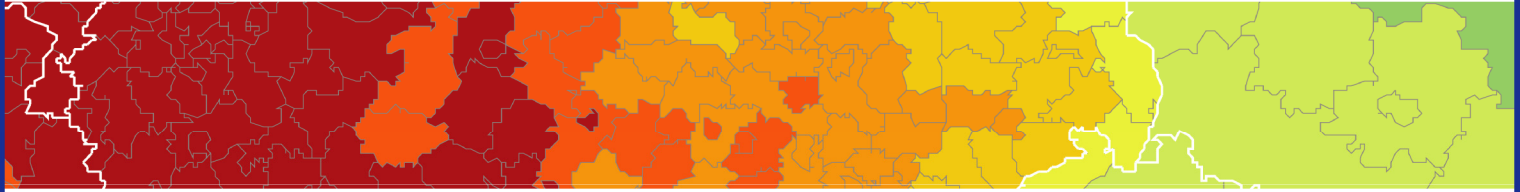


Inspire policy making by territorial evidence



Alps2050

Common spatial perspectives for the Alpine area. Towards a common vision

Targeted Analysis

Final Report

21.11.2018

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Alps2050
**Common spatial perspectives for the
Alpine area. Towards a common vision**

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Abbreviations

AC	Alpine Convention
ARGE ALP	Arbeitsgemeinschaft Alpenländer (Working Group Alpine Countries)
ASP	Alpine Space Programme
CAP	Common Agricultural Policy
EC	European Commission
ESPON	European Territorial Observatory Network
EPO	European Patent Office
EU	European Union
EUSALP	EU Strategy for the Alpine Region
GDP	Gross Domestic Product
IBK	Internationale Bodenseekonferenz (International Lake Constance Conference)
LAU	Local Administrative Unit
MRS	Macroregional Strategy
NUTS	Nomenclature of Territorial Units for Statistics
PPS	Power Purchasing Standard
R&D	Research and Development
SGI	Services of General Interest
SME	Small and Medium-Sized Enterprise
TEN	Trans-European Transport Network
TCP	Territorial Cooperation Programme

1 The Alpine Region and the ESPON project Alps 2050

The Alpine region is a specific geographical space, embodying spectacular landscape features, a precious cultural heritage, a touristic destination of global importance, being simultaneously an overall prosperous region and an ecological hot spot – diverse, unique, and vulnerable. At the same time, the Alpine area is a space of important internal linkages and characterised by an increasing embeddedness in global networks: Being located in the heart of Europe, the region is hence part of the dynamic development of a globally integrated economy. Globalisation and the need for competitive economic activities is an important driving force for the Alpine region. Against this background, sustainable development of this sensible area is a particular challenge for regional policies. Balancing development opportunities and protection regimes is a fundamental challenge and a strategic requirement: maintaining prosperity and quality of life, ensuring innovation, managing settlement demand, responding to climate change, reducing fragmentation of ecosystems, and steering agricultural transformation are just some of the most important issues at stake in the political agenda.

Thinking towards the year 2050 means to advance more than three decades, which is a very long period of time in these dynamic days. If we cast our mind back three decades, we are in a time where the Schengen treaty was not enacted, the Eastern ‘bloc’ still existed, the Euro was not invented, climate change was not yet an issue and agricultural structures were much more traditional than they are today. Thinking towards 2050 cannot be done in a purely quantitative way as too many influencing factors are hardly to be predicted. At the same time, strategic spatial development has to draft future visions in order to provide ‘orientation’ for development action.

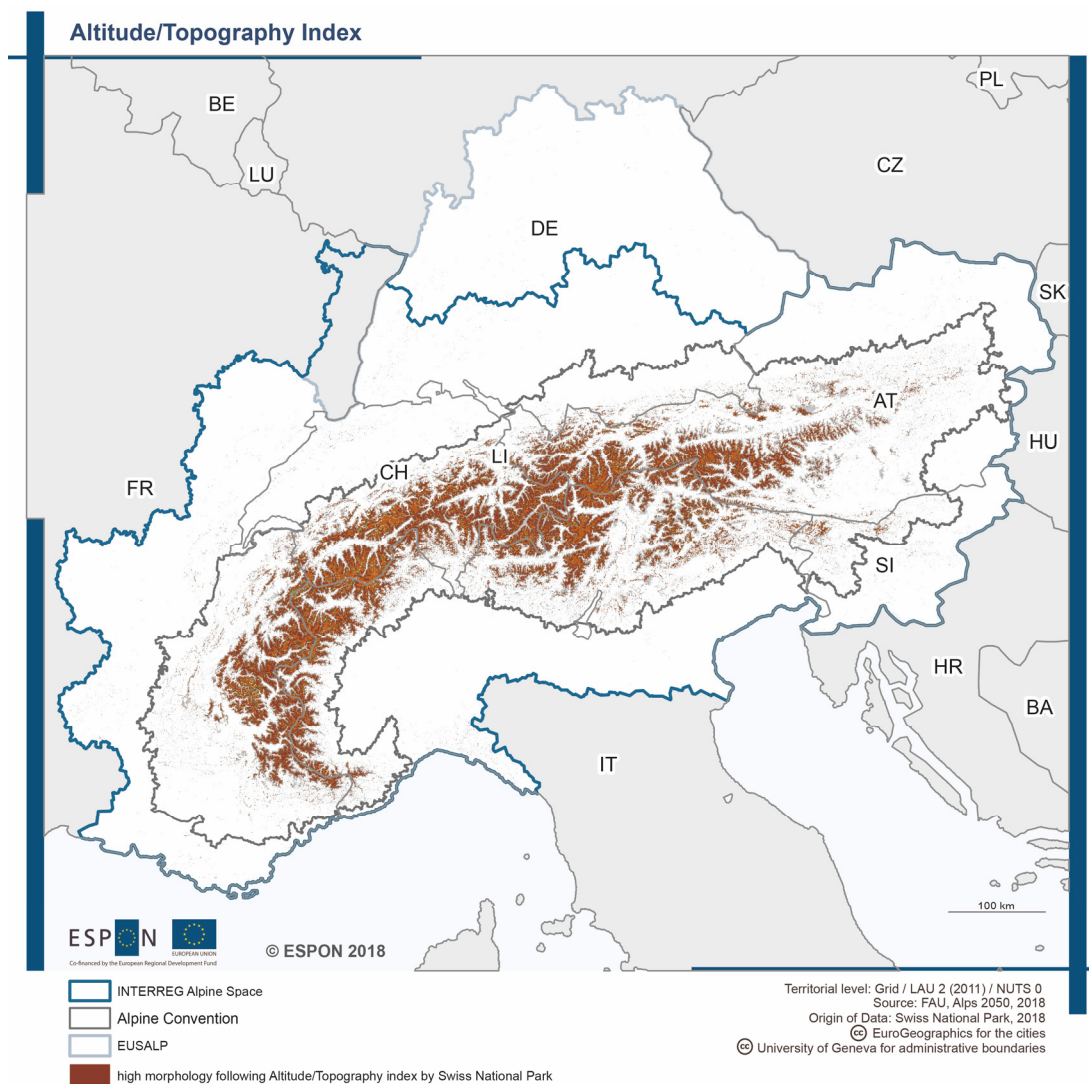
The ESPON project “Alps 2050 – Common spatial perspectives for the Alpine area. Towards a common vision” develops a common spatial development vision and a set of common spatial perspectives for the whole Alpine region. The project is based on territorial evidence and develops visions and perspectives in close interaction with stakeholders from the multi-level territorial governance system. The project aims at strengthening territorial cooperation and supporting sustainable development. The objective is not only to develop spatial perspectives and a vision for the Alpine area, but also to pave the way towards implementation in the complex multi-level governance system of the region and develop guidelines for a concerted multi-actor and sustainable territorial planning. These visions and evidences will lead to a more general sustainable territorial planning model, which could be transferred to other cooperation areas.

Map 1 shows the perimeters that are relevant for the Alps 2050 project, namely:

- The Alpine Convention (signed in 1991) whose perimeter has been aligned on municipal level based mainly on morphological arguments, i.e. that the perimeter marks the mountainous parts. In this report, this part will be named the Inner Alpine area.

- The INTERREG Alpine Space Programme started in 2000 and is now running in the fifth period 2014–20. Its perimeter goes far beyond the mountain area and also includes the surrounding metropolises and 'hinterland'.
- The macroregion EUSALP (launched only in 2016) is similar but not identical with the ASP space. The areas of the ASP and EUSALP perimeter that go beyond the Alpine Convention space will be named Pre-Alpine areas in this report. Its delimitation is based on the regional level.

This report presents the main findings of the project work. The full analyses can be found in respective annexes that complement and detail the report.



Map 1 The Alpine mountains and the Alps 2050 Perimeter

2 Current state of the Alpine area's territorial structure

2.1 Overview

The analysis of the territorial structure and development trends is mainly built on European and ESPON data sources, different tools of regional statistics show the complexity of the involved territories. Most data are available on NUTS 3 level, i.e. district level, in a few cases, municipal data (LAU 2) is available. Many results are commented more in detail in the Scientific Annex to this report and the Alps 2050 Atlas.

For the purpose of the Alps 2050 scenario building, we synthesise the findings along three main fields of spatial development: 1) the people and their territories, 2) the economy, 3) the environment. This will be complemented by the cross-cutting issue of 4) governance. After this analytical presentation, the future perspectives and scenario will also be developed along these three dimensions. Obviously, these dimensions are closely interwoven, they overlap and influence each other.

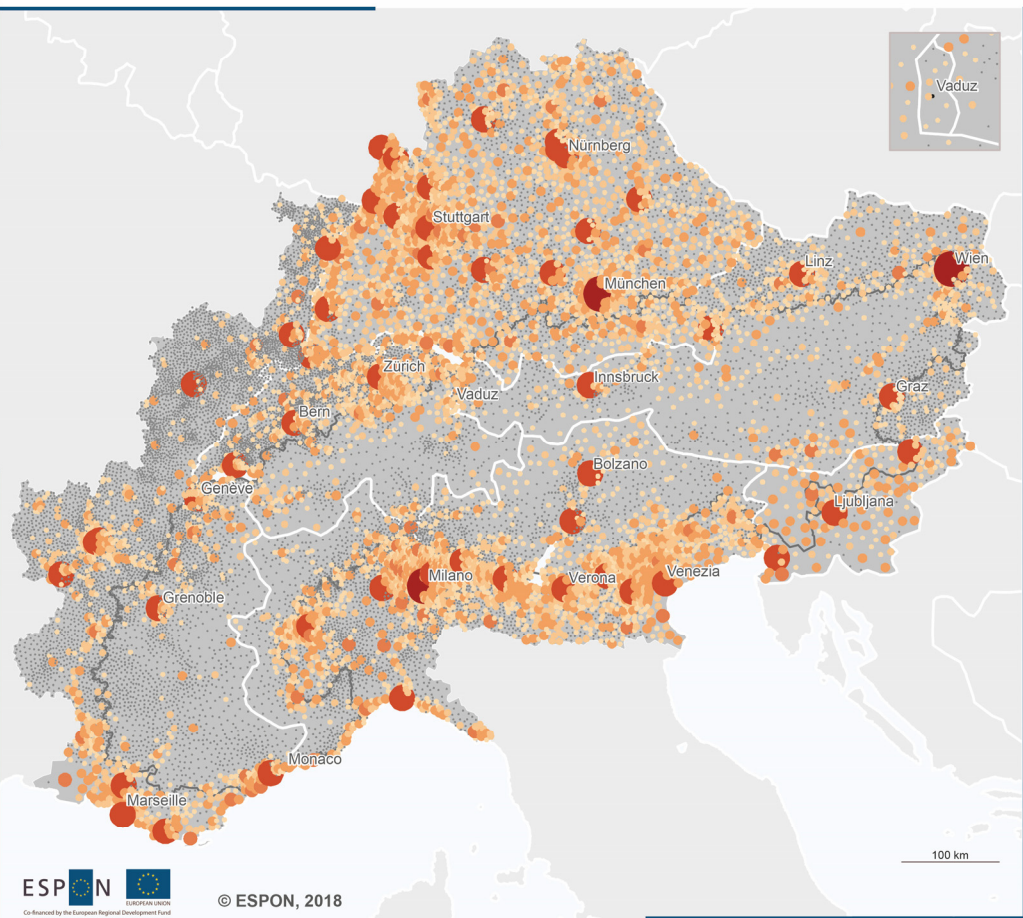
2.2 The people and their territories: Demography – settlement system – public services – transport

When we talk about the situation of the Alps 2050 region and their territories, we see a complex structure with many facets. To start with, the settlement system of the Alps 2050 perimeter displays one of those spatial structures where the morphological influence is most clearly visible. Map 2 shows the settlement system by presenting the size of municipalities, indicating the following spatial patterns:

- Within the Alpine Convention perimeter, the *size* of municipalities tends to be less high than beyond; and also the *number* of municipalities within a certain area tends to be lower in the mountainous area than in the pre-Alpine area.
- The map shows the importance of *valleys* for settlements, in particular the Inn valley (East of Innsbruck), the Rhine valley (North and South of Liechtenstein), the Isère valley (between Genève and Grenoble), the Sava and Soča valleys in Slovenia, the Po valley (from Milano Eastwards) etc.
- The map illustrates the relevance of different political and administrative contexts: The average size of municipalities – for example – is clearly larger in Slovenia than in France.
- The map clearly displays the importance of the Alpine morphology: the higher the mountains and narrower the valleys, the smaller the settlements.

Despite all the differences between national and regional contexts, there are obvious parallels in the settlement system – the relevance of the morphological structure in the Inner Alpine area, and the agglomeration ring all around the mountainous area. As macro-regional strategies are about common challenges and opportunities, the settlement system could be an obvious issue. It might be meaningful to debate transnational instruments for the development of settlement systems that support synergies across borders.

