for Austria, Germany, France, Italy, and Slovenia for 2015.

A.3.3 Labour Market, Education and Training (Action 3)

Assessment
Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-29: Summary of Assessment – EUSALP – 3. Improvement of the adequacy of labour market, education and training in strategic sectors

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	3. Improved adequacy of labour market, education and training in strategic sectors				**X**
Theme of intervention		**Indicator**			
Labour Market		'Composite education' and 'Migration inside the macro-region'			
Judgement on the strands of need					
Aggregate	The Alpine Region, with its relatively well-educated inhabitants that move inside the region to a large extent, does not exhibit a significant need for an intervention in its labour market concerning skilled labour.				
Individual	The majority of countries in the Region perform comparatively well on the composite benchmark for education, not indicating a noteworthy need on the individual country level.				
Internal	The very high migration inside the macro-region might indicate migration from rural/remote areas to urban centres within the region. In combination with certain regional differences between different parts of the Alpine Region, this could potentially indicate a need for action on the internal level.				
Traffic Light	Corresponsd to need + Macro-regionally relevant				
Justification	The Alpine Region performs comparatively well in terms of labour force education and labour integration (as well as employment). The very high migration inside the macro-region might, however, indicate migration from rural/remote areas to urban centres within the region. In combination with certain regional differences between different parts of the Alpine Region, this could potentially indicate a threat in terms of 'brain drain' from rural/remote areas and thus a need for action on the internal level. The external literature by Ferrario and Price (2014) confirms this threat for particularly mountaneous regions, as a result of lack of job opportunities, lack of information on job opportunities, and a generally perceived emptiness and geographical marginality.				
	Since the labour market of the Alpine macro-region is already quite well-integrated and the internal differences appear to be based on similar challenges as experienced by most European (and other) countries, the point for addressing migration of skilled labour from the Region might be less strong in a macro-regional context. Although clearly relevant in a macro-regional context, it could be discussed whether demographic and topographic challenges concerning the labour market (e.g. ageing population and remote, difficult to access areas) might be addressed more efficiently on the national level or the EU level.				
	In conclusion, while a need at the internal level is indicated, it is not significant according to the present criteria – but the Action is relevant at the macro-regional level.				

Theme of
Intervention &
Relevant Sources

This Action seeks to improve labour market conditions, including education and training, in the macro-region. Whereas unemployment rates are relatively low in the Alpine region, the Action aims at addressing the threat of demographic challenges and territorial imbalances – particularly concerning the access to skilled labour.

There is no direct measure from Task 1 that shows migration of skilled labour from rural/remote to urban areas or from the region in general. However, the composite benchmark for education provides an indication into the current situation in the macro-region in terms skilled labour. Additionally, a look at the benchmark for migration inside the macro-region is useful in this connection.

In order to also assess the dimension of the rural-urban brain dran, external literature by Ferrario and Price (2014) is consulted. [131]

Strand of Need: Aggregate

Overall, the Alpine Region has a well-educated labour force with an average composite benchmark value of 111. At the same time, migration *within* the macro-region is very high. This indicates that the aggregate Alpine Region, with its relatively well-educated inhabitants that move inside the region to a large extent, does not exhibit a significant need for an intervention in its labour market concerning skilled labour.

The index on 'migration inside the macro-region' (see table below) shows that the Alpine macro-region has on average a high degree of intra macro-regional integration.

Table 3-30: Bilateral Migration Index within the EUSALP macro-region in 2013. Source: Task 1

	Benchmark
AT	405
DE	188
FR	162
IT	270
LI	587
SI	296
CH	422
EUSALP Average	333

Ferrario and Price's (2014) study highlights that the Alpine Region experiences particularly a brain-dain in the mountain areas, due to a lack of qualified job openings, lack of information on job opportunities, but also a perceived sense of emptiness and geographic marginality in the valley areas. The factor of brain-drain is thus a strongly present issue, which requires action.

Strand of Need: Individual

Considering the individual countries within the macro-region, certain differences in education emerge. Whereas for instance the Swiss parts of the Region score rather high with an average composite benchmark of 132, the Italian parts are low performers with an average of only 85. All other countries, however,

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[131] Ferrario & Price (2014), Should I stay or should I go? - Alpine brain drain and brain gain: the reasons behind the choices of young mountain people, https://rga.revues.org/2381

perform comparatively well, not indicating a noteworthy need on the individual country level.

The benchmark scoring on the migration inside the macro-region (Table 3-30) shows that all countries perform the EU-median. The individual scoring reveals that Germany, France, Italy and Slovenia each show less inter-macro-regional migration than the average Alps. Apart from Germany, the Roman and Slavic speaking countries show thus less integration than the EUSALP average.

Strand of Need: Internal	The Region's strategy states territorial imbalances as a reason for this Action, mentioning the less favourable labour market conditions in rural/remote areas. There are clear internal differences within the macro-region, with e.g. the France-Comté region in France lying under the EU median although the other French parts are relatively good performers. Moreover, the very high migration inside the macro-region is likely to contain migration from rural/remote areas to urban centres within the region.

Final Assessment

> *To which extent does the objective reflect an actual need for intervention?*

The Alpine Region performs comparatively well in terms of labour force education and labour integration (as well as employment). The very high migration inside the macro-region might, however, indicate migration from rural/remote areas to urban centres within the region. In combination with certain regional differences between different parts of the Alpine Region, this could potentially indicate a threat in terms of 'brain drain' from rural/remote areas and thus a need for action on the internal level. The external literature by Ferrario and Price (2014) confirms this threat for particularly mountaneous regions, as a result of lack of job opportunities, lack of information on job opportunities, and a generally perceived emptiness and geographical marginality. This leads to the conclusion that the Action corresponds to a need.

> *Is the objective strategically relevant in a macro-regional context?*

Since the labour market of the Alpine macro-region is already quite well-integrated and the internal differences appear to be based on similar challenges as experiences by most European (and other) countries, the point for addressing migration of skilled labour from the Region might be less strong in a macro-regional context. Although clearly relevant in a macro-regional context, it could be discussed whether demographic (e.g. ageing population) challenges could be more efficiently addressed at the national level. As regards topographic challenges for the labour market (e.g. remote, difficult to access areas), differences in labour market conditions might be considered to be addressed on an EU level for all regions with similar problems.