Settlement system



Number of inhabitants per municipality (2010)



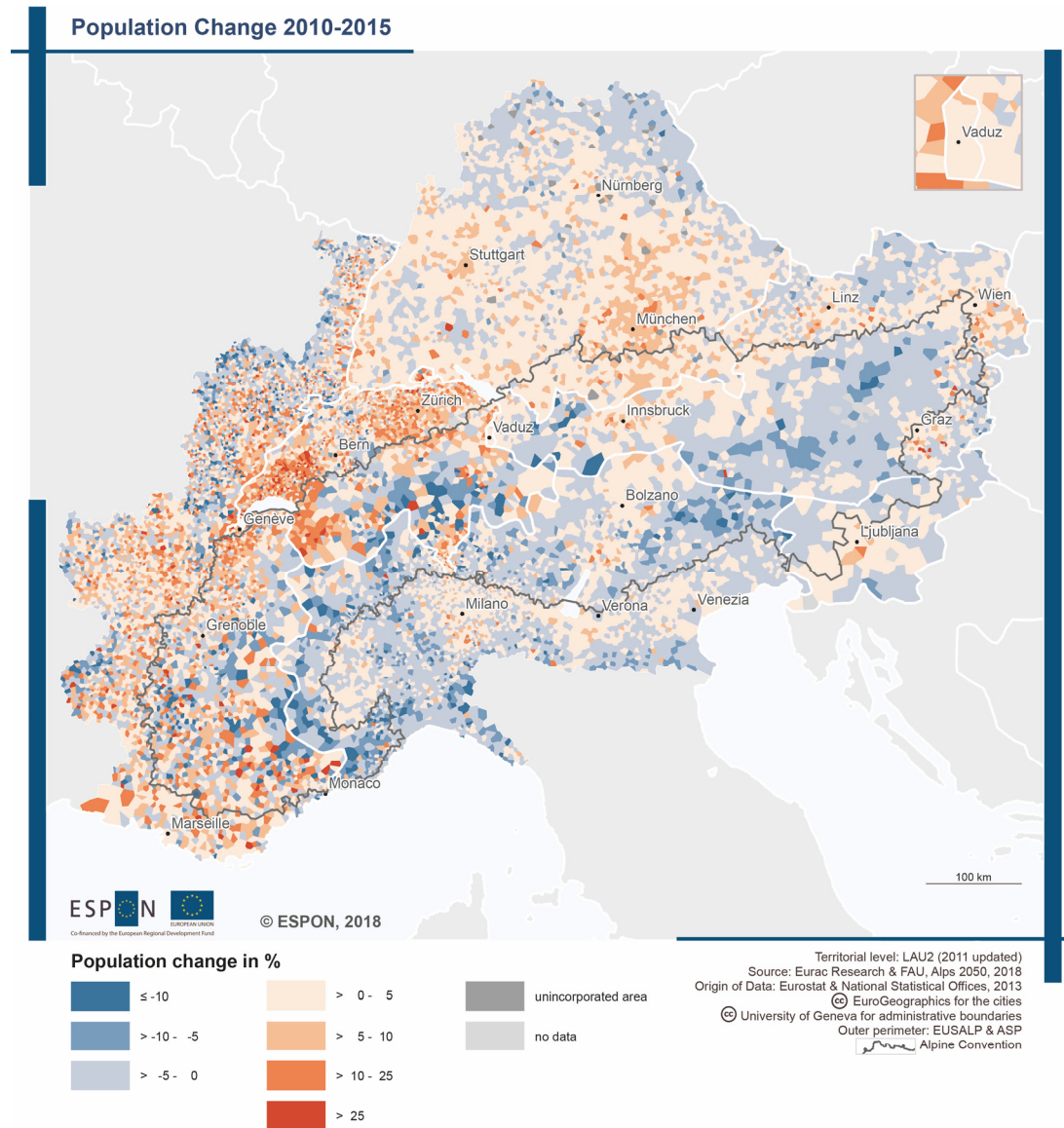
Territorial level: LAU2 (2011)/NUTS0
 Source: Eurac Research & FAU, Alps 2050, 2018
 Origin of Data: Eurostat & National Statistical Offices, 2013
 © EuroGeographics for the cities
 © University of Geneva for administrative boundaries
 Outer perimeter: EUSALP & ASP
 Alpine Convention

Map 2 Size of the municipalities (2010) as important facet of the settlement system

The demographic development within the Alps 2050 perimeter is as diverse as for the European territory (cf. Bausch et al. 2014, ESPON Demifer 2010, Alpine Convention 2015¹) – the Annexes show a series of facets. Different from the overarching settlement system, the morphology plays a less important role. Map 3 shows the demographic trend for the period 2010-15: The overall picture clearly underpins the core influence of the degree of urbanisation: Metropolises and larger cities are almost always the centre of growth trends, whereas the patterns in the rural areas are much more diverse. For example, the South Tyrol area is demographically developing more positively than the Belluno province. The observed trends are significantly different between the Alpine countries, e.g. along the French-Italian and the German-Swiss borders.

¹ for the bibliographic information see scientific annex

Again, the importance of transport corridors is clearly perceptible – the Inn Valley, the High Rhine Valley and most of all the Brenner corridor are well visible.



Map 3 Demographic development on the municipal level

The demographic trends do not primarily reproduce the differences between mountainous and non-mountainous regions. Instead, the diversity of rural development parts and the large scale influence of metropolitan ‘growth poles’ leads to a much more complex picture. This complexity is even increased by the combination of diverse and overlapping in- and out-flows of migrants which produce a highly diversified situation for all parts of the Alpine space (Gretter et al. 2017). Many demographic indicators refer to these patterns, highlighting the increase of bi-directional (and circuit) migratory flows, negative natural trends, significance of specific age groups and gender differences in migration movements, length and frequency of movements etc.: Still,

metropolitan places tend to show the most positive values whereas rural patterns are more diverse.

From the normative side, the following arguments apply:

- In the long run, the trend of metropolisation can lead to polarisation. At the same time, positive development trends in some mountainous, rural regions show that there can be opposite trends. Political action addressing the territorial potentials (of all types of spaces) can make a difference – place based approaches for tourism and economic innovation are just prominent key issues in this context.
- If demographic growth and loss trends would continue like they have developed in recent years, the settlement system would change fundamentally, blurring the differences between inner- and pre-Alpine areas.
- Demographic growth as well as loss can mean challenges for the maintenance of public services, financial systems, and cultural dynamics. Moreover, settlement growth is coming along with increasing environmental pressure.

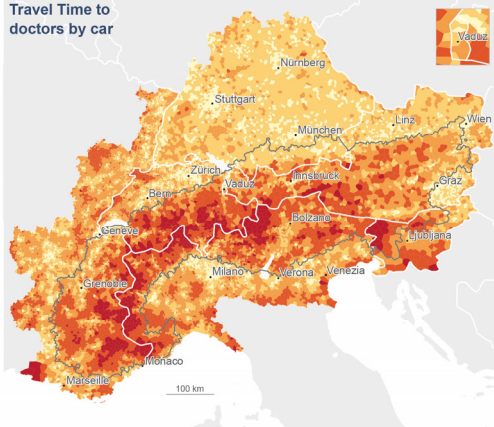
Map 4 shows the accessibility to so-called services of general interests (SGI), namely to doctors, primary schools and train stations. The indicator was developed in the ESPON project PROFECY (cf. ESPON PROFECY 2017). This indicator represents different aspects: It shows both the density of the services and at the same time the accessibility of the services through the road network. To a large extent, both aspects are the result of population density and economic development of the regions.

The overall picture shows that the morphology matters: the inner-Alpine perimeter shows clearly lower values of accessibility than the pre-Alpine and more urbanized areas. The difference is not marginal – the average time needed can differ by a factor of 10 between pre- and inner-Alpine regions. The picture is similar for the accessibility to all three selected service types, but there are differences: The accessibility to primary schools is polarized between inner- and pre-Alpine areas. The train stations are – for good reasons – orientated along the valleys. The accessibility to doctors is worse than that for the other services. From a normative side, the following arguments have to be considered:

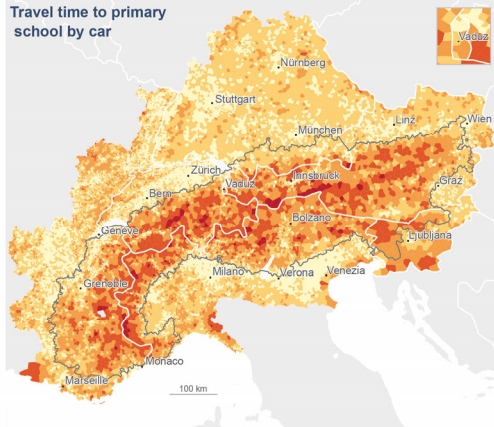
- On the one hand, the accessibility of SGI is the basis for a good quality of life, and in the long run, a poor accessibility to these services will lead to demographic problems due to outmigration and low levels of in-migration.
- On the other hand, it is a characteristic of rural and mountainous places that accessibility and services density is lower than in urban contexts. An identical supply level of services cannot be the objective, but at least a reasonable or acceptable level has to be achieved. This is closely linked to the development of the settlement system. For scattered settlements it is more difficult to provide SGI in an appropriate time.
- Moreover, the technological development (digitalisation) offers new options of SGI provision – medical care via internet, online courses for learning, online communication tools and many more economic, social and cultural applications. The most relevant questions are how much a society is willing to invest in these services, what the benefits of these technological changes are, and to what extent shifts in infrastructure installations and use are accepted.

Services of general interest

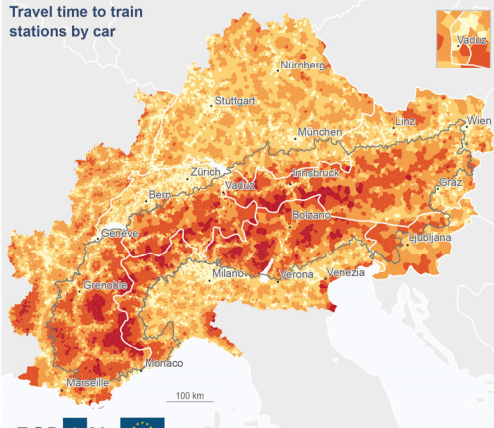
Travel Time to doctors by car



Travel time to primary school by car



Travel time to train stations by car



Alpine Morphology



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Travel Time by car in minutes



Territorial level: LAU2 (2011)
Source: RRG & FAU, Alps 2050, 2018
Origin of Data: ESPON Profecy, 2017; Swiss National Park, 2018
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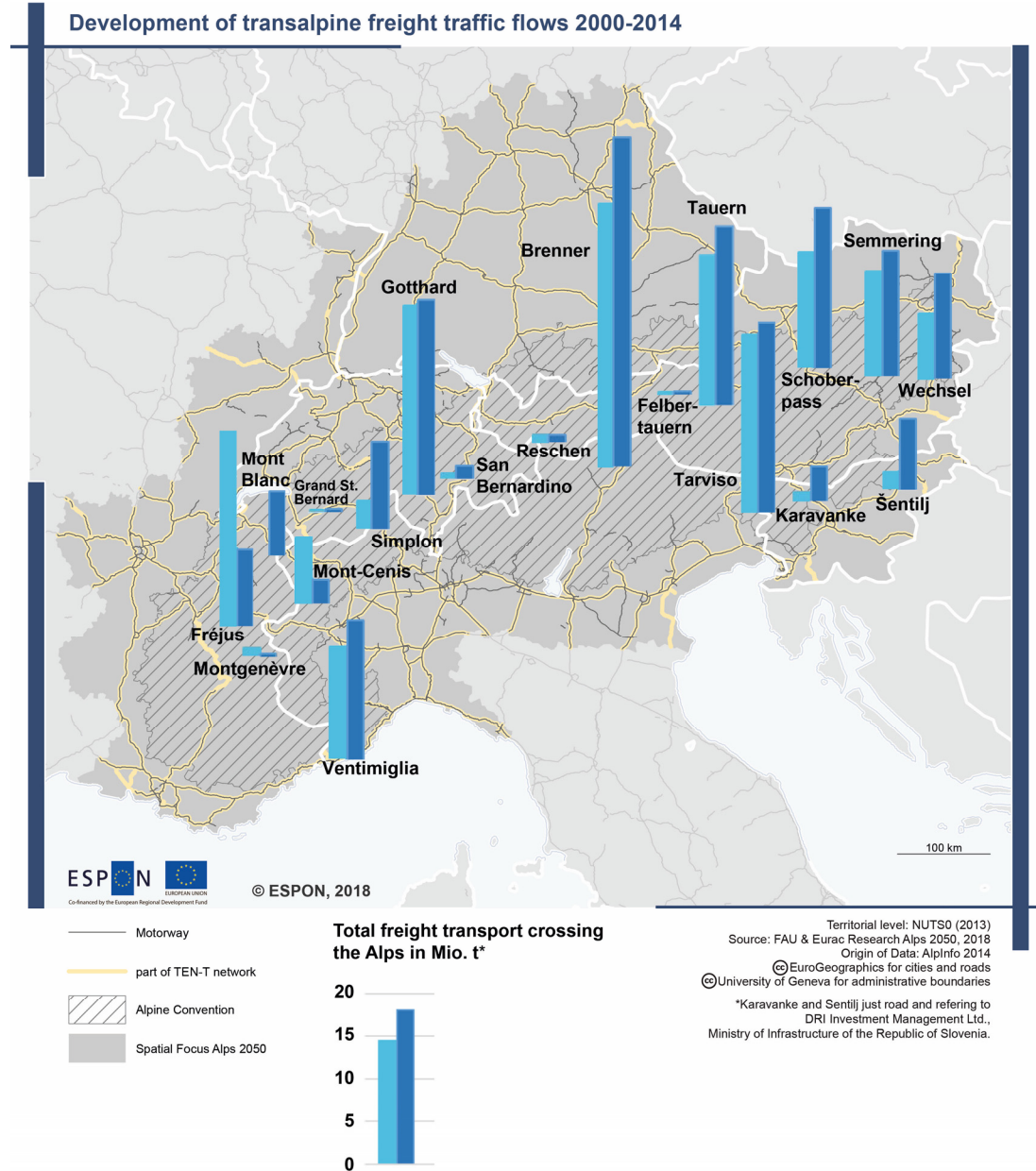
Map 4 Services of general interest

With regard to **transport services**, the contrast between mountainous and pre-Alpine areas still plays a substantial role – with the determining topic of transit traffic and its unequal consequences: corridors of pan-European importance play a major role on all political levels whilst environmental damage is mainly experienced in the transit areas.

Map 5 provides the visualisation of the uneven increase of transalpine freight traffic. The amount of transported net tons per year has grown at almost all transit corridors, but to a different degree.

This simple indicator introduces to more complex political debates like the call for the ‘multi-modal’ use of transport infrastructure, the task of balancing extra- and intraregional accessibility needs, the alignment of toll systems, and potential limits to mobility growth.

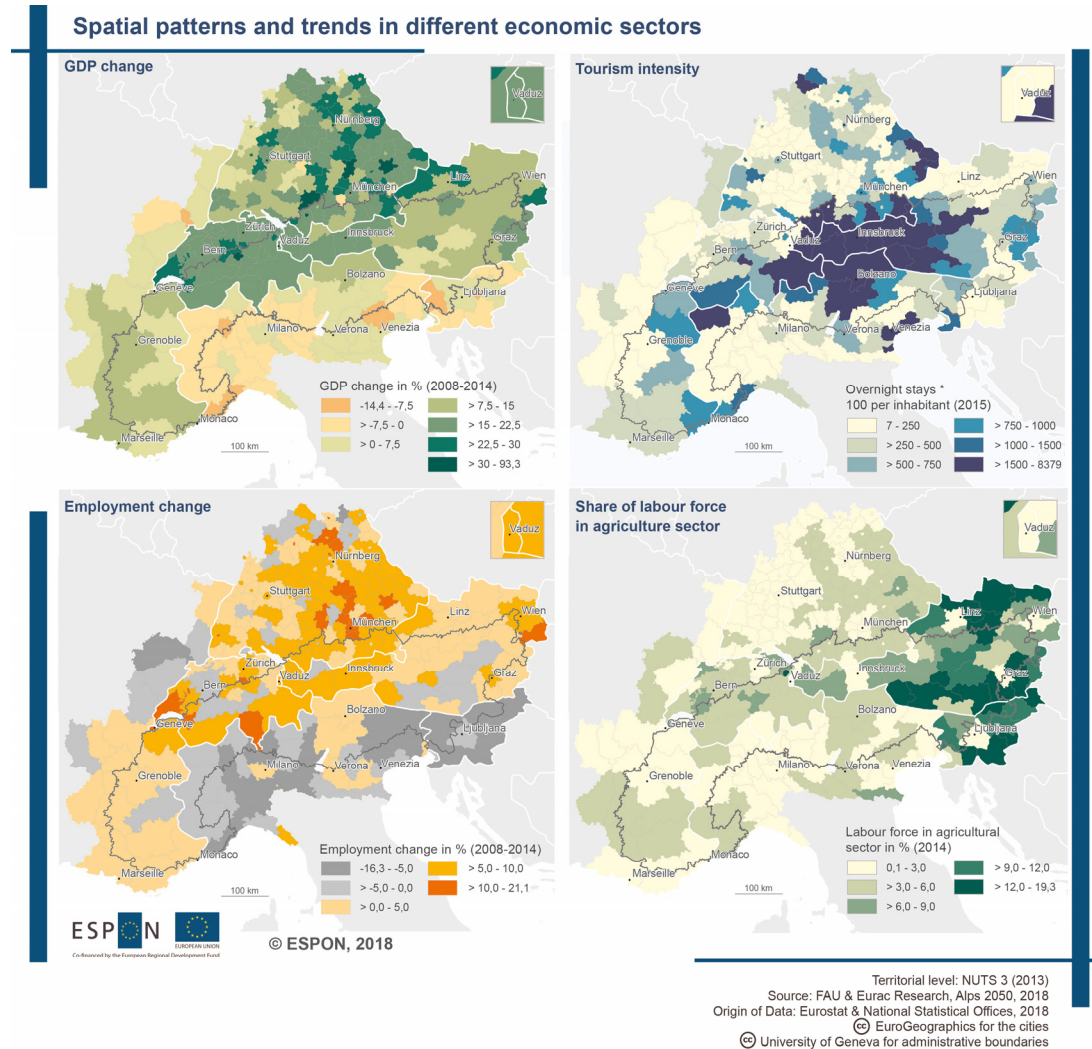
In parallel to freight transport, passenger transport is a challenge for sustainable management: (intra-)regional accessibility and transit flows demand for smart strategies, including in particular multi-modal regimes.



Map 5 Development of transalpine freight traffic

2.3 The economy: sectors – labour markets – innovation

From a more general European perspective, the economic performance of the Alpine region is rather strong. Most indicators, including GDP per capita, are above European average. Map 6 shows the spatial patterns and trends for different economic sectors.



Map 6 Spatial patterns and trends in different economic sectors

This map compilation illustrates the diversity of spatial patterns and trends across Alpine regions:

- On the left hand side, we see two maps with spatial patterns of a **North-South divide**: the trends in employment and in GDP (economic strength) have developed much more positive on the Northern side of the Alps 2050 space than on the Southern side. This refers to the post 2008 economic crisis that (most regions of) Germany, Switzerland, Liechtenstein and Austria mastered quicker and with less frictions than the Italian and Slovenian regions. Innovation patterns (EPO data) are not displayed here, but show a similar North-South divide.
- The map on tourism intensity based on overnight stays (upper right hand side) shows a **'central-peripheral pattern'**: the gradient goes from the (inner-Alpine) centre to the (pre-

Alpine) 'periphery' of the Alps 2050 space. We can observe that the relative importance of the tourism economy is very high in the inner Alpine areas (comprising destinations like Graubünden, Tyrol, Southern Tyrol etc.). This shows the role of the Alpine massif as a touristic hot spot with much economic potential and also the potential to threaten sustainable development pathways on the local level.

- The map on the lower right hand side shows an **East-West gradient** of an economic feature: The share of labour in the agricultural sector is the highest in the Eastern Austrian and in the Slovenian regions (in both cases relevant for all regions except capital regions). The relatively high values in Slovenia can partly be explained by the traditional importance and still high appreciation of the agricultural sector; the Austrian values can, amongst others, be explained with specifically high pluriactivity levels and a particular high political appreciation of the rural, agricultural sector.

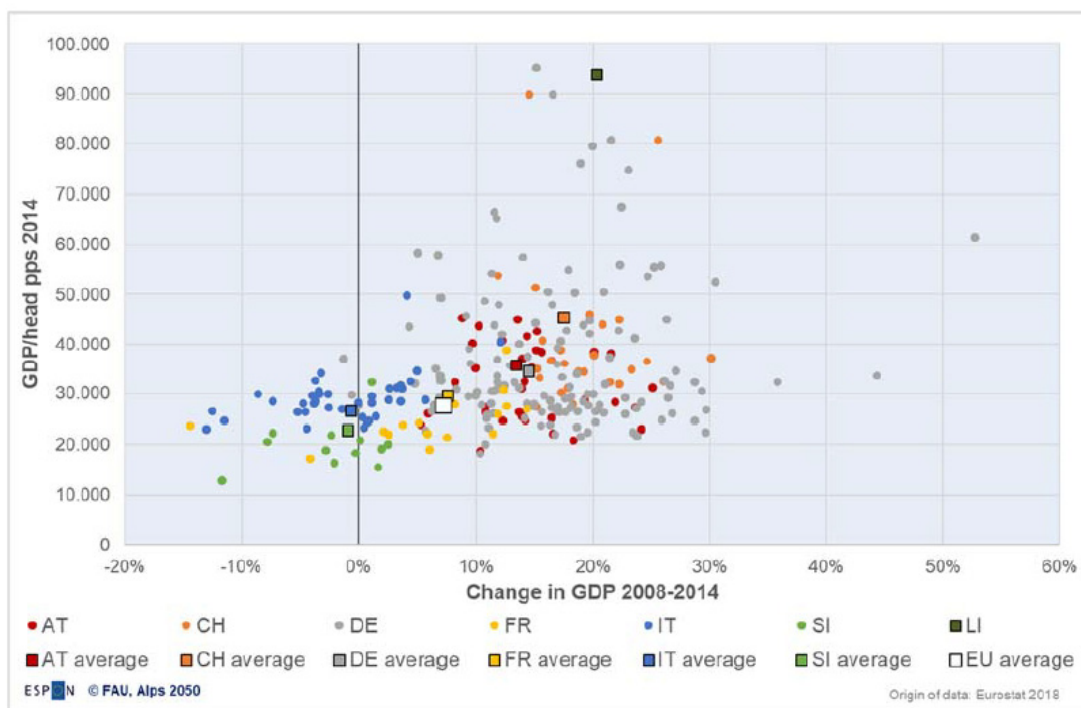


Fig. 1 National differences in economic performance

Moreover, Fig. 1 underscores the high relevance of **national differences**. The NUTS3 regions of each country make up a kind of a 'cloud' that can immediately be differentiated from other countries. The high variability within the 'clouds' of Switzerland and Germany can be related to the small size of the NUTS3 regions in these countries. However, the overall picture is clear: The fragmentation argument – postulating the high importance of national contexts – is applicable, at least on the NUTS3 level. In other words: Belonging to a specific nation-state determines the economic level and path to a high extent. The question, if a region is situated in the inner-Alpine or pre-Alpine area (i.e. AC or EUSALP) seems much less decisive.

Beyond the four sectoral patterns shown in Map 6, two more general findings can be summarised:

- Regional development is not *determined* by its morphology: Territories higher above sea level do not necessarily perform worse than those at a lower height.
- The data do not reveal a urban-rural *antagonism*: Metropolitan regions tend to perform with more positive values, but there are very successful rural regions, too.

Against this background, one can conclude that the Alpine regional development is not necessarily 'handicapped' by its specific territorial structure. Of course, spatial development is influenced by morphological differences and by the urbanisation intensity. However, there is no determinism and political decisions can make the difference, exploit specific territorial potentials (tourism, specific agricultural economies, traditional handcraft, energy production) and overcome challenges (transport policy).

Reflecting on differences between regions raises the questions if those differences call for political action, in particular in form of cohesion policy on the transnational scale, or have to be accepted as variance in regional performances. As explained in more detail in the annex, the Alps 2050 perimeter comprises very different territories. The range comprises NUTS 3 regions with values below 20.000 power purchasing standards (pps) per inhabitant up to regions with more than 80.000. Other economic or demographic indicators show similar divergences. This is not surprising, as very strong urban economies (Zürich, Ingolstadt, Liechtenstein,) and some places in severe structural problems (in particular on the Italian and French side) are part of the Alps 2050 territory. At the same time, even if the overall level of disparities has slightly increased during recent years, it is relatively modest, if compared to other spaces in Europe (e.g. Danube region).

Even if there is no harmonised regional statistics data available on green or alternative economies, the debate is intense (UBA 2015, Alpine Convention 2017): The respective concepts comprise low-carbon economy, quality of life approaches, post-growth agricultural perspectives etc. From a normative point of view – and with regard to the scenario building – the following questions arise:

- How to ensure the targeting of sustainable development goals within the future Alps 2050 visions? What *kind* of economic performance is preferred, i.e. what sectors are most preferable, what kind of growth is the objective? How can endogenous potentials be used?
- How can the current strength of the economic performance be maintained and ensured? This is a particularly important question in view of the current digitalisation trend and the recent questioning of the globalisation paradigm.
- What does economic *cohesion* mean in respect to the Alps 2050 area, i.e. how far should harmonization of regional performance go, and which scale should be used as reference base?

2.4 The environment: Environmental Protection – ecological connectivity – ecosystem services

Responding to the multiple challenges and threats of the Alpine environment is not trivial. It particularly refers to respect the societal demand for well-being and development and, simultaneously, to safeguard an ecologically functioning system. The Alpine Convention contributes to balancing these demands, and the EU environmental policy offers a series of instruments (for the EU member states) in order to support ecological objectives.

Map 7 provides an overview of the existing protected areas in the Alps 2050 area as example for the concrete instruments of environmental policies. As there is no standardized regime of protected areas, a series of sources has been brought together in this map:

- Within the EU, the Natura 2000 network shows those sites that are protected due to the habitats directive (Special Conservation Interest SCI) and the directive on the conservation on wild birds (Special Protection Area SPA).
- On global level, the UNESCO offers the protection formats of natural heritage sites and Biosphere Reserves
- Switzerland is (as non EU-member) not included in the Natura 2000 network (but of the Emerald Network of Areas of Special Conservation Interest, launched by the Council of Europe). The map shows the IUCN codes Ia and IV which follow similar protection purposes as the Natura 2000 network. As a global NGO the IUCN (International Union for Conservation of Nature) is an umbrella organization that also involves many governmental ministries. The IUCN classification helps to make regional and national protection regimes comparable. This is complemented with the Swiss National Park.

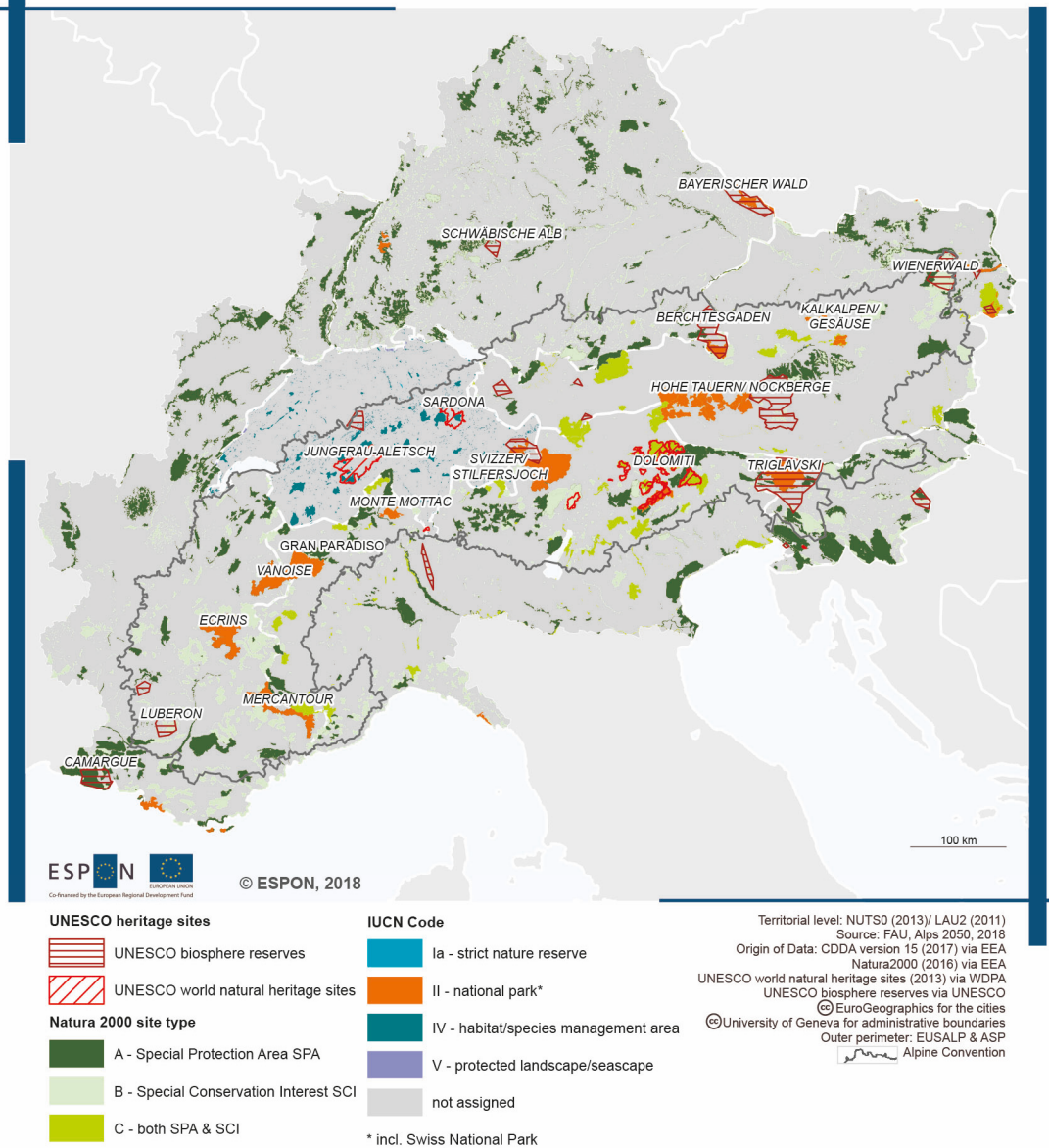
Obviously, many famous mountain massifs are object to national park regimes and/or UNESCO protection (e.g. Dolomites, Triglav). However, the share of protected spaces is not necessarily higher in the Alpine Convention area than in lowlands.

In the map, we see clear differences between national protection regimes. For example, national parks are much more frequently enacted in AT, FR and IT, whereas DE and CH have less national parks which are relatively small in size. Another difference between Alpine countries is the varied implementation path of the EU protection directives that display very different average sizes of protection areas within these countries (going up to 37% protection area in SI). Even if a series of cross-border protection initiatives exists (e.g. Naturpark Nagelfluhkette between Austria and Germany), the potential of cross-border formats is certainly not yet exploited.

In recent years, the question of ecological connectivity came high on the political agenda. The key idea is to ensure sufficiently large functional ecological systems by – ideally – connecting in a way that flora and fauna can inter-exchange. Area protection is just one element of this more comprehensive approach. Against this background, ecological connectivity is hindered

by continued construction activities and settlement dynamics that cut across ecological networks and, particularly in hitherto unaffected areas.