A.4   Objective 2: Sustainable internal and external accessibility to all

A.4.1   Passenger and Freight Transport (Action 4)

Assessment
Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-31: Summary of Assessment – EUSALP – 4. Promotion of inter-modality and interoperability in passenger and freight transport

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	4. To promote inter-modality and interoperability in passenger and freight transport		**X**		
Theme of intervention		**Indicator**			
Transport		'Accessibility Potential' – Multimodal, rail and road			
Judgement on the strands of need					
Aggregate	The Alpine Region as a whole has addressed its infrastructure challenges successfully. On all three indicators (accessibility potential of multimodal, rail and road transport) the Region is a top performer.				
Individual	All of the Region's individual countries, as well as each of the individual NUTS-2 regions, perform above the EU median on all of the three indicators. Hence, a need for intervention is not present in terms of accessibility. However, as the performance of AT, SI and FR lies below the EU median concerning air pollutants, the promotion of *greener* infrastructure solutions deserves attention.				
Internal	*Not addressed*				
Traffic Light	Macro-regionally relevant				
Justification	The Alpine Region seems to have successfully addressed its challenges related to its mountainous and difficultly accessible parts, as neither an aggregate nor an individual need for intervention is indicated by the benchmark scores on 'Accessibility Potential' for multimodal, rail and road transport. Nevertheless, as the different parts of the Alpine Region all face the same or very similar challenges with respect to ensuring efficient and affordable inter-modal and important cross-border transport solutions, a high level of cooperation within the Region is required and macro-regional cooperation thus extremely relevant.				

Theme of
Intervention &
Relevant Sources

The fourth Action of the EUSALP aims at promoting rail and road transport infrastructure in the region – and particularly at improving the inter-modality and interoperability, i.e. the ways in which the different forms of transport and the related technical systems, respectively, work together.

The geomorphological conditions of the mountainous parts of the Alpine Region – aggravated by threats related to environmental degradation and climate change – complicate the development of high quality infrastructure and thus mobility and accessibility, in particular across different means of transport and across borders. Accordingly, the indicators 'Accessibility Potential' for rail and road as well as for multimodal transport, which measure the distance that can be travelled within a specific time, can function as an indication of how far the

Alpine Region has overcome these challenges related to the Regions' given conditions.

Strand of Need: Aggregate

It appears that the Alpine Region as a whole has addressed its infrastructure challenges well. On all three indicators, accessibility potential of multimodal, rail and road transport, the Region features benchmark scores of 121 or above (see Table 3-32 below).

Table 3-32: Benchmarking score on Accessibility potential in 2014. Source: ESPON

	Multimodal	Rail	Road
AT	117	118	120
CH	132	135	130
DE	129	137	141
FR	120	133	124
IT	117	122	125
SI	111	108	114
EUSALP Average	121	126	126

Strand of Need: Individual

As shown in Table 3-32 above, also the Region's individual countries are each[132] top-performers on all of the three indicators, and none of their NUTS-2 regions score lower than the EU median on any of the indicators.

Hence, Action 4 does not build on an urgent need for improvements of infrastructure quality and accessibility in terms of rail, road or intermodal transport. These indicators, however, do not inform about potential climate and environmental implications of this infrastructure. Considering the emissions of air pollutants per capita, for instance, three countries in the Alpine Region, namely Austria, Slovenia and France, perform below the EU median. While this indicator is not sufficiently related to identify a need for this Action, it still supports the argument to modernising the infrastructure in terms of promoting greener – possibly more public or shared – transport solutions so as to ensure a balance between the transportation and environmental needs.

Strand of Need: Internal

Not addressed

Final Assessment

›   *To which extent does the objective reflect an actual need for intervention?*

The Alpine Region seems to have successfully addressed its geomorphological challenges related to its mountainous and difficultly accessible parts, as neither an aggregate need nor a need by the individual countries or regions is indicated by the benchmark scores on 'Accessibility Potential' for multimodal, rail and road transport. However, a look at the Austria, Slovenia and France's performance concerning emissions of air pollutants points out a justification, although not a need according to the present definition, for promoting greener transport solutions.

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[132] Data for Liechtenstein are not available.

> *Is the objective strategically relevant in a macro-regional context?*

There can be little doubt about the macro-regional relevance of this Action, as the development or improvement of inter-modality and interoperability per definition involves a high level of cooperation and coordination between many different actors in the field of infrastructure. The challenges of arranging efficient intermodal transport at a feasible price are only increased where borders must be crossed and are likely to rise with the level of remoteness and inaccessibility of the area involved. As the different parts of the Alpine Region all face the same or very similar challenges in this respect, a high level of cooperation within the Region (as well as with other surrounding Regions) is required.

A.4.2 Connecting People and Accessibility to Public Services (Action 5)

Assessment Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-33: Summary of Assessment – EUSALP – 5. Connecting people electronically and promoting accessibility to public services

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	5. Connecting people electronically and promoting accessibility to public services		**X**		
Theme of intervention		**Indicator**			
E-connectivity & e-services		'EU Digitisation Index' (DESI)			
Judgement on the strands of need					
Aggregate	The Digitisation Index points out that the development of e-connectivity and e-services poses a challenge for the Alpine Region, as the level of digitisation of the aggregate Region lies below the EU median.				
Individual	More than a third of the Alpine Region's countries (FR, IT, SI) for which data is available (data for CH and LI are lacking), are 'bottom performers' on digitisation, indicating a need for intervention in the area.				
Internal	*Not addressed*				
Traffic Light	Corresponds to need + Macro-regionally relevant				
Justification	A need for intervention working towards increased levels of digitisation is present, as the region's aggregate performance as well as several of the concerned countries' individual performances on the EU Digitisation Index lie below the EU median. This Action's objectives are of clear macro-regional relevance, requiring high levels of cooperation particularly as regards ensuring Internet access for remote areas of the region. Furthermore, Action 5 provides for an important contribution to the Digital Agenda and the Digital Single Market. Accordingly, this Action is categorised with a green light for addressing a need as well as being macro-regionally relevant.				

Theme of Intervention & Relevant Sources

This Action has as its objective the improvement of digitisation and internet access for all inhabitants of the region, including those living in remote areas, and moreover the increase of public services available online. The composite EU Digitisation Index (DESI) can provide a good indication of the level of these

issues, as it includes measures of connectivity and digital public services.
In order to improve the data coverage, the digitisation of Switzerland is assess through the International-DESI (I-DESI), which applies a similar but not completely comparable method. [133]

If levels of e-connectivity and e-services are too low in a certain area, this may indicate a weakness. A lagging development of digital infrastructure and services is likely to put the affected area and its inhabitants at a disadvantage – not only in terms of convenience, but also for example concerning access to vital services or employment opportunities, which in turn may affect the attractiveness and ultimately the competitiveness of the area.

Strand of Need: Aggregate	The Digitisation Index points out that the development of e-connectivity and e-services in fact may pose a challenge for the Alpine Region, as the level of digitisation of the aggregate Region lay below the EU median with a benchmark score of 93 in the year 2014. The DESI, however, only measures the digitisation of EU Member States, and data for Switzerland and Liechtenstein are thus not included in this average score.
Strand of Need: Individual	Two countries of the Alpine Region, Austria and Germany, exhibit good levels of digitisation with benchmark scores above 100 – although Germany's relative level of digitisation appears to have deteriorated over the recent years resulting in a position of only 1.5 benchmark points over the EU median in 2017. The I-DESI ranks Switzerland for 2015 right in the middle of the EU's median digitised and the EU's most digitised country, putting it as a top performer.