Protected Areas



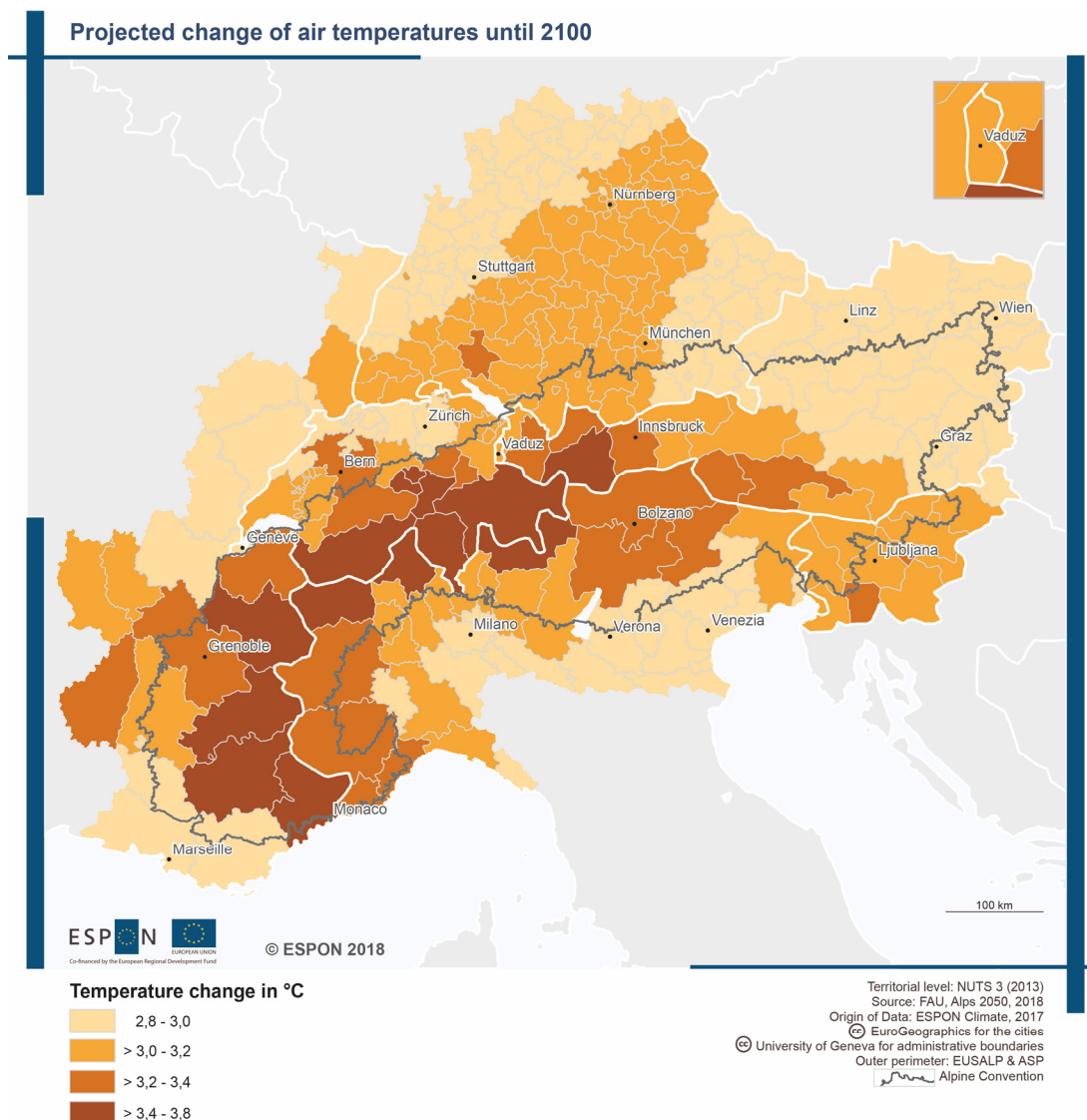
Map 7 Protected areas in the Alps 2050 perimeter

Map 8 shows the projected changes in annual mean temperature. The changes of the (air) temperature in the Alps 2050 perimeter show the following patterns and characteristics:

- There are higher increases in annual mean temperature in the inner-Alpine areas than in the area of the spaces beyond the mountain topography; this is one of the maps that displays a strong correlation with the morphological picture of the Alps: the higher the mountains, the stronger the increase of temperature (even if the relatively lower temperature rise in the pre-Alpine areas means already considerable adaptation challenges).

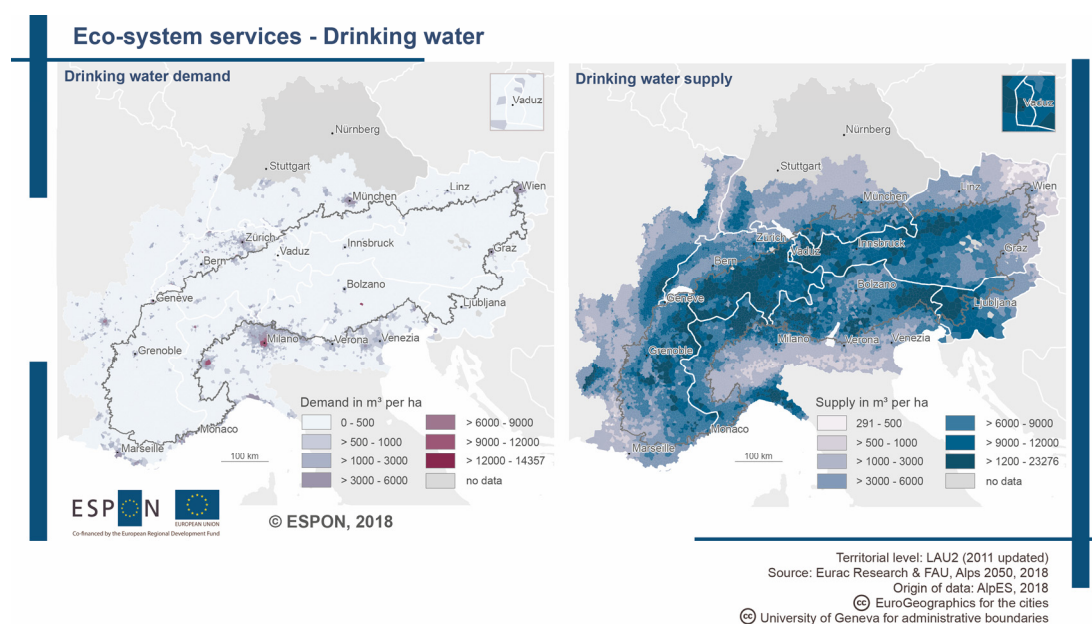
- In particular, the Southern side of the Alpine mountain range is characterized by the highest changes in annual mean temperature, in particular in the Western Alps. This observation shows that in particular the French-Italian, Swiss-Italian and Austrian-Italian border regions are those Alpine regions which are most severely affected by climate change.

The relevance of rising temperatures and climate change impacts is not limited to national contexts. Obviously, the change of annual mean temperature is representing a common challenge for mountain areas and especially of Alpine regions on the Southern side of the mountain range. Consequently, dealing with climate change impacts expressed through rising temperatures, increase of natural hazards, precipitation changes etc. calls for transnational policies and measures.



Map 8 Projected change in air temperature

Generally speaking, the ecological functions of the Alpine region have an importance that goes far beyond its perimeters. Questions of biodiversity change, as addressed with the protection and connectivity policies, are just one example. This leads to the question of 'services' of diverse kinds that the Alpine region provides for other regions beyond. The concept of ecosystem services reflects on the benefits that humans gain from the natural environment in daily life. They are built on functioning eco-systems like forest, grassland, or aquatic eco systems, and they are important in terms of drinking water or leisure supply. Map 9 illustrates the drastic difference in the supply-and-demand-relation through the example of drinking water.



Map 9 Ecosystem services: drinking water demand and supply

Drinking water demand is very much linked to urbanized and metropolitan areas, i.e. the settlement system. The spatial structure of settlement areas shows a very punctual structure surrounding the core mountainous area of the Alps. The demand for drinking water linked to Alpine sources is not limited to the Alps 2050 perimeter but goes far beyond. Contrary to that, the supply structure is heavily linked to the morphological structure. This is a typical picture for ecosystem-services regimes – supply and demand show contrary spatial structures (see a similar spatial distribution for the example of leisure supply and demand in the Atlas).

If we summarise and simplify the findings, we can formulate the following postulates with regard to the ecological dimension:

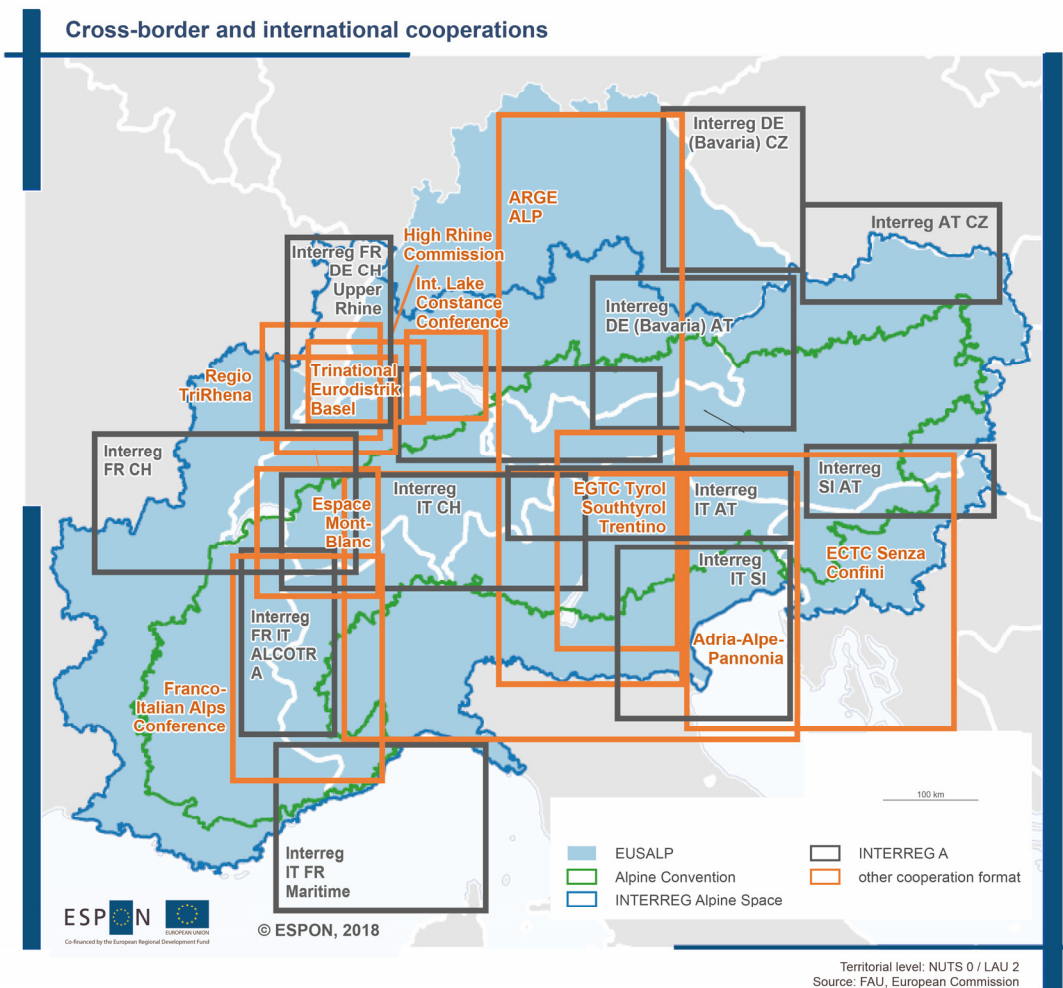
- **Vulnerability:** The Inner-Alpine parts are more concerned by climate change, soil sealing along the valleys. Ecological fragmentation is a key concern due to the function of the Alps as a biological hotspot. Moderating the demands of protection and development is the key political challenge.

- **Supply-demand relations:** The more urbanised areas play an important role by demanding and using ecosystem services, in particular with regard to water, leisure supply (including second homes), tourism demand, but also clean air, ecological benefits etc.

2.5 The governance: Actors and institutions

2.5.1 The transnational and European scale

From the governance perspective, the Alpine region is remarkable as it is the 'contact zone' of several nation states and, at the same time, of different administrative and political systems. Despite this political complexity (or maybe because of it?), territorial cooperation looks back on a remarkable tradition and diversity. Map 10 shows most of the cooperation formats on the cross-border level (for the transnational tools, see Atlas).



Map 10 Cross-border and international cooperation in the Alpine area

The high number of cooperation formats might be because of the low correlation of national borders with cultural differences like language, regional belonging, historic relationships etc.

One might differentiate the cooperation formats that rely on the intergovernmental logic and that go mostly back to those years before the start of the EU cooperation programmes. Some of them started with a rather sectoral focus (water, environment) and developed towards a more general and integrated perspective of regional development. The Lake Constance Conference and the High Rhine Commission are examples for the first wave of cooperations. Others had a more general focus and allow 'high politics' on the regional level. ARGE ALP is the most prominent example. Many of the younger cooperation formats can also be traced back to EU policies. This is in particular true for the small scale Euregios along many borders whose main focus lies in the implementation of cross-border cooperation programmes (INTERREG A). Some also refer to the transnational cooperation programmes (INTERREG B). More recently, the regions of Tyrol, Southern Tyrol and Trentino have gone a step further and established stronger institutionalized cooperation by founding a European Grouping of Territorial Cooperation (EGTC), similar to the process of the ECTC Senza Confini. The Alpine Convention, the EUSALP and the Alpine Space Programme are the represented here as underlying structures that can 'frame' cooperation activities.

There are few regions in Europe that show a comparable institutional diversity, and density of cooperation frameworks, perhaps with the exception of the Baltic Sea region.

2.5.2 The domestic scale

The institutional setting is not only complex in the cross-border, international context but also on the domestic level (for details see the Atlas). Simplifying to a high degree, we can summarise the situation as shown in Map 11. Two dimensions play a very important role:

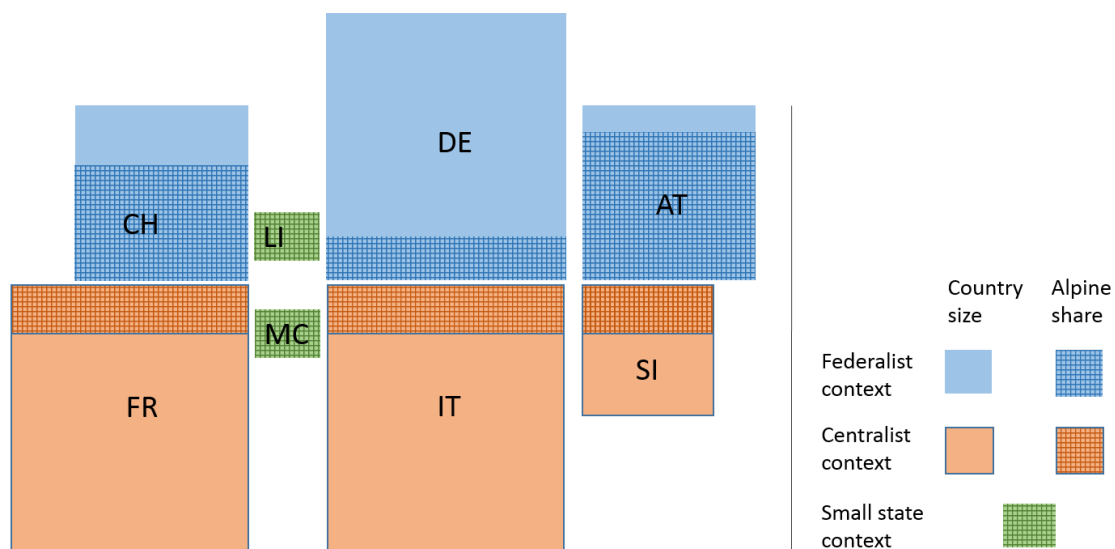
Firstly, the country size and the share of the mountainous areas within the national territory make a difference. For example, Austria only has few areas that are not part of the morphological Alps, and this is one explanation why the Alpine policy is seen as almost synonymous with (large parts of) rural policy, and ranks high on the Agenda; the situation is different in countries like France or Germany where the Alpine area is just one kind of territory amongst others.

Secondly, the politico-administrative context matters ('planning cultures'). The following characteristic contexts might be differentiated, even if this presentation tends to be simplifying and subdued to changes:

- **'Centralist context'**: Countries with a centralised political system locate the most powerful institutions on the national level, even if regional authorities have their word to say. In the Alpine case, the respective countries are very different: France has undertaken considerable efforts to strengthen the regional level. – Italy is a centralist country but is different in particular with regard to the autonomous regions which have considerable mandates. The regional institutions can be very active with regard to development programmes and regional planning. – Slovenia does not have a political regional level and, thus, remains a centralist country with a high relevance of the local level. The comparably young political system comes along with ongoing institutional

reforms. – All in all, centralist countries can be very efficient in implementing political actions; at the same time, it can be hard for them to address the complexity ‘on the ground’.

- **‘Federalist context’:** The Alpine region involves three federalist countries with a powerful regional level. Even if the differences between the countries are large – Swiss cantons and German or Austrian federal states (Bundeslaender) are hard to compare – the general multi-level governance shows parallels. The regional mandates help to develop place-based approaches and they help to involve the appropriate stakeholders and actors. At the same time, coordinating political action can be quite a challenge.
- **‘Small state context’:** The particularity of small states is the reduced complexity in institutional matters – the national and the local level are sufficient, without regional levels in between. The small number of experts and responsible people in certain matters is characteristic and so are the very personal linkages between the people involved, in particular when compared with larger countries. The European and cross-border dimension is of crucial importance as the functional interdependencies with the neighbouring states are very intense. Political action can be very flexible, due to the relatively small number of actors involved, and this might facilitate niche politics that lead to over-average prosperity, but also the ‘critical mass’ challenge might be severe.

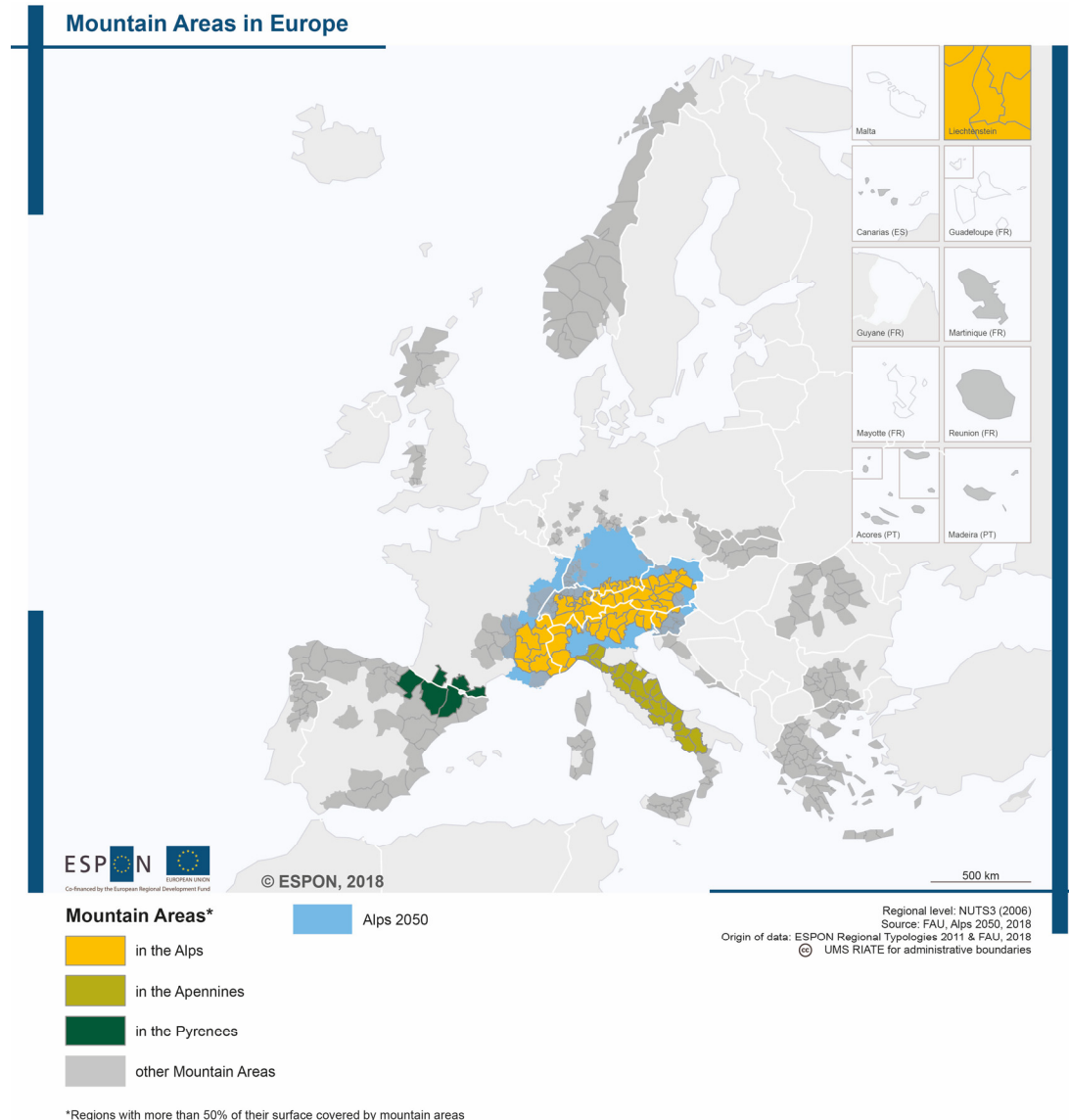


Map 11 Institutional mapping of the domestic contexts: country size, Alpine share, and political context

2.6 The European perspective on mountains

The Alpine region probably is the most prominent mountain region in Europe in a series of (high) mountain regions throughout Europe. Mountain regions are considered to be areas where cohesion policy legislation has to pay particular attention as they face specific natural characteristics (Art. 174 of the Treaty on the Functioning of the European Union), and developing place based strategies is an important basis. This is of particular importance as the macroregional level is expected to address so-called “common geographical challenges and potential“ (COM 2014).

It is an interesting question to what extent the various mountainous regions are comparable and what their specific characteristics are. These questions are not really in the focus of the ESPON Alps 2050 project, but it seems very inspiring to at least shed a brief light on this aspect.



Map 12 The European perspective on mountain regions following the ESPON Typologies project

The ESPON programme has developed a typology of territories that comprises also the category 'mountains' (Dijkstra & Poelman 2011). The category is used for all NUTS 3 regions that show clear mountainous characteristic in morphological terms. From this perspective, the Alps are defined in a more morphological term that is pretty close to the Alpine Convention perimeter (cp. Map 12). Other scientific approaches are more elaborated (e.g. Drexler et al. 2016 based on EEA 2010) but cannot easily be adopted to NUTS 3 regional statistics.

If we compare the Alpine region with two further mountain regions with considerable size and height – the Pyrenees and the Apennine – the picture is the following: The diagram (Fig. 2) shows that the Alpine region is economically the strongest mountain area which is also more densely populated than the Pyrenees. However, the population density is even higher in the Apennine region, due to the presence of Firenze and some other city regions and also the less extreme morphology. The Alps 2050 area, going beyond the morphological Alps and comprising some of the most metropolitan areas European wide, shows maximum values in both dimensions. It is interesting to note that the Alpine region values (in the narrow sense) are very close to the EU average values of GDP and population density, and the transnational perimeter of the Alps 2050 space shows clearly values above EU average.

This picture can be seen as positive, as the socio-demographic situation shows rather high values, but it is not easy to draw conclusions at that point:

- This prominent position of the Alpine space underlines how much the European and Alpine levels are interlinked and influence each other.
- The Alpine region certainly is a strong and successful region that will have to undertake considerable efforts to keep this position and to exploit socio-economic potentials.
- At the same time, economic growth, settlement development, and multiple land-use demands challenge the sustainability of the Alpine development. The region has the potential to pave the way towards a smart, sustainable development and to be a role-model for mountainous and non-mountainous transnational spaces in this regards.

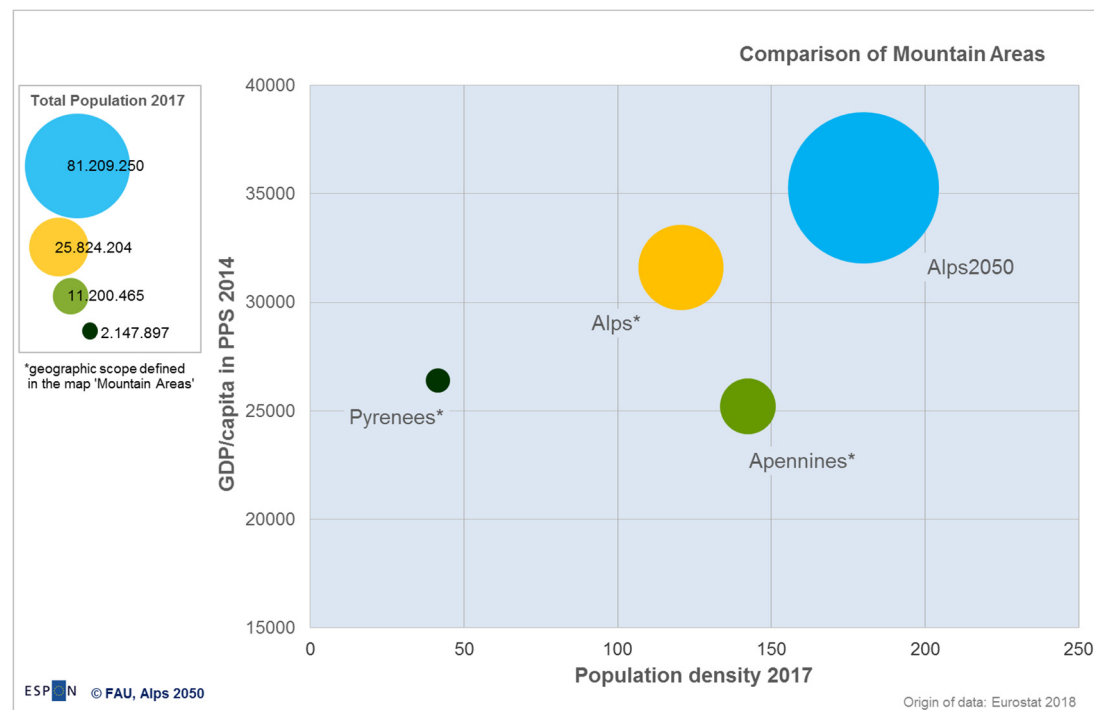


Fig. 2 Comparing mountainous regions in Europe (ESPON Typologies and the Alps 2050 region).

3 Spatial perspectives for the Alpine area and the Alps2050 vision

3.1 How to analyse the future

When reflecting on the development of the Alpine region up to the year 2050, we tend to leave solid scientific ground. The further in the future the references of prognostics and scenarios are, the larger becomes the uncertainty (Hopkins & Zapata 2007). This is true for all kinds of future related research, but in particular for territorial development as the multiplicity of influences and causalities increases uncertainty and complexity. This is certainly a challenge for the Alps 2050 project, aiming to anticipate more than three decades. The project does not claim to *forecast* or *predict* the future, but it aims to develop scenarios that facilitate or fuel political debates and that have the potential to give developments a ‘direction’ (Fürst 2012). These scenarios, however, are not purely qualitative assumptions, but they are based on territorial evidence and ex-post analyses of long-term past developments.

The following elements are part of the scenario development (cp. Fig. 3):

- The **territorial analyses**, which are the basis of the project, are summarized in the chapters above and are complemented by the annexes to this report.
- The **participatory elements**, in particular the Delphi study and the workshop conducted in May 2018, are described in more detail below and in the scientific annex.
- The **political documents**, which describe the political context, are explained below.

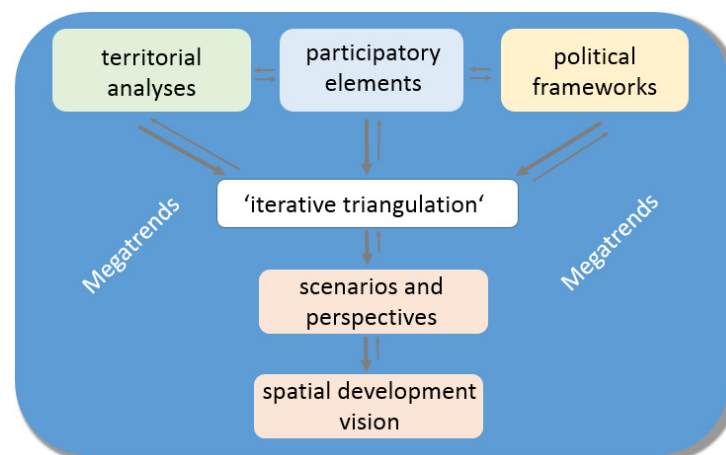


Fig. 3 Elements for the development of spatial perspectives, visions and guidelines

These elements are rather Alpine specific and aim to be as precise and territorially specific as possible. At the same time, the Alps 2050 region is embedded in large scale dynamics and contexts that must not be overseen. These are addressed as global and general ‘megatrends’ that potentially influence the trends and dynamics within the Alpine context.

Starting from the rich basis of information, opinions, ideas, and documents, scenarios have to condense the main characteristics and priorities in the process of iterative triangulation, i.e. by combining the arguments in a hermeneutic way.

3.2 Driving forces and (mega-) trends

The driving forces of the spatial development in the Alps 2050 region are in the first instance the same as for other regions: political and societal decisions, economic dynamics and the environmental context comprise the main impulses for development. Within these dimensions, Alpine specific aspects play an important role:

- **Environmental context:** The environmental context matters in many respects. In particular, morphology matters with regard to climate change, the provision of drinking water, the patterns of the settlement and transport systems, the tourism patterns etc. At the same time, morphological contexts do not determine choices and outcomes: Contemporary trends in economy and demography, which are less bound to the natural context, shows this very clearly (see cartographic representations above, Map 3, Map 6).
- **Political and societal decisions:** As territorial development is not predefined and determined it is largely the result of political decisions and societal claims. This is very obvious for the economic development paths that are predominantly characterized by national politics, for the different demographic trends of rural (and urban) areas that reveal a great variety of possible development paths and for many more facets of spatial development.
- **Economy:** The economic development is very diverse in the Alps 2050 perimeter. Touristic destinations are strongly linked to the natural (and cultural) context; the situation in agricultural structures is strongly influenced by domestic policies and increasingly by CAP effects and global implications; and, in general, many economic sectors are embedded in an innovative and globalized dynamic, trespassing the boundaries of the Alpine area (at whatever definition used). Sectoral perspectives are differing very much: an integrated spatial perspective seems an urgent necessity.

These driving forces have to be understood in the context of **mega-trends** that underlie European spatial development, but – again – often show particular forms in the Alpine region.