France, Slovenia and Italy in particular must be categorised as 'bottom-performers' when it comes to the countries' individual digitisation levels. Accordingly, over a third of the Alpine Region's countries exhibit comparatively low levels of digitisation – including connectivity and digital public services – which signals a need for intervention in this area. |
| **Strand of Need: Internal** | *Not addressed* |
| **Final Assessment** | › *To which extent does the objective reflect an actual need for intervention?*

The Alpine Region's aggregate as well as several of the concerned countries' individual performance on the EU Digitisation Index reveals a challenge in this area, which substantiates the aims of Action 5 of the Region's strategy to enhance the level of access to fast broadband network as well as to other important digital solutions and services. A need for intervention working towards increased levels of digitisation is thus clearly present.

› *Is the objective strategically relevant in a macro-regional context?* |

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[133] International DESI for 2015, http://www.sipotra.it/wp-content/uploads/2013/12/8.5.1.pdf

E-connectivity and e-services are important factors for competitiveness in the ever more digitised economy. Enhanced access to digital solutions and services throughout the Alpine Region would contribute to a more balanced territorial development and support the rollout of the Digital Single Market and the Digital Agenda.

Cooperation across the macro-region appears economically efficient – and in some cases technologically essential – in order to ensure higher levels of e-connectivity through increased access to (better) broadband connections for scarcely populated border-areas and, particularly, for very remote areas where broadband access is infeasible and satellite connections are the only available solution. Accordingly, the aims of this action are of high macro-regional relevance.

A.5   Objective 3: A more inclusive environmental framework for all and renewable and reliable energy solutions for the future

A.5.1   Natural and Cultural Resources (Action 6)

Assessment Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-34: Summary of Assessment – EUSALP – 6. Preservation and valorisation of natural resources, including water and cultural resources

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	6. Preservation and valorisation of natural resources, including water and cultural resources	**X**			
Theme of intervention		**Indicator**			
Natural & Cultural Resources		'Biodiversity: Natura 2000', 'Eco-Innovation Scoreboard'			
Judgement on the strands of need					
Aggregate	The countries of the Alpine macro-region score on average around the EU-median when it comes to the share territory designated as Natura 2000 site in 2010. On the Eco-Innovation Scoreboard for 2015, the results show that the countries on average, and thus the macro-region, perform above the EU-median. Conclusively, there is no need for intervention on the aggregate strand.				
Individual	The coverage of Natura 2000 sites varies among the countries. AT, DE, and particularly FR score as 'bottom-performers', and points to a need for intervention. Conclusively, more corridors and possibilities for species to retreat are needed to address the pressure on biodiversity. The data on the Eco-innovation Scoreboard shows that the all countries belong to the 'top-performers' of the EU, which shows that in comparison to the rest of the territory of the European Union, all countries manage to innovate on processes that improve on ecological improvements.				
Internal	*Not addressed*				
Traffic Light	Corresponds to need + Macro-regionally relevant				
Justification	The indicator analysis shows that the macro-region is strong on Eco-Innovation. However, when it comes to the extent of Natura 2000 areas, measured as a share of territory, three countries (out of the five measured) are 'bottom-performers', which therewith fulfils the judgement criteria. There is no conclusion on cultural resources, as no data could be identified. The preservation and valorisation of natural resources is relevant, as the mountainous geography creates scope for symmetric approaches. The macro-regional framework can therein serve as a facilitator to exchange knowledge and practices among countries. In terms of the cultural resources, the macro-regional approach can help to establish a common identity throughout the macro-region. Establishing a more common identity can in turn promote territorial cohesion, as cultural connections are being re-enforced.				

Theme of Intervention & Relevant Sources

Action 6 aims to preserve natural resources, of which particularly water. With respect to natural resources, the utilisation of Natura 2000 stands in the centre. The action seeks further to valorise cultural resources better, such as through more innovation on local products and creating new business opportunities via research, manufacturing and marketing. The theme of intervention is therefore

'Natural & Cultural Resources'. According to the action plan, the preservation and valorisation of natural and cultural resources is already strong, but should be further enhanced. Therefore, this action responds to a 'Strength'.

The share of territory designated as Natura 2000 site in 2010, as measured by the indicator 'Biodiversity: Natura 2000' provides inference on the degree to which the Alpine landscapes and its resources are protected. The 'Eco-Innovation Scoreboard' indicator provides inferences on how strong the macro-region's countries manage to capitalise through innovation on their natural resources. No indicator or literature tailored to cultural resources could be found, and is thus not included in this analysis.

Strand of Need: Aggregate

The countries of the Alpine macro-region score on average around the EU-median when it comes to the share territory designated as Natura 2000 site in 2010.

Table 3-35: Share of territory designated as Natura 2000 site in 2010 by country-level. Source: Task 1, EEA.

	Benchmark
AT	91
DE	93
FR	76
IT	105
SI	150
Alps	103

Also on the Eco-Innovation Scoreboard for 2015, the results show that the countries on average, and thus the macro-region perform above the EU-median.

Table 3-36: Eco-Innovation Scoreboard in 2015, Source: Task 1

	Benchmark
AT	115
DE	128
FR	119
IT	114
SI	108
Alps	117

Strand of Need: Individual

The coverage of Natura 2000 sites varies among the countries. Austria, Germany, and particularly France score as 'bottom-performers', and points to a need for intervention. Conclusively, more corridors and possibilities for species to retreat are needed, to address the pressure on biodiversity.

The data on the Eco-innovation Scoreboard shows that the all countries belong to the 'top-performers' of the EU, which shows that in comparison to the rest of the territory of the European Union, all countries manage to innovate on processes that improve on ecological improvements.

Strand of Need: Internal	*Not addressed*

Final Assessment

> *To which extent does the objective reflect an actual need for intervention?*

The indicator analysis shows that the macro-region is strong on Eco-Innovation. However, when it comes to the extent of Natura 2000 areas, measured as a share of territory, three countries (out of the five measured) are 'bottom-performers', which therewith fulfils the judgement criteria. There is no conclusion on cultural resources, as no data could be identified.

> *Is the objective strategically relevant in a macro-regional context?*

The preservation and valorisation of natural resources is relevant, as the mountainous geography creates scope for symmetric approaches. The macro-regional framework can therein serve as a facilitator to exchange knowledge and practices among countries. In terms of the cultural resources, the macro-regional approach can help to establish a common identity throughout the macro-region. Establishing a more common identity can in turn promote territorial cohesion, as cultural connections are being re-enforced.