- **Globalisation and Europeanisation:** Historically, the Alpine region is characterised by many borders. There has never been an Alpine state or a united political institution. For a long time, the (mountainous) fringes and peripheries of larger states met in the Alpine mountains. This is why the European integration process – within the EU or with close EU interaction in the case of Switzerland and Liechtenstein – makes a real difference for the political functioning. The current debate on the border controls for example at the Brenner Pass illustrates the sensitivity of these questions. In parallel, all Alpine states are strongly involved in globalisation processes. The high prosperity of large parts of the Alpine region can only be explained by the economically successful role in globalisation processes. The ambitions of the Chinese Silk Road Economic Belt and the paradigmatic shifts in US trade policies are just two contemporary developments. The current political dynamic questions the postulates of an 'ever closer European Union' and of a

globalisation dynamic as it was prevailing in recent decades. It does make a difference, if European and global integration remain important flagships of European policies or if we will witness a renationalisation or fragmentation of political dynamics. The Alpine region has strongly profited from the integration processes, and, would severely suffer a fall-back. This is true for political reactions to climate change as to economic policies or tourism development.

- **Demographic change and migration:** As shown in the territorial analyses, the demographic development in the Alpine region is very diverse. In the long run, urban and metropolitan regions tend to show more positive trends, but many rural areas also show a positive demographic balance. Specific for the Alpine region are the trend for second homes and for amenity migration, even if quantitative data is not available in a standardised form. The megatrends in migration dynamics certainly will influence the Alpine spatial development, too: The ongoing societal differentiation and the diversification of lifestyles change migration patterns. Residential mobility is supposed to grow, focussing on places of dynamic labour markets and those of a high quality of living. From the Alpine perspective, this is a chance for economic development and can, at the same time, be a challenge for rural cultures that have to adapt to new dynamics. Beyond this predominantly domestic and the European dynamics, the international migration dynamic post-2015 is a European wide challenge. It remains to be seen how persisting global migration pressures will bring new challenges in particular to the rural spaces. In parallel, demographic change is a challenge for Europe and for the Alpine region. As shown in the territorial analyses, in some regions outmigration and ageing are an increasing challenge that is actually very difficult to mitigate. However, large-scale migration movements and international migration have already affected rural mountain areas and will contribute to future demographic trends as well. Adaptation strategies on how to deal with societal and cultural implications are of major importance.
- **Environmental change:** Climate change is a paradigmatic development that already now hits the Alpine region more severely than others. The sensitive mountain regions have to fulfil the role of forerunners with regard to climate change adaption: Disaster risk management, touristic adaption strategies, new energy concepts are just some keywords in this context. – Biodiversity changes have to be addressed via planning approaches, and sectoral environmental concerns raise huge long-term challenges with regard to core natural resources (water quantity and quality; air quality, noise etc.). These aspects have to be addressed in an integrated approach and ask for long-term place-based strategies.
- **Technological changes and digitalisation:** The implications of new technological options and the digital transformation are manifold, comprising all spheres of economic and societal life. Smart farming or home offices at 'amenity places' are two catchwords that illustrate the relevance and potential chances for the mountainous regions of digital transformation. Peripheral areas can profit from supply via drones, education and medical provision can change fundamentally due to online tools. Beyond this, focussing on the pre-Alpine areas with the traditionally high innovative capacity, the digitalisation trend means an opportunity for new markets and innovative paths. However, uptake of new technological tools requires social adaption and an appraisal of ecological and social threats and benefits as well.

3.3 The transnational political context

The political context is certainly as complex as the territorial structure, as shown in the governance analyses above (cp. chapter 2.5) - domestic, cross-border and transnational

processes and patterns, often characterised by a multitude of soft and hard instruments, lead to a high complexity and sometimes to conflicts of objectives.

EUSALP Objectives (Action Groups AG)	Alpine Convention Protocols (Working Bodies)	INTERREG Alpine Space priorities (Specific objectives SO)
Economic activities and innovation		
Growth / innovation	Prot. Mountain farming Prot. Mountain forests Prot. Tourism	Innovative Alpine Space
economic development (AG2)		
research & innovation (AG1)		Innovation (SO1.1)
Labour market, education, training (AG3)		
	Mountain Agriculture Platform	
	Sustainable Tourism Working Group	
	Green Economy Advisory Board	
Environment and ecology		
Environment	Prot. Spatial planning and sustainable development Prot. Nature protection and landscape conservation Prot. Energy Prot. Soil conservation	Low Carbon Alpine Space Liveable Alpine Space
	Alpine Climate Board	
	Ad-hoc Expert Group on Spatial Planning	
Energy (AG8)		Low carbon policy instruments (SO2.1)
Green infrastructure (AG7)	Ecological Network Platform Mountain Forests Working Group	Ecological connectivity (SO3.2)
Resources (AG6)	Water Management in the Alps Platform	Cultural and natural heritage (SO3.1)
Risk governance (AG8)	Natural Hazards Platform - PLANALP	
	Large Carnivores, Wild Ungulates and Society Platform - WISO	
Accessibility and services of general interest		
Connectivity [and society]	Prot. Transport	
Mobility (AG4)	Transport Working Group	Low carbon mobility and transport (SO2.2)
accessibility (AG5)		Services of general interest (SO1.2)
Governance	Governance	Well-Governed Alpine Space
	Macro-regional strategy for the Alps Working Group	

Table 1 Priorities of EUSALP, Alpine Convention and the INTERREG Alpine Space programme (sources: webpages of the mentioned institutions)

Table 1 illustrates this for the examples of the EUSALP, AC and ASP. It shows the overall objectives that are anchored in the key documents and the more implementation oriented institutional dynamics (action groups, working bodies, specific programme objectives).

This overview shows parallels in the ambitions to achieve sustainable development and one should mention that many of the activities have transversal ambitions and aims. At the same time, the table gives an idea of the multitude of discussions, concepts and instruments that lie behind the institutional settings. The link between the Alpine Convention and the EUSALP is in a phase of concretization (e.g. AC being an observer of the EUSALP and co-leader of an action group, and the invitation of the AC to EUSALP Action Groups to participate in the appropriate thematic working bodies of the AC). For the coming years, better aligning the concepts and forums seems to be more than plausible.

3.4 The participatory process

The perspectives and the scenarios are also based on participatory elements which are described more in detail in the scientific annex. Two elements are of major importance:

Delphi survey: A very efficient method to link analytical and normative questions during the research process is the Delphi method. For the Alps 2050 project, an online based two round Delphi was conducted (to record assessment and adjusted perspectives of respondents), this includes both textual and cartographic elements. Specifically, the project implements a so called policy Delphi study, i.e. a Delphi study that identifies and concretises political options for the future. The outcomes are an important pillar of the cartographic and textual Alps 2050 visions.

The selection of the Delphi experts followed the following criteria, a) *expertise* and b) an *institutional* balance and c) *geographical* balance. The expertise has both an institutional dimension (political mandate to contribute to the process) and a personal dimension (working experience on a relevant field for the Alpine development).

The first survey was initiated and invitations were sent out at the end of March 2018 to more than 100 experts that represent the above introduced governance setting which led to 52 responses. The second survey was conducted in July/August 2018 and discussed results from the first round and worked towards political options.

Those elements from the participants' response are part of the visions and scenarios that were important arguments throughout the two survey rounds. This is for the key elements of the scenario descriptions and also for most political milestones.

Workshop: The second key element of the participatory process was a stakeholder workshop on May, 23rd, in Munich, hosted by the Bavarian Ministry for the Environment. About 25 experts were present, including members of the Alps 2050 research consortium and the Steering Committee as well as further experts of the Alpine spatial environment.

This event took place between the first and the second round of the Delphi study and comprised two main elements: In the morning, the interim analytical results of the Alps 2050 project were presented and discussed. In the afternoon, four thematic stations reflected on the following topics, before a final plenary reflection concluded the workshop:

- Thematic orientations and perspectives of the Alpine spatial development towards 2050
- The role of EU funding post 2020, including cross-border tools
- National and regional planning tools in the Alpine context
- The relationship between the EUSALP and the Alpine Convention

The workshop did – at that stage – not aim to produce a concrete roadmap and political agenda, but rather served exploratory purposes. It was the objective of this workshop to better understand ongoing political discussions within the multi-level governance system and to link the analytical results to these political options.

All in all, the output of both the Delphi survey and the workshop served as a) access to information about the political process, b) the generation of ideas and arguments for future options, and c) to generate a clear picture of the future options for the Alps 2050 region.

3.5 Scenarios for the Alpine region

3.5.1 Different views on the Alps

With regard to the future development of the Alpine region, we differentiate one status quo scenario that carries forward existing patterns and trends, and three contrasting scenarios that reflect the differences in priorities and political world view. Fig. 4 shows very condensed graphic illustrations and the following descriptions summarise the fundamental characteristics of these scenarios. These scenarios are the result mainly of the Delphi survey (first round).

They differ from each other with regard to the spatial focus and fundamental political priorities. The following brief descriptions will be further detailed.



Fig. 4 Different perspectives on the Alpine region, from left to right: The scenarios 'status quo', 'protected Alps', 'functional area', 'European core'

Scenario 1 – Status quo

The status quo (or trend) scenario assumes that the hitherto dominant trends will be carried forward. Development paths are mainly based on national, domestic politics that lead to complex spatial patterns. The overall positive trend in economic development continues. However, this comes along with only limited success in achieving sustainable development and strategic spatial development. Dispersed spatial trends in demography and settlement development lead to dispersed developments, blurring the spatial structure of mountainous and non-mountainous regions and the urban-rural relations.

Scenario 2 – Protected Alps

The second perspective underlines the necessity to protect the inner-Alpine mountainous areas. The Alpine mountains are a precious and vulnerable natural and cultural heritage. Touristic demand, transport needs, settlement growth and other human activities have put this region under high pressure. Protection regimes as initiated by the Alpine Convention are more than necessary and are further strengthened. The dynamic of the 'metropolitan ring' surrounding the Alps will be organised in a way that does not question sustainable development within the Alps (e.g. with regard to settlement sprawl, transport emissions).

Scenario 3 – Functional space

The scenario that describes the Alpine region as one 'functional space' underlines the necessity to improve linkages between the different subregions. Towards the year 2050, the relationship between mountainous inner-Alpine and the more urbanised pre-Alpine parts will be strengthened, and in parallel the cross-border relations will be addressed more intensively. This has to be seen against the background that the territorial structure of the Alpine region is complex: The numerous borders between the Alpine countries have been frictions for a long time. Moreover, the Alpine region has important relations to adjacent regions (in terms of ecology, transport etc.). Smart spatial development strategies overcome existing frictions with innovative political agreements and with adequate infrastructure investments. Removing barriers and enhancing functional links is of key importance (e.g. for labour markets, budget organisation, public services).

Scenario 4 – European core

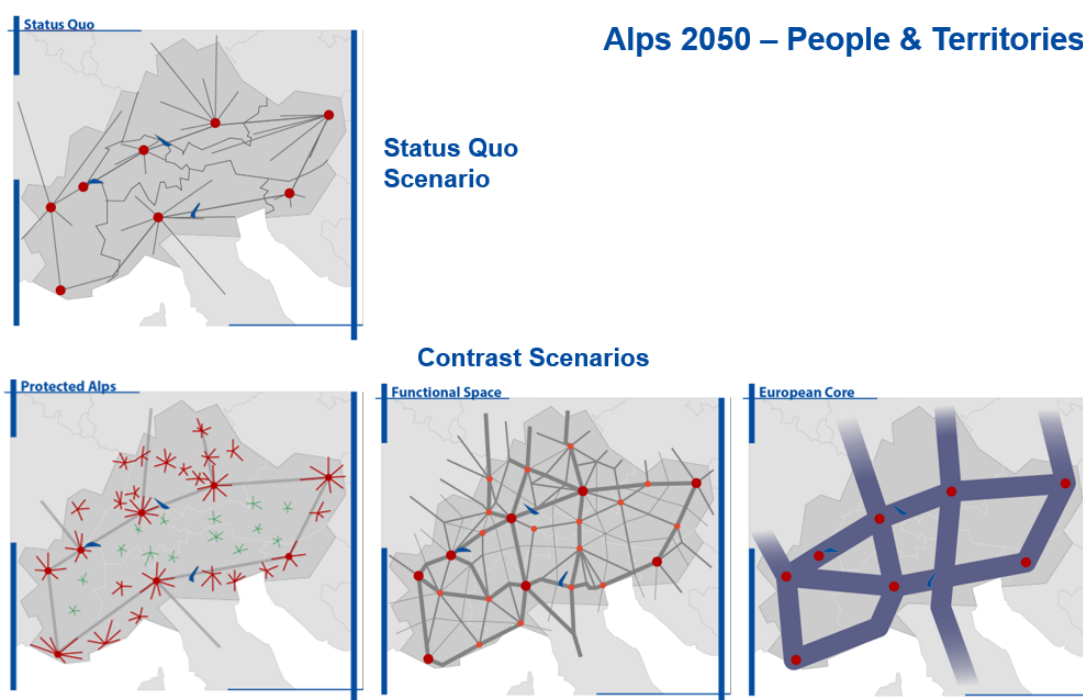
The Alpine region is one of the most successful economic spaces in Europe and one of the most attractive touristic destinations worldwide. Moreover, the position in the centre of Europe causes the need for transit flows to ensure European economic prospering. It is of major importance to build on this strong basis. The metropolitan 'hubs' and the major corridors are the basis of successful spatial development. Attracting skilled labour force and entrepreneurial

investments is as important as to ensuring good transport and economic flows on the Alpine and European level (e.g. with regard to transport and ICT infrastructure).

The following perspectives concretise the general scenarios. The systematic is to combine the general scenarios (status quo, protected Alps, functional space and European core) with the three dimensions that were already introduced in the early chapters of this report, namely 'the people and their territories', 'the economy', and 'the environment'. They are all based on arguments from the participatory elements and they can all be linked to trends of the territorial analyses. However, both the visual elements and the textual descriptions are very condensed, simplifying and, in that, certainly provoking. It is important to note that they are not intended to be spatial planning concepts but visions that show the range of competing priorities and their implications.

3.5.2 Perspective I: different views on 'the people and their territories'

The first perspective shows different priorities with regard to those features that describe and characterise spatial structures of the territories and the conditions of living for the inhabitants. This comprises in particular the demographic development, the settlement system, the (access to) services of general interest and transport infrastructure. Map 13 visualises the different scenarios in a very condensed way and differentiates one status-quo- and the three contrast scenarios as introduced above.



Map 13 The 'people/territories' perspective on the Alps 2050 space

Scenario 1 – Status quo

The status quo (or trend) scenario carries forward the development trends of recent years towards the year 2050. This comprises the following facets:

- The **demographic development** tends to be stronger in the metropolitan areas than beyond. The rural areas show a broad range of development paths, including areas of demographic change with strong outmigration and ageing as well as prospering developments. Along the valleys and in many accessible areas, urbanisation processes are strong.
- The **settlement and transport system** as well as the services of **general interest** are organised in a predominantly national way and the differences tend to increase. As a consequence, national differences between settlement systems are strong and there are hardly any transnational tools to address this topic. The advantage might be seen in the diversity of ideas and development paths. At the same time, complementarities cannot easily be exploited, and instead, cross-border bottlenecks remain relevant. The differences between more urbanised pre-Alpine and the mountainous inner-Alpine areas are reducing, mainly due to the urbanisation process in parts of the mountainous regions.
- The **governance setting** is predominantly based on a variety of soft instruments on the cross-border and transnational system; most binding tools and budgets are located on the domestic level.

Scenario 2 – Protected Alps

The scenario 'Protected Alps' assumes that the ecological role of the Alpine mountain area is pushed much higher on the political agenda and comes along with much stronger implementation regimes.

- With regard to **settlement** systems, this means to limit growth dynamics within the Alpine Convention perimeter in order to avoid further soil sealing and ecological disconnection trends. Construction activities and touristic infrastructure erection are strictly restricted and, in the most sensitive areas, forbidden. The large cities and metropolises surrounding the Alps are organised in a way that does not question sustainable development within the Alps, i.e. their impact on the near mountainous areas will be limited.
- The **demographic development** is characterised by stability as out migration is a less dominant trend in mountainous regions as here, local (endogenous) potentials are valorised intensively. At the same time, strong demographic growth is politically not supported in order to avoid further soil sealing and urbanisation processes.
- **Services of general interest** are mainly built on existing infrastructure, also in order to safeguard the traditional cultural context and the rural settlement structure. This is complemented with the possibilities of digitalisation in order to improve qualities without fostering local traffic or construction activities.
- The **transport** system is consequently transformed into a sustainable regime, including prohibition of certain transport modes (low-traffic-/traffic-free-zones on different scales), transnational toll regimes and a consequent organisation of multi-modal systems. Traffic within the mountainous parts is reduced, and existing infrastructure are managed with all facilities of the digitalisation era.

- The **governance** system has a focus on binding instruments, both in spatial planning and in sectoral policies. The different domestic approaches are aligned and embedded in European frameworks.

Scenario 3 – Functional space

The third scenario pursues the development of the Alps2050 region as a coherent functional region and overcomes barriers and frictions. More concretely speaking, this comprises the following aspects:

- The border effects are mitigated, allowing stronger functional linkages within the **settlement system** on the transnational scale. The relationship between mountainous inner-Alpine parts and the more urbanised pre-Alpine parts will be strengthened as well as those across political and administrative borders: functional linkages will be organised in a way that safeguards fairness and compensation between the different territories.
- **Services of general interest** will be organised in a way that allows good living conditions in all parts of the region with defined service areas. Digitalisation measures will help, but also investment in offers and accessibility helps.
- **Transport policy** plays a key role in this regard, differentiating diverse scales of accessibility (overcoming intra-regional bottlenecks, optimising transit flows). Multimodality is the key principle when developing the transport system.
- The **demographic development** continues to show complex patterns. Depending on the success of regional and local development paths and policies, prospering areas and spaces of structural change are often neighbouring. Still, the particular character of mountainous areas is maintained as urbanisation processes are limited by planning tools.
- The **governance** system prioritises networked approaches within the multi-level system. It is important to link domestic, international, and European cooperation forms. Moreover, it is important to develop the linkages between financial support and ‘soft’ instruments of regional development on the one hand and binding tools on the other hand. The existing cooperation formats will be aligned and consolidated in order to achieve a higher efficiency.

Scenario 4 – European core

The fourth scenario underlines the importance of the role that the Alps play as the ‘European core’: So far, the settlement and transport system is characterised by national specificities and local or regional needs. Transnational and European interests are anchored – amongst others – in the TEN policy, but implementation processes are rather slow and spatially not comprehensive (e.g. connecting lines for transit tunnels). Moreover, the economic policies are largely focussed on national interests. Towards the year 2050, the European perspective is considered in a much more systematic way and allows to adopt to the needs of a globalised economy and an integrated European market.

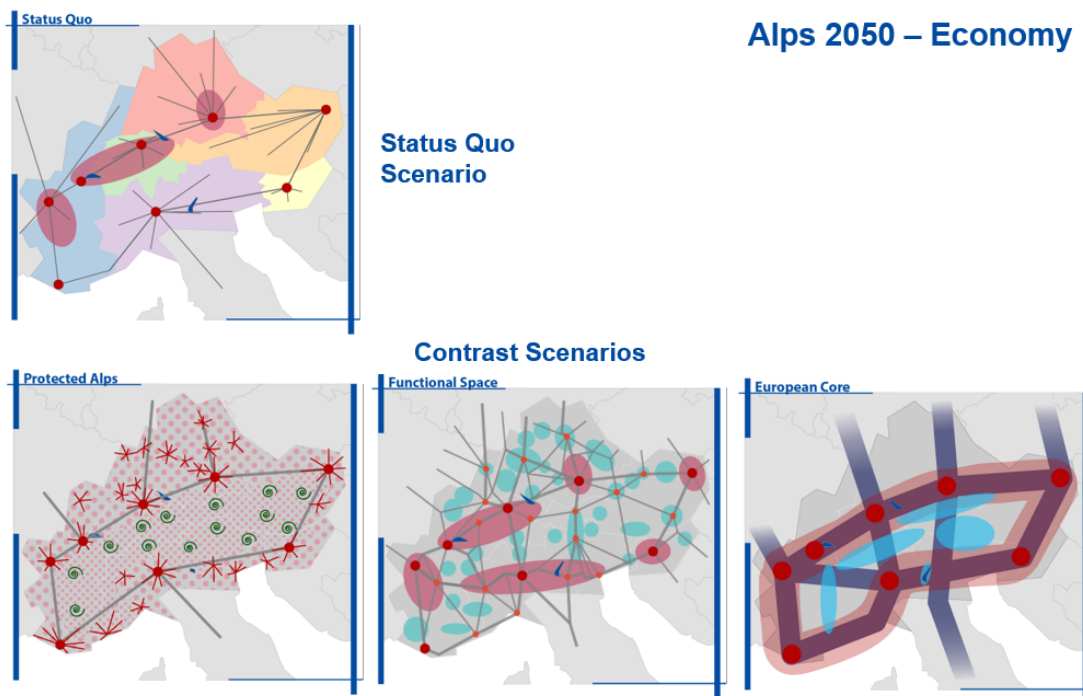
- The **settlement system** is part of the European urban network: Some large cities ensure the ‘hub quality’ in a sense that ensures gateway and headquarter functions. Accessible and well connected places host important players. Given the high European importance

of the large corridors in terms of transport volume (Brenner, Gotthard), they are developed as important development axes, not only for transport but in a multi-sectoral way.

- The **transport** infrastructure will be optimised in a way that further reduces transaction costs. A transnational and European transport policy helps to complement the existing small-scale approaches.
- With regard to **demographic development**, it is crucial to attract a sufficient number of highly skilled persons that allow future economic prospering. It is crucial to position and develop the Alpine region as an attractive place for in-migration, including amenity migration and with regard to multi-local life-styles. This requests a good accessibility and high standard in **services of general interest**, in particular in the most attractive landscape areas. This is a precondition for an innovative economy, in particular in times of demographic change.
- The **governance** focusses on links between European and domestic tools, aiming at a higher efficiency of development processes.

3.5.3 Perspective II: different views on ‘the economy’

The second perspective focuses on the economic future, including all sectors like high tech R&D, tourism or agriculture. Map 15 shows condensed illustrations with regard to the status quo and the three contrast scenarios.



Map 14 Economic perspectives on the Alps 2050 space

Scenario 1 – Status quo

In the Alpine region, economic activity is – overall speaking – successful. The status-quo scenario towards 2050 shows an ongoing economic performance above European average which is leading to an overall prosperity within the Alps 2050 perimeter.

The internal differentiation is strong between the national regimes, between North and South, and between metropolitan and many non-metropolitan spaces. The status quo development shows the amplification of internal differences. The increasing differences on all spatial levels can be seen as a diversity that fuels productive competition; at the same time, growing differences lead to disparities. The existing main growth poles (Northern Switzerland, Upper Bavaria, Lyon/Grenoble) continue to expand their leading roles.

Scenario 2 – Protected Alps

Economic activity and policy has to consider the existing challenges that call for efficient production modes, post-growth approaches and the focus on endogenous potentials. From a spatial perspective, two economic areas have to be differentiated:

- The inner-Alpine and mountainous parts do not exceed their limits of growth which would endanger the cultural and natural heritage and sustainable development options. Soil sealing will largely be stopped, emissions reduced, transport flows limited etc. – against this background, economic growth will be rather limited. Instead, the potentials that exist in the field of biological and small-scale farming, soft tourism, sustainable use of local resources etc. will be exploited – the overall focus lies on regional value chain regimes and a green economy. In parallel, eco-system service provision must be seen as a delivery to pre-Alpine regions which can be an important economic perspective in the sense that these services are paid for. This leads to the preservation of landscape qualities, regional value changes and cultural contexts. Innovation dynamics have to focus on the greening of the economy and increasing efficiency.
- The pre-Alpine and rather urbanised areas continue to ensure the large scale supply with goods and services. However, sustainability has its role to play in these areas, too, as the innovative capacity will be shifted towards process improvements: inventing more efficient and climate friendly production regimes is a major task.

Scenario 3 – Functional space

The scenario of a joint functional space puts in the forefront the development of a transnational economic space. In this economic space, economic activity has to balance a) the focus on endogenous potential and cultural heritage on the one hand and b) the focus on competitive and innovative development in a globalised economy on the other hand. Innovation is a major driver for economic and spatial development. Innovation means technological invention that provides a competitive advantage in economic dynamic and that leads to attractive labour

markets and prosperity. Moreover, process innovation is an important driver for small and medium-sized enterprises (SME) firms that is of particular importance in many rural regions of the Alpine space. Innovation has to be seen as a comprehensive challenge that also refers to social innovation. The following principles are of major importance:

- Reducing transaction costs where helpful (removal of cross-border barriers)
- Building on existing regional innovation systems and innovation cultures, link them in a productive way
- Develop regional business clusters that rely on appropriate infrastructure contexts including education, real estate markets, and transport
- Support specialised intermunicipal cooperation axes that develop distinctive strategies
- Profiting from metropolitan functions that are already in place
- Building on efficacy (smart growth), considering the potentials of a greener economy
- Fostering labour force mobility on the intra-regional scale

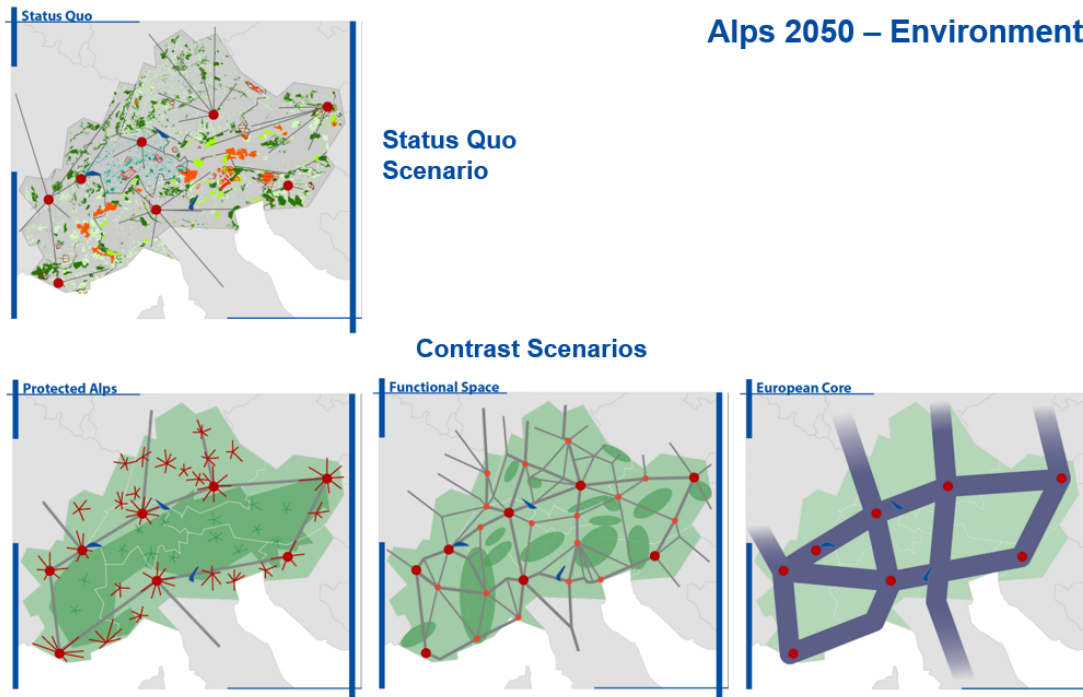
Scenario 4 – European core

The economic success of the Alps 2050 region over the recent decades shows the overall potential of this space. The central position in Europe and the productive competition of strong regions and states has led to a remarkable success. Further developing the strengths means to support the unique assets (e.g. Alpine tourism) and overcome remaining bottlenecks (in particular in the transport sector). From an economic perspective, the following issues will be addressed:

- A transnational economic policy supports the reduction of **transaction costs** in production and services. The already strong Alpine metropolitan ring will be positioned as a hub of the global economy. The rural spaces profit in terms of spill over effects.
- The structural change in the **agricultural** sector will (only) be steered where there is either an important role for tourism (typical Alpine landscapes) or where there is a competitive agricultural sector in place (fruit, wine in Southern parts, grassland in Northern parts).
- The **touristic** sector copes with a dynamic environment, including new clients due to climate change and geopolitical conflicts in other touristic destinations.
- As mentioned earlier, the Alpine region will be positioned in a stronger way as an **attractive living and working place** for the innovative and skilled labour force on a global scale. Developing the Alpine settlement system into this direction is an important part of economic policy, too.

3.5.4 Perspective III: different views on ‘the environment’

The last perspective focusses on the environmental future. Map 15 shows graphic sketches, again with regard to the status quo and the three contrast scenarios.



Map 15 Views on the environment

Scenario 2 – Protected Alps

The scenario of the 'Protected Alps' focusses on the maintenance of the natural and, at the same time, of the cultural heritage. In the Alpine regions, both dimensions are very much intertwined.

On the transnational scale, a differentiated protection regime has to be established and fostered. Generally speaking, the transnational perspective is of high importance as it allows to harmonise existing differences and to bridge cross-border gaps in protection regimes. This is in particular true for the following dimensions:

- **Area protection** and tools for ecological connectivity have to complement each other, and they have to function on a scale sensitive base, considering the European natural heritage and regional pressures. The protection regimes will be accompanied with implementation tools and sanctioning mechanisms.
- **Ecological connectivity** is a major objective, responding to soil sealing processes in particular in the vulnerable, mountainous regions. Connectivity can be insured by smart conceptions of area protection and by a systematic implementation of spatial planning objectives and also by sectoral biodiversity policies.
- **Climate** change adaption is a cross-cutting priority in spatial development, including mobility, housing, and tourism issues. Managing and reducing natural risks is a major concern in this context.
- At the same time, **energy** issues are high on the agenda: using regional sources is self-evident for the Alpine region. At the same time, limiting energy export to metropolitan regions, is an important issue in order to not overburden the mountainous regions.

- The main instruments are rooted in **spatial planning** regimes that combine the domestic (national, regional) systems with a transnational, Alpine wide basis.

Scenario 3 – Functional space

The scenario of the ‘functional linkages’ space focusses on place based approaches that overcome bottlenecks and develop synergies as well as complementarity. By doing so, regionally bound potentials and paths are generally seen as unique potentials on which future development can build on. The environmental perspective follows the following postulates:

- **Instrumental side:** There is already a multiplicity of tools in place that support a responsible ecological development, even if the efficiency is limited. Aligning and consolidating these instruments is of high importance.
- **Ecosystem services:** The inner-Alpine region provides a series of services that are linked to the unique natural quality. These range from leisure facilities and drinking water supply to biodiversity functions. That kind of relation between inner- and outer-Alpine regions has to be structured in a systematic way, including financial compensation mechanisms.
- **Natural protected areas** have to be seen as functional areas as they often have an intermunicipal, transregional, or transnational character. The reinforcement of ecological connectivity between natural parks and the introduction of new connections is important.