A.5.2   Ecological Connectivity (Action 7)

Assessment Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-37: Summary of Assessment – EUSALP – 7. Development of ecological connectivity in the whole EUSALP territory

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	7. Development of ecological connectivity in the whole EUSALP territory		**X**		
Theme of intervention		**Indicator**			
Ecosystem Connectivity		*External Indicator:* 'Landscape Fragmentation'			
Judgement on the strands of need					
Aggregate	The indicator shows that the territory of the EUSALP is for 2010 less fragmented than the EU median, as the score of 113 points reveals, which does not fulfil the judgement criteria.				
Individual	The individual strand shows neither a need for action, as the average in the regions of the countries shows no bottom performance. The lowest performing regions are on average those of DE.				
Internal	No notable internal difference can be observed.				
Traffic Light	The objective is macro-regionally relevant				
Justification	The judgement criteria are not fulfilled on any of the three strands, and there is therefore no need for intervention. The fact that no need has been identified according to the judgement criteria does however not imply that this Action is unnecessary or such. Rather it points out that no need for action has been identified under the framework of Cohesion Policy. As natural habitats are not influenced by national, but geographic borders, action to reduce fragmentation through for example green infrastructures is macro-regionally relevant. The reason being that it offers species a higher diversity of geographical migration options, than under separate nationally focussed approaches.				

Theme of Intervention & Relevant Sources	Action 7 improves ecological connectivity of the territory, to effectively promote the conservation of biodiversity and the provision of ecosystem services. Despite a wide coverage of the territory in terms of protected areas, the action plan deems the existing degree of fragmentation of ecosystems through human-made (infra-) structures as an issue.

The selected indicators do not include an indicator on the fragmentation. For this review however, an additional indicator from the EU's Joint-Research-Centre on the landscape fragmentation is introduced and benchmarked for the year of 2010.[134]

Strand of Need: Aggregate	The indicator shows that the territory of the EUSALP is for 2010 less fragmented than the EU median, as the score of 113 points reveals, which does not fulfil the judgement criteria.

*Table 3-38: Fragmentation of the landscape through barriers in 2010, LF622 – Landscape Fragmentation (LUISA), Source: JRC. * Malta has been omitted when defining the scale of the Benchmark due an extreme fragmentation.*

	Benchmark
AT	116
DE	100
FR	123
IT	120
SI	126
Alps	113

Strand of Need: Individual	The individual strand shows neither a need for action, as the average in the regions of the countries shows no bottom performance. The lowest performing regions are on average those of Germany.

Strand of Need: Internal	No notable internal differences can be observed.

Final Assessment	> *To which extent does the objective reflect an actual need for intervention?*

The judgement criteria are not fulfilled on any of the three strands, and there is therefore no need for intervention. The fact that no need has been identified according to the judgement criteria does however not imply that this Action is unnecessary or such. Rather it points out that no need for action has been identified under the framework of Cohesion Policy.

> *Is the objective strategically relevant in a macro-regional context?*

As natural habitats are not influenced by national, but geographic borders, action to reduce fragmentation through for example green infrastructures is

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[134] JRC, LF 622 – Landscape Fragmentation (LUISA Platform REF2014), http://data.jrc.ec.europa.eu/dataset/jrc-luisa-lf622-landscape-fragmentation-ref-2014

macro-regionally relevant. The transnational approach enables for example to shape and adapt green infrastructures more to the ecologic needs and potentially a higher diversity of migration options, than under separate nationally focussed approaches. In turn, the improved connectivity will reduce the anthropogenic pressure on biodiversity.

A.5.3 Risk Management and Climate Change Adaptation (Action 8)

Assessment Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-39: Summary of Assessment – EUSALP – 8. Risk management and better management of climate change, including major natural risks prevention

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	8. Risk management and better management of climate change, including major natural risks prevention				**X**
Theme of intervention		**Indicator**			
Climate Change Adaptation & Environmental Risks		'Potential Climate Change Vulnerability'			
Judgement on the strands of need					
Aggregate	The indicator on 'Potential climate Change Vulnerability' shows that the Alp Regions' potential vulnerability is on average as high as the EU-median of 100. The potential environmental impact is on average expected to correspond to the median. From the perspective of economic impacts, the Alpine's regions are on average affected worse than the EU-median. The slightly higher adaptive capacity compensates however for this.				
Individual	The regions of three countries – out of five countries with data - exhibit on average a higher potential vulnerability than the EU-median, of which especially south of Alps (i.e. IT and SI). The high vulnerability is, among others, explained by strong economic impacts in all countries – except DE. The potential environmental impacts are in FR, IT, and SI also stronger than the median of 100, yet to a less severe extent. The adaptive capacity in this Region is only clearly below the EU for IT. SI lies with 98 points only on the verge of being a 'bottom performer'. The scoring on the adaptive capacity shows that most countries have a stronger capacity than the median of the EU, which hints to the fact that the public authorities are potentially competent in coordinating environmental risk management and disaster response.				
Internal	The capital regions (or regional capital regions in DE) of Oberbayern in Bayern (DE), Wien (AT), and Western Slovenia (SI) exhibit considerably higher adaptive capacity. The difference in comparison to the countries other regions is up between 15 points in SI (vs Eastern Slovenia), and remarkable 40 points in AT (vs Burgenland).				
Traffic Light	Corresponds to need + Macro-regionally relevant				
Justification	The Alpine Region exhibits on an aggregate level an average potential vulnerability to climate change that corresponds to the EU-median. However, the potential economic impacts place the average performance of the Region as a 'bottom performer'. Looking at the individual countries, a significant number of countries scores as 'bottom performer', of which the same is true for the environmental impacts. The economic impacts are more severe, and nearly all countries are placed in the 'bottom end'. The scoring on the adaptive capacity is comparably more positive, with only one clear 'bottom performer'. Based on these insights, it can be concluded that there is a need for intervention. The mountainous character of this macro-region is a commonly shared feature throughout nearly all of its geography, and therefore places the macro-region in front of commonly shared challenges as a consequence of climate change like glacier melts, landslides, and biodiversity loss in the higher altitudes. The exchange on approaches towards action on environmental				

	management (e.g. ecosystem based approaches) and climate change adaptation is therefore relevant. Especially in the context of the planned integrated risk assessment, the resulting management actions and newly gained insights can be shared throughout the macro-region.

Theme of Intervention & Relevant Sources

The underlying Action aims to improve the management of environmental risks as well as to better manage climate change, due to an anticipated high vulnerability of the Region. The actions focus mostly on cooperation on management systems, joint response coordination, or comprehensive vulnerability assessment. The actions should overall be in line with the specific National Adaptation Strategies. The theme of intervention is therefore 'Climate Change Adaptation & Environmental Risks'.

The indicator 'Potential Climate Change Vulnerability' measures environmental and economic impacts, as well as the adaptive capacity as a weighted combination of most recent data an economic, infrastructure, technological, and institutional capacity as well as knowledge and awareness of climate change. Combined with the cultural, physical, and social impacts, a potential vulnerability was calculated.

The indicator does not optimally reflect on the existing degree of coordination for disaster response in the macro-region. A search for external sources did however not result in relevant literature. The analysis provides therefore no inference on any potential need for disaster response coordination.[135]

Strand of Need: Aggregate

The indicator on 'Potential climate Change Vulnerability' shows that the Alp Regions' potential vulnerability is on average as high as the EU-median of 100. The potential environmental impact is on average expected to correspond to the median. From the perspective of economic impacts, the Alpine's regions are on average affected worse than the EU-median. The slightly higher adaptive capacity compensates however for this.

Table 3-40: Benchmarking scores for the indicator 'Potential Climate Change Vulnerability' and selected components. The impacts are projections for 2071-2100, and the adaptive capacity based on the year 2011, Source: Task 1

	Potential Vulnerability	Potential Environmental Impact	Potential Economic Impact	Adaptive Capacity
AT	108	102	97	120
DE	119	108	111	127
FR	96	90	87	108
IT	73	96	67	72
SI	80	78	83	98
CH	n/a	n/a	93	n/a
Alps	101	100	92	108

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[135] The 'Adaptive Capacity' component provides as an alternative the capacity of adaptation in terms of economic resources, knowledge and awareness, infrastructure, institutions, and technology. ESPON Climate, 2013, Final Main Report, https://www.espon.eu/sites/ default/files/attachments/Final%20Report%20Main%20Report.pdf

Strand of Need: Individual	The regions of three countries – out of five countries with data - exhibit on average a higher potential vulnerability than the EU-median, of which especially south of Alps (i.e. Italy and Slovenia). The high vulnerability is, among others, explained by strong economic impacts in all countries – except Germany. The potential environmental impacts are in France, Italy, and Slovenia also stronger than the median of 100, yet to a less severe extent. The adaptive capacity in this Region is only clearly below the EU for Italy. Slovenia lies with 98 points only on the verge of being a 'bottom performer'.

The scoring on the adaptive capacity shows that most countries have a stronger capacity than the median of the EU, which hints to the fact that the public authorities are potentially competent in coordinating environmental risk management and disaster response. |
| Strand of Need: Internal | The capital regions (or regional capital regions in Germany) of Oberbayern in Bayern (Germany), Wien (Austria), and Western Slovenia (Slovenia) exhibit considerably higher adaptive capacity. The difference in comparison to the countries other regions is up between 15 points in Slovenia, and remarkable 40 points in Austria. |
| Final Assessment | › *To which extent does the objective reflect an actual need for intervention?*

The Alpine Region exhibits on an aggregate level an average potential vulnerability to climate change that corresponds to the EU-median. However, the potential economic impacts place the average performance of the Region as a 'bottom performer'. Looking at the individual countries, a significant number of countries scores as 'bottom performer', of which the same is true for the environmental impacts. The economic impacts are more severe, and nearly all countries are placed in the 'bottom end'. The scoring on the adaptive capacity is comparably more positive, with only one clear 'bottom performer'. Based on these insights, it can be concluded that there is a need for intervention.

› *Is the objective strategically relevant in a macro-regional context?*

The mountainous character of this macro-region is a commonly shared feature throughout nearly all of its geography, and therefore places the macro-region in front of commonly shared challenges as a consequence of climate change like glacier melts, landslides, and biodiversity loss in the higher altitudes. The exchange on approaches towards action on environmental management (e.g. ecosystem based approaches) and climate change adaptation is therefore relevant. Especially in the context of the planned integrated risk assessment, the resulting management actions and newly gained insights can be shared throughout the macro-region. |

A.5.4 Energy Efficiency and Renewable Energy (Action 9)

Assessment
Summary

The table below provides the summary of this objective's assessment. Further detailed information can be found below the table.

Table 3-41: Summary of Assessment – EUSALP – 9. Making the territory a model region for energy efficiency and renewable energy

Strategy	Action	Strength	Weakness	Opportunity	Threat
EUSALP	9. Making the territory a model region for energy efficiency and renewable energy		**X**		

Theme of intervention		Indicator	
Sustainable Energy		'Renewable Energy Use', 'Energy Efficiency'	

Judgement on the strands of need	
Aggregate	The indicator on 'Renewable Energy Use' shows that the countries of the Alpine Region are on average a moderate 'top performer'. While the benchmark shows an average score of 111 on the supply on renewable energy, the share of the consumption of renewables is nearly as high as for the EU-median of 100 points. The countries of the Region score on the 'Energy Efficiency' indicator 95 points, and thus only little below the EU-median of 100 points. The components of the index show two distinct directions. The gains in energy efficiency since 2000 are only 78 points. The energy intensity component shows that the Region's economies are on average more advanced towards a low-carbon standard, than the rest of the EU.
Individual	The majority of countries scores above 100 points on the renewable energy index. Only DE and FR score as a 'bottom performer'. Both are at the same time the Region's only countries that score below 100 – and thus the EU-median – on the consumption of renewable energy. On the supply of renewables, FR is the only 'bottom performer'. According to the index hence, a significant majority (40%) of countries fulfil the judgement criteria. The 'Energy Efficiency' indicator flags AT, DE and IT as 'bottom performers', while SI is on the EU's median. These low scores are due to partially very low scores on energy efficiency gains. All richer countries, with the exception of FR score clearly below the median. IT is even the country with the least progress made in all of the EU.
Internal	*Not addressed*
Traffic Light	Corresponds to need + Macro-regionally relevant
Justification	The macro-region exhibits a need for intervention on both renewable energy use and energy efficiency. On renewable energy however, the judgement criteria are only marginally fulfilled as only DE and FR score low. On the energy efficiency however, a significant number of countries perform on the median of 100. Particularly with respect to gains in energy efficiency, AT, DE, and IT lag strongly behind. In conclusion, there is thus a need for intervention under this Action. The progress of renewable energy and energy efficiency is a commonly shared objective – at least among the Member States – due to for example the EU2020 targets, Energy Efficiency Directive, and Energy Union Package. A macro-regional approach can help to establish knowledge networks (e.g. on innovation of technologies) and coordinate the planning of infrastructures. Under the EU's overall objective to establish a single energy market, infrastructure coordination helps to ensure an energy system that can efficiently distribute energy (to avoid losses from e.g. intermittent sources) and prove flexible enough for high shares of intermittent energy sources. The Action is therefore considered macro-regionally relevant.

Theme of
Intervention &
Relevant Sources

Action 9 aims to advance the Region's production and use of renewable energy and lift the performance on energy efficiency. With respect to renewable energies, the Alpine Region is seen to have a high potential for multiple sources

– particularly on hydropower. Furthermore, the Action highlights the numerous possibilities to use hydropower as an energy storage solution. The energy efficiency component follows the objective to create a region-wide model area of modern energy efficiency. The theme of intervention is therefore 'Sustainable Energy'.

The components of this Action are reviewed via the indicators of the same: 'Renewable Energy Use' and 'Energy Efficiency. Both indicators provide data for the year 2014. The first indicator consists of the share of renewable energy in the primary energy supply (i.e. production and imports) and the gross final consumption of renewable energy. The second indicator is made up of the energy efficiency gains made since 2000 and the energy intensity of the economies. These two components allow two sets of interpretations. Efficiency gains indicate the marginal changes achieved, and energy intensity demonstrates how far advanced economies are in becoming low-carbon.

Strand of Need: Aggregate

As the indicator on 'Renewable Energy Use' shows in the table below, the countries of the Alpine are on average a moderate 'top performer'. While the benchmark shows an average score of 111 on the supply on renewable energy (which also includes the import of renewable energy), the share of the consumption of renewables is nearly as high as for the EU-median of 100 points.

Table 3-42: Renewable Energy (RE) Use in 2014, Source: Task1

	Index	RE Supply	RE Consumption
AT	130	137	123
DE	96	102	90
FR	91	89	92
IT	108	114	101
SI	111	115	108
Alps	107	111	103

The countries of the Region score on the 'Energy Efficiency' indicator 95 points, and thus only little below the EU-median of 100 points. The components of the index show two distinct directions. The gains in energy efficiency since 2000 are only 78 points. The energy intensity component shows that the Region's economies are on average more advanced towards a low-carbon standard, than the rest of the EU.

Table 3-43: Energy Efficiency in 2014, Source: Task 1

	Index	Energy Efficiency Gains since 2000	Energy Intensity
AT	94	68	120
DE	86	64	108
FR	107	100	113
IT	88	50	126
SI	100	109	92
Alps	95	78	112

Strand of Need: Individual	The majority of countries scores above 100 points on the renewable energy index. Only Germany and France score as a 'bottom performer'. Both are at the same time the Region's only countries that score below 100 – and thus the EU-median – on the consumption of renewable energy. On the supply of renewables, France is the only 'bottom performer'. According to the index hence, a significant majority (40%) of countries fulfil the judgement criteria.

The 'Energy Efficiency' indicator flags Austria, Germany and Italy as 'bottom performers', while Slovenia is on the EU's median. These low scores are due to partially very low scores on energy efficiency gains. All advanced countries, with the exception of France score clearly below the median. Italy is even the country with the least progress made in all of the EU. |
| Strand of Need: Internal | *Not addressed* |
| Final Assessment | > *To which extent does the objective reflect an actual need for intervention?*

The macro-region exhibits a need for intervention on both renewable energy use and energy efficiency. On renewable energy however, the judgement criteria are only marginally fulfilled as only Germany and France score low. On the energy efficiency however, a significant number of countries perform on the median of 100. Particularly with respect to gains in energy efficiency, Austria, Germany, and Italy lag strongly behind. In conclusion, there is thus a need for intervention under this Action.

> *Is the objective strategically relevant in a macro-regional context?*

The progress of renewable energy and energy efficiency is a commonly shared objective – at least among the Member States – due to for example the EU2020 targets, Energy Efficiency Directive, and Energy Union Package. A macro-regional approach can help to establish knowledge networks (e.g. on innovation of technologies) and coordinate the planning of infrastructures. Under the EU's overall objective to establish a single energy market, infrastructure coordination is vital to ensure an energy system that can efficiently distribute energy (to avoid losses from e.g. intermittent sources) and prove flexible enough for high shares of intermittent energy sources. The Action is therefore considered macro-regionally relevant. |

Appendix B   List of literature

The literature used for and referenced by this study is presented below. It is organised into five sections:

1. Academic publications

2. European Policy Framework

3. Macro-regional Strategies

4. Documents related to each macro-regional strategy

5. Specific Data/Indicator & Internet Sources

1. Academic Publications & Reports

There is an emerging literature on the concept, application, and effectiveness of macro-regional strategies. The sources of these publications are broadly grouped into economic geography research focused on the economic and technical changes that are driving a rescaling process in Europe, and studies that focus on the policy instruments themselves.

Banister D. 2002. Transport Planning, Spon Press, New York.

Bengtsson, R. 2009. "An EU Strategy for the Baltic Sea Region: Good Intentions Meet Complex Challenges," Swedish Institute for European Policy Studies

Bevir, M. 2013. Governance: A very short introduction. Oxford, UK: Oxford University Press.

Bhagwati, J. N. 1987. Quid pro quo foreign investment and welfare: A political-economy-theoretic model. Journal of Development Economics, Volume 27, Issues 1-2, Pages, 127-138.

Bialasiewicz, L.; Giaccaria, P.; Jones, A.; Minca, C. (2013) Re-scaling 'EU'rope: EU macro-regional fantasies in the Mediterranean. European Urban and Regional Studies, Vol. 20, No. 1, 59–76

BMVI Bundesministerium für Verkehr und Digitale Infrastruktur (ed.). 2017. Wirkungen der Transnationalen Zusammenarbeit in Interreg B. Untersuchung ausgewählter Interreg IVB-Projekte nach erzielten Wirkungen und zentralen Gelingensfaktoren. Berlin: BMVI.

Böhme K. 2013. "Added value of macro-regional strategies: a governance perspective," Spatial Foresight Brief

Braun and Kovács. 2011. "Macro-regional strategies: Experiment for the Renewal of Economic Policy of the European Union," in Public Finance Quarterly.

Brenner, N. (2004) New State Spaces. Urban Governance and the Rescaling of Statehood, Oxford: Oxford University Press.

Christiansen, T. 1997. "A European Meso-region? European Union Perspectives on the Baltic Sea Region" in P. Joenniemi (ed.) Neo-nationalism or Regionalism? The Re-structuring of Political Space around the Baltic Rim

Cugusi, B. and Stocchiero, A. 2012. "Macro-regions, "la Nouvelle Vogue" of Transnational Cooperation, the Geopolitical Case of the Mediterranean Basin," in EUBORDERREGIONS Working Paper Series

Dühr, S., Colomb, C., and Nadin, V. 2010. European spatial planning and territorial cooperation. London, New York: Routledge.

Dühr, S. 2011. "Baltic Sea, Danube and Macro-regional Strategies – A Model for Transnational Cooperation in the EU?" Notre Europe Study & Research

Dühr, S. 2013. The added-value of macro-regional strategies from the perspective of spatial planning. Report for the European Commission, DG Regio.

Dühr, S. 2014a. Are there arguments for a Central European macro-regional strategy? Report for the INTERREG IVB Central Europe 'City-Regions' project.

Dühr, S. 2014b. Scales of cooperation, spaces of communication. Inaugural lecture delivered at the acceptance of the post of Professor of European Spatial Planning Systems at the Nijmegen School of Management, Radboud University Nijmegen, on Friday 11 April 2014. Nijmegen: Radboud University Nijmegen.

EIPA. 2013. Improving Public Organisations through Self-Assessment – The Common Assessment Framework (CAF).

Folfas, P. 2011. FDI between EU Member States: Gravity model and taxes. Working Paper, http://www.etsg.org/ETSG2011/Papers/Folfas.pdf

Foster, N., G. Hunya, O. Pyndyuk and S. Richter. 2011. Revival of the Visegrad Countries' Mutual Trade after their EU Accession: a Search for Explanation. Wiiw Research Report No. 372.

Gänzle S and Kern K. 2011. "Macro-regional Strategies: A New Mode of Differentiated integration in the European Union," Paper for CEPSA Annual Conference.

Gänzle S and Kern K (eds). 2016. A 'Macro-regional' Europe in the Making: Theoretical Approaches and Empirical Evidence.

Gänzle, S. 2014. "Macro-regional Strategies and the EU. Building Inter- and Trans-government Relations," in Public Administration Times.

Geerlings, H. and Stead, D. 2003. The Integration of Land Use Planning, Transport and Environment in European Policy and Research. Transport Policy, Vol. 10, No. 3, pp. 187- 196.

Geurs T. K. and B. van Wee. 2006. Ex-post Evaluation of Thirty Years of Compact Urban Development in the Netherlands, Urban Studies, vol. 43, Issue 1, 2006.

Grozea-Helmenstein, D., Helmenstein, C., Kleissner, A., Moser, B. 2008. *Makroökonomische und sektorale Effekte der UEFA EURO 2008 in Östereich.* Wirtschaftspolitische Blätter, 2008 (1). pp. 7-20.

Grozea-Helmenstein D., C. Helmenstein, T. Slavova. 2009. *Who is the best? Insights from the benchmarking of border regions.* Trames. Journal of the Humanities and Social Sciences, 13(63/58), (3). pp. 285-302.

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Healey, P. 2007. Urban Complexity and Spatial Strategies: towards a relational planning for our times. London, New York: Routledge.

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Hufty, M. 2011. Investigating Policy Processes: The Governance Analytical Framework (GAF). In: Wiesmann, U., Hurni, H., et al. eds. Research for Sustainable Development: Foundations, Experiences, and Perspectives. Bern: Geographica Bernensia: 403–424.

Huggins, R., and lzushi, H. 2008. UK Competitiveness Index 2008. Cardiff, UK: Centre for International Competitiveness.

Hull A. 2011. Transport Matters: Integrated Approaches to Planning City-regions, Routledge.

IPCC. 2007. Climate Change 2007, Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC (978 0521 88010-7 Hardback; 978 0521 70597-4 Paperback).

IMF. 2013. Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (*BPM6*).

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Robert, J., Stumm, T., de Vet, J.M., Reincke, C.J., Hollanders, M. and Figueiredo, M.A. 2001. Spatial Impacts of Community Policies and Costs of Non-Coordination. Study carried out at the request of the European Commission DG REGIO, Brussels: CEC.

Schmidt-Thome P. and S. Greiving (2013) editors. European Climate Vulnerabilities and Adaptation: A Spatial Planning Perspective, published by John Wiley and Sons Ltd. UK. ISBN 978-0-470-97741-5

Sielker, F. 2016. "What could the future role of Macro-regional strategies in the EU be? –Four scenarios", Working Paper No. 1/2016, Friedrich-Alexander Universität Erlangen-Nürnberg.

Stead, D. 2014. "European Integration and Spatial Rescaling in the Baltic region: Soft spaces, soft planning and soft security," in European Planning Studies 22(4).

Stead, D. 2014. "Rescaling environmental governance – the influence of European transnational cooperation initiatives," Environmental Policy and Governance 24(5).

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Williams, C., 2014, The Informal Economy and Poverty: Evidence and Policy Review, https://www.researchgate.net/profile/Colin_Williams/publication/260453006 _The_Informal_Economy_and_Poverty_Evidence_and_Policy_Review/links/02e7 e5319cc6d0fcf6000000/The-Informal-Economy-and-Poverty-Evidence-and-Policy-Review.pdf

2. European Policy Framework

The European policy framework is driven by developments in overall economic, environmental, and social perspectives, and reinforced by the evaluation of territorial cooperation approaches.

2.A General

European Commission. 20120. EU 2020 - A New European Strategy For Jobs And Growth. COM(2010) 2020, Brussels.

2.B Cohesion Policy

Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006

Common Provisions Regulation (EU) No 1303/2013. Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006. (See page 93 for Common Strategic Framework)

Ex post evaluation of Cohesion Policy programmes 2007-2013 financed by the ERDF and the Cohesion Fund - WP1: Synthesis Report

European Structural and Investment Funds 2014-2020: Official Texts And Commentaries

Regulation (EU) No 1299/2013 of the European Parliament and of the Council of 17 December 2013 on specific provisions for the support from the European Regional Development Fund to the European territorial cooperation goal

Council Regulation (EU) No 1300/2013 of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006

Climate change, impacts and vulnerability in Europe. http://www.eea.europa.eu/publications/climate-change-impacts-and-vulnerability-2016

Climate-ADAPT. Website/platform: http://climate-adapt.eea.europa.eu/countries-regions/transnational-regions

Climate change indicators. Website/platform: http://www.eea.europa.eu/data-and-maps/indicators/#c5=climate-change-adaptation&b_start=0

Climate-ADAPT vulnerability maps. Website: http://climate-adapt.eea.europa.eu/knowledge/tools/urban-adaptation/introduction

DG Employment. 2014. Monitoring and Evaluation of European Cohesion Policy-European Social Fund, Guidance Document on Indicators of Public Administration Capacity Building

European Commission. 2004. A new partnership for cohesion. Convergence, competitiveness, cooperation. Third report on economic and social cohesion. Luxembourg: Office for Official Publications of the European Communities.

European Commission. 2010. Fifth Report on economic, social and territorial cohesion - Investing in Europe's future. Luxembourg: Office for Official Publications of the European Communities.

Polycentric crossborder system and transport. Towns as components of an Organised Transport Systems can be found at p. 23-25 of this draft chapter for the Urban agenda of an Euroregion

Pucher, J., Frangenheim, A., Sanopoulos, A., Schausberger, W. 2015. The Future of Cohesion Policy, Report I, Committee of the Regions, Brussels.

S3 platforms contain data about different countries and regions and use "tools" to analyze them. Website/platforms: http://s3platform.jrc.ec.europa.eu/; http://s3platform.jrc.ec.europa.eu/s3-cooperation; http://s3platform.jrc.ec.europa.eu/s3-tools

TEN-T: On the (TEN-T) Corridors dimension and their interrelation with the macro-regional strategies, refer to the EU Coordinators Work Plans, notably for:

> Danube Strategy - > Rhine Danube Corridor

> Alpine Strategy -> Scan-Med corridor (it concerns 3 other corridors too but less involved – interesting to see the governance elements referred to – and partially set-up by the Coordinator, Pat Cox)

> Baltic Sea Strategy -> North Sea- Baltic corridor. Website: http://ec.europa.eu/transport/node/4876

3. Macro-regional Strategies

The concept, application, and spread of macro-regional strategies as policy instruments has been supported by the institutions that comprise the European Union, along with the supporting programmes that support broader territorial cooperation.

3.A Policy Publications

3.A.1 European Commission

Charron, N., Dijkstra, L., Lapuente, V. 2012. Regional Governance Matters: A Study on Regional Variation in Quality of Government within the EU. European Commission, DG REGIO.

European Commission. 2014. A Discussion Paper for the revision of the Action Plan of the EU Strategy for the Baltic Sea Region (EUSBSR), not public

European Commission. 2013a. Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the added value of macro-regional strategies. COM(2013) 468 final.

European Commission. 2013b. Commission Staff Working Document *accompanying the document* 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the added value of macro-regional strategies'. SWD(2013) 233 final.

European Commission. 2014. 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the governance of macro-regional strategies'. COM (2014) 284 final.

European Commission. 2015. Enabling synergies between European Structural application: and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programmes.

European Commission (2016), report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the implementation of EU macro-regional strategies. COM(2016) 805 final.

Samecki, P. (2009) Macro-regional Strategies in the European Union, Discussion Paper presented by Commissioner Pawel Samecki in Stockholm, 18 September, Brussels: DG Regio

3.A.2 European Parliament

European Parliament. 2010. Working Document on the European Union Strategy for the Baltic Sea Region and the role of macro-regions in the future cohesion policy, Committee on Regional development, 06.01.2010

European Parliament. 2012. The evolution of EU macro-regional strategies: present practice and future prospects, especially in the Mediterranean, Motion for Resolution,

European Parliament. 2012b: Resolution from the European Parliament on optimising the role of territorial development in cohesion policy

Common Provisions Regulation (EU) 1303/2013, see page 93 for Common Strategic Framework

European Parliament. 2015. The New Role of Macro-regions in European Territorial Cooperation. Study Commissioned by the Directorate General for Internal Policies, Brussels

European Parliament. 2015. The New Role of Macro-regions in European Territorial Cooperation. Study Commissioned by the Directorate General for Internal Policies, Brussels. (incl. ANNEX)

3.A.3 Committee of the Regions

Committee of the Regions (2013): Opinion concerning the added value of macroregional strategies, CoR 28,29

3.A.4 Supporting programmes

ESPON programme

INTERACT programme

Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the implementation of EU macro-regional strategies {SWD(2016) 443 final} 16.12.2016 COM(2016) 805 final

The added value of macro-regional strategies seen from a project and programme perspective. Final report Spatial Foresight 2016

Added value of macro-regional strategies: Collecting practice examples. Final report Spatial Foresight 2016

> Interact has been working on the short documents clarifying MRS. MRS Glossary here and Overview on MRS priorities.

    > Website/platform: http://www.interact-eu.net/library?field_fields_of_expertise_tid=33#470

    Website/platform: http://www.interact-eu.net/library?field_fields_of_expertise_tid=33#819

Interact Joint Annual Work Plan for 2017 (at activity level). Website: http://www.interact-eu.net/#news

ESPON provides European-wide comparable. Website/Platform: https://www.espon.eu/main/

4. Documents related to specific strategies

Each macro-region has followed a similar process of identifying functional problems that require flexibility and coordination. The policy process has followed a similar trajectory. However, these needs and strategies are unique to each region, and are contained in the strategies and Action Plans for each region.

4.A Baltic Sea

A beginner's guide to the Baltic Sea Region – Swedish Tillvaxtverket

Action Plan - Working document accompanying the Communication concerning the European Union Strategy for the Baltic Sea Region - SEC(2009) 712 - September 2015 update

Analysis currently under finalisation by University of Geneve on networking patterns in the PAs/HAs related to environment in the EUSBSR. Report to come (Experts working on it are Dr Erik Gløersen (erik.gloersen@unige.ch) and Clément Corbineau (Clement.Corbineau@unige.ch). Please contact colleagues directly for further information.

Annex to the Action Plan: Ongoing and completed flagships of the EUSBSR

COM (2012) 128 final - 23.03.2012 concerning the European Union Strategy for the Baltic Sea Region (2012)

Embedding EUSBSR with ESIF – Case study of Lithuania

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EU Strategy for the Baltic Sea Region (EUSBSR – 2009)

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Policy Area Innovation Strategy Guide – Putting the Action Plan into Practice. Nordic Council of Ministers, 2016

Policy Area 'Nutri', Work Plan 2017 – DRAFT

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Progress Report – 2011 (most recent)

Project-to-policy loop. Meeting of coordinators for the EUSBSR and Interact 25 November 2016. Stockholm, Sweden

Report on the implementation of the Horizontal Action Climate of the EUSBSR in 2015-2016.

Study 'Cooperation methods and tools applied by European Structural and Investment Funds programmes for 2014-2020 to support implementation of the European Union Strategy for the Baltic Sea Region' here. Study was conducted by Spatial Foresight 2016. 1st and 2nd Interim Reports from the study on the EUSBSR web also available. Report link: http://interact-eu.net/library?field_fields_of_expertise_tid=33#809

Trends, challenges and potentials in the Baltic Sea Region. Website/platform: http://www.strategyforum2016.eu/media/reports/trends,-challenges-and-potentials-in-the-baltic-sea-region-33964731

VASAB workshop on territorial monitoring. Website/Platform: http://www.vasab.org/index.php/events/past-events/item/314-vasab-workshop-on-territorial-monitoring-krakow

Website of Policy Area Education, http://groupspaces.com/eusbsr-education/

Website of Policy Area Innovation. http://www.pa-innovation.eu/, Nordic council of Ministers

Website of Policy Area Nutri, http://groupspaces.com/eusbsr-nutrient-inputs/

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Adriatic and Ionian Euroregion (AIE), https://www.adriaticionianeuroregion.eu/

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Endorsement of the European Union Strategy for the Adriatic and Ionian Region
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