Scenario 4 – European core

Generally speaking, the Alpine region has an important role to play for Europe, also with regard to the natural dimension. The ‘European core’ scenario focusses on the function of the Alpine environment for Europe. These are most prominent with regard to the following issues:

- **Landscape, tourism and leisure:** The unique and attractive landscape and natural capital has to be safeguarded and developed for touristic and leisure use. Sustainable development also means that future tourists can still enjoy the beauty of the Alps and the cultural landscape.
- **Biodiversity:** In times of biodiversity loss, the Alpine region has an important role to play for the whole continent. Large scale area protection has to be safeguarded where other land use demand is not conflicting in a too fundamental way.
- **Climate and energy:** drinking water resources, energy supply and energy storage are major functions that the Alps have to fulfil in times of climate change. Providing these tasks – also for other European regions, will be compensated financially.
- **Instrumental view:** It is important to organise the environmental functions of the Alps in an efficient manner. This means to assign functions to those spaces where conflicts of interest are not expected to be fundamental. For example, biodiversity and protection objectives should be assigned, if possible, to those regions where competing land use needs are not too pressing. As a result, large scale zoning is an important tool.

After the presentation of these contrast scenarios in their sectoral differentiation the question arises if there can be *one* vision for the Alpine region. Before we go one step further into this direction we have a look into the instrumental tool-box for implementation.

3.6 Policy measures in the context of transnational cooperation

Independent from the question which scenario is to be favoured, there are certain tools that influence the sectoral domains and the spatial development. Table 2 gives an overview on the most relevant options. In the latter columns, the crosses indicate to what extent the tools 'fit' the different perspectives introduced above. Obviously, it depends on the concrete formulation of the proposed tools if they fit more or less to one or the other approach. Still, the indicative assignment shows different possible implementation options.

Exemplary measures \ relevance for scenarios	Protected Alps	Functional region	European core
I. 'People and territories'			
- Corridor development schemes (involving transport, ICT, settlement development)	+	+++	+++
- Spatial development as explicit priority (action group, priority) also in EUSALP and ASP	+	+++	+
- binding measure catalogue for the removal of border-barriers, in particular with regard to transport infrastructure, juridical barriers	+	+++	++
- Binding planning tools for multi-modalisation	+++	++	+
- Transnational toll system	+++	++	++
- ...			
II. 'Economy'		++	++
- Transnational economic policy programme	+	+++	++
- Labour mobility enhancement	+	+++	+++
- Soft tourism support programmes (cp. Bergsteiger-Dörfer)	+++	++	+
- Mountain agriculture policy exchange / joint support regime for mountain farming	+	+++	+
- ...			
III. Environment			
- Organising eco-system services Alpine wide, linking pre-Alpine and inner-Alpine areas	++	+++	+
- Organising eco-system services on European scale (water, biodiversity etc.)	+	++	+++
- Protecting Alpine eco-system services from high metropolitan demand	+++	++	+
- Climate adaptation program	+++	++	+
- ...			

Table 2 Exemplary policy options on the transnational level depending on the favored scenario

The policy options cannot be fully detailed at this point of time – depending on the political priorities, the concretisations might look very different. However, some explanatory remarks shed light on possible activities:

- **People & territories:** Activities in the field of spatial development comprise measures of soft strategic character, like the formulation of a leitmotiv where this project can be a step stone. Monitoring the spatial development is a technical and soft instrument at the same time. Some measures are of 'harder' instrumental quality: the corridor development schemes or the measure catalogue for the removal of cross-border obstacles are instruments of – rather soft – spatial planning and development. This leads to the question on institutionalisation: adding spatial development as an explicit task of the EUSALP and the ASP could be an option.
- **Economy:** Given the strength of economic mandates on the domestic level, the tools with regard to economic development will have to be rather soft – including aspects like labour mobility programmes or the further development of programmes like '*Bergsteigerdörfer*', initiated by the Alpine Convention, as a model how the Protocol on Tourism can be implemented on a local level by supporting soft tourism in Alpine villages. It is obvious that the protected-Alps-scenario prioritises the latter idea much more than the European-core-scenario, and vice versa for the labour mobility programme.
- **Environment:** The examples of the environmental section shows which implications the different scenarios have on the instrumental side: The Alpine-protection-scenario prioritises measures to limit strong demands from outside the Alps; the functional-area-scenario focusses on trans-Alpine flows, and the European-core-scenario prioritises the large scale interrelations.

4 Alps 2050 vision

4.1 One vision? Controversies and common ground

The last chapters have elaborated a series of perspectives, scenarios and options for the development of the Alps 2050 space that are contrasting and show differences in priorities, assessments, and fundamental beliefs. Defining *one* vision for the whole area is challenging, as political controversies will continue to matter also in future. However, beyond all controversy and the possible trade-offs, there is common ground, and many of the complementary arguments in the scenarios can be combined in political processes, at least in the long run. Firstly, it is a key objective to ensure a good quality of life in the region for the inhabitants as well as for the incoming population. Secondly, it is important to develop fruitful and good relations between the different kinds of territories in order to maintain or improve the functionality of the whole region and the functions of the subregions.

Against the background of the territorial analyses and the stakeholders' input, one can approach the future Alpine development with two key principles:

- The Alpine region is a space of multifaceted diversity that partly lacks coherence, linkages and strategic orientation: The relations between urban and rural spaces, between mountainous and pre-Alpine territories, and along the manifold national borders are not yet elaborated. Addressing this challenge means to *better link* the different spaces, to bridge gaps and to define roles throughout the multi-level governance system. Defining relations between territories can mean to organise financial compensation schemes with regard to eco-system services, a transnational toll-system, economic policy measures etc.
- The Alpine region is facing considerable challenges of sustainable development. This is true with regard to the environmental dimension (climate change, urban sprawl, energy supply) and in parallel with regard to the social dimension (services of general interest, disparities) as in the economic dimension (structural change in agriculture and tourism, labour markets, competitiveness). Addressing these challenges means to avoid trade-offs between these dimensions and, at the same time, to safeguard a long-term perspective. One key element to address sustainable development is *innovation* in the comprehensive sense. This can mean very different things (and still leaves ample opportunity for political concretisation): investment in technical R&D, pilot projects on digitalisation of SGI in peripheral mountain regions, social cooperatives in the field of tourism or renewable energies, etc.

Strategic spatial development has to be ambitious, including the formulation of localised objectives in territorial development. Taking up the main elements of the analytical and participatory elements introduced above, the following sections propose basic elements towards a spatial development process on the transnational scale, aiming to achieve a more sustainable development in a better linked functional region. Fig. 5 illustrates that the focus on spatial development takes into account other sectoral policies (economic, environmental, transport policy etc.) without fully covering the sectoral views as they cannot be fully reflected on in this report. The following sections formulate important principles and visualise possible ways of concretisation. It is obvious that the details have to be object of a political process, built

on the principles of participation and subsidiarity. From that perspective, the following sections and maps have to be regarded as a ‘working document’ that have to be developed further ‘on the ground’.

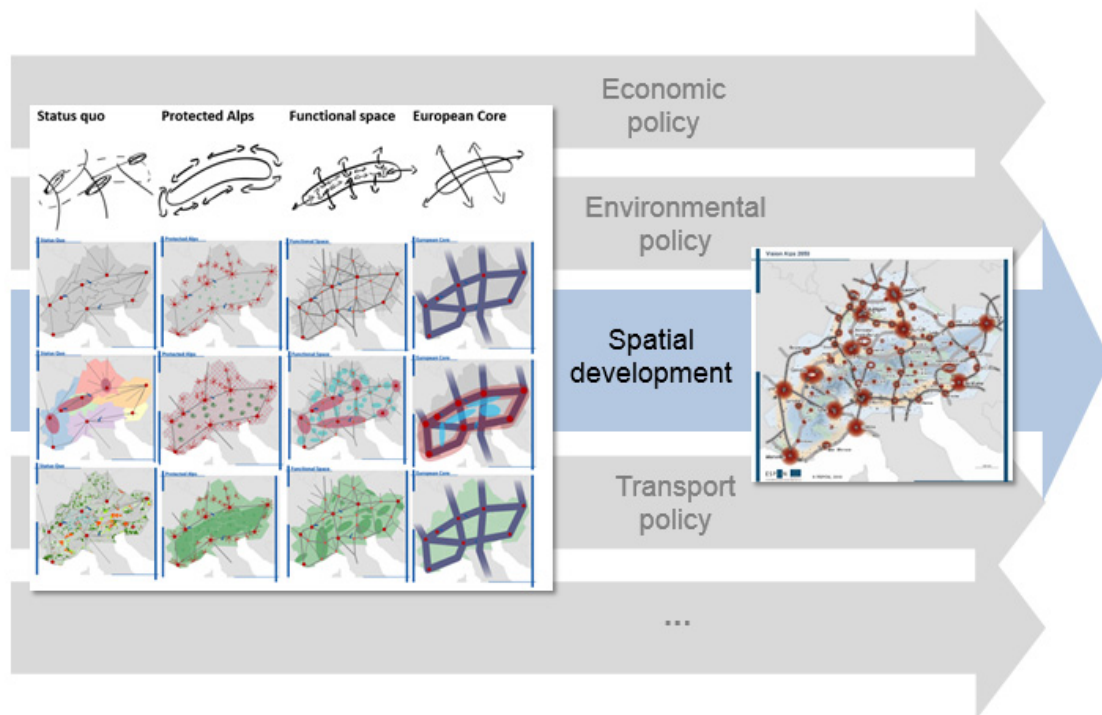


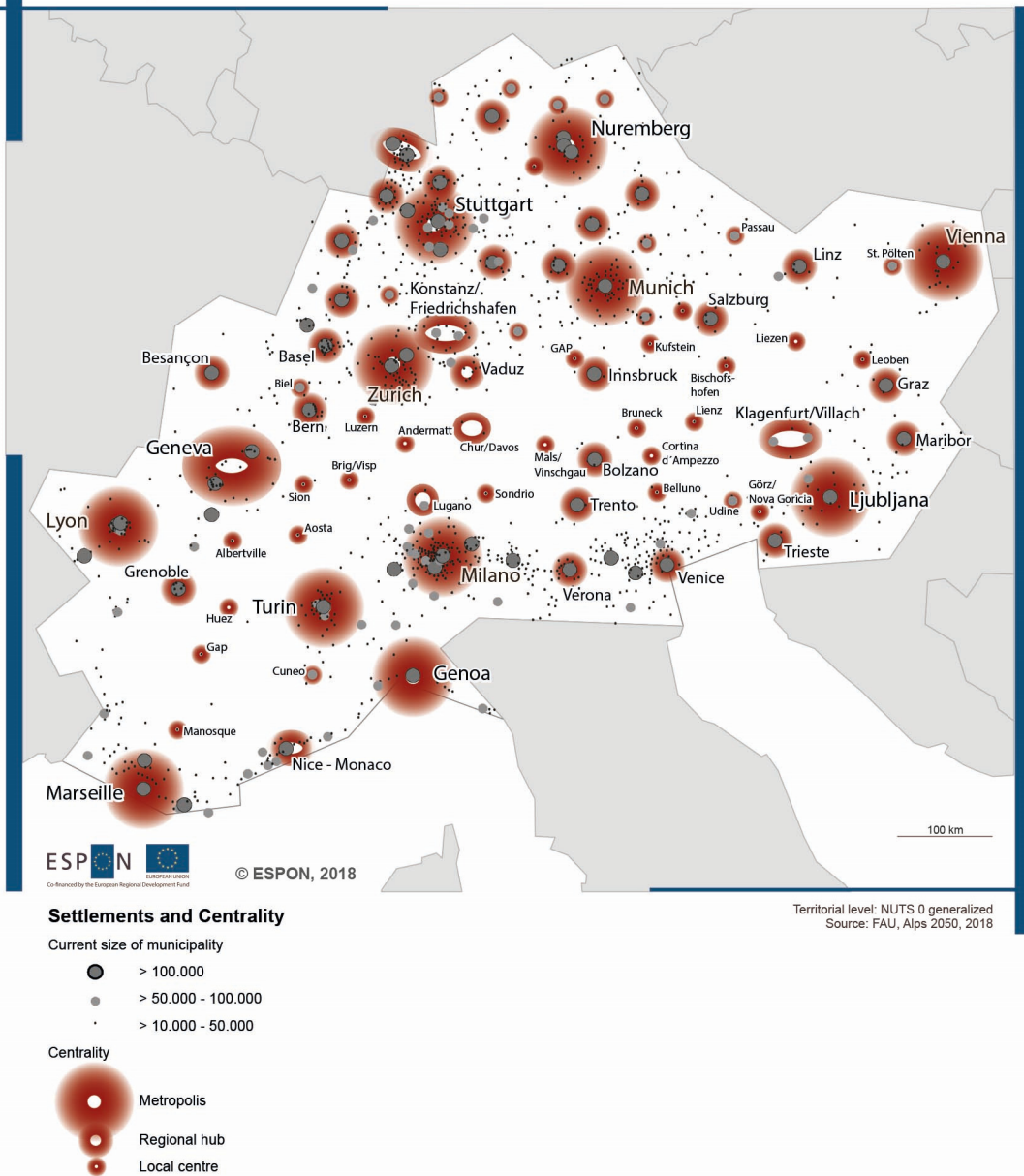
Fig. 5 From debate to development – the role of spatial development

4.2 An Alpine spatial development vision

4.2.1 Settlements and functional systems

Currently, the settlement system of the Alpine region is characterised by mainly national and regional policy regimes. However, the main challenges are the same in all involved countries: Processes of metropolisation put large cities under pressure whereas many regions of rural and mountainous character are confronted with demographic and structural changes. Providing adequate services of public interest is a challenge in both kinds of territories. Frictions along the many national borders in the Alpine region aggravate the anyway challenging situation. Moreover, the increasing share of older people shows that the challenges will grow in the coming years, even if the economic situation remains positive and skilled labour in-migration would continue.

The aim is to achieve a spatial development that ensures a good and comparable quality of life for all inhabitants and an efficient organisation of services of public interest. Urban and rural areas as well as mountainous and non-mountainous settlements have to be linked in a (more) sustainable way.



Map 16 The settlement system of the Alps 2050 vision

Map 16 combines two aspects: Firstly, it shows the current size of the larger settlements, differentiating three size groups (> 100,000; 50,000 – 100,000, and 10-50,000 inhabitants). This map illustrates the differences between the pre-Alpine areas with the far higher degree of urbanisation and the inner-Alpine areas with less and much smaller cities. Secondly, the map indicates the function of the cities for the surrounding area, i.e. its centrality. It is important to note that a) central spaces are no geographical points but nuclei for regional development that perform as rather soft spaces in practice. The definition of development areas has also to define risk zones that are less appropriate for settlement development due to climate change (flooding, landslides etc.). The map proposes three levels of centrality:

- **Metropolises:** The metropolitan cities are characterised by a central role on the transnational scale. They host economic headquarter and innovation functions and large scale political decision-making, with an excellent embeddedness into the globalized economy. They serve as gateways for many incoming professionals from other regions. In general, they have high numbers of inhabitants.
- **Regional hubs:** Regional hubs host important functions in economy and policy for the larger region. The settlement size can vary largely depending on the context (rather more than 100.000 in pre-Alpine and often far less in mountainous regions). It is important to safeguard a critical mass of high ranking R&D infrastructure, a complete offer of services of public interest and the potential for development without affecting rural spaces nearby ('decentral centrality'), in particular as strong suburbanisation processes are already going on. In exemplary cases, the positioning of two cities as one regional hub illustrates that 'division of labour' can help to provide the most fitting basis.
- **Local centres** have a high importance for rural spaces, in particular with regard to services of public interest and for economic incentives. In the mountains, some of these centres have less than 10,000 inhabitants and still provide important functions for their catchment area.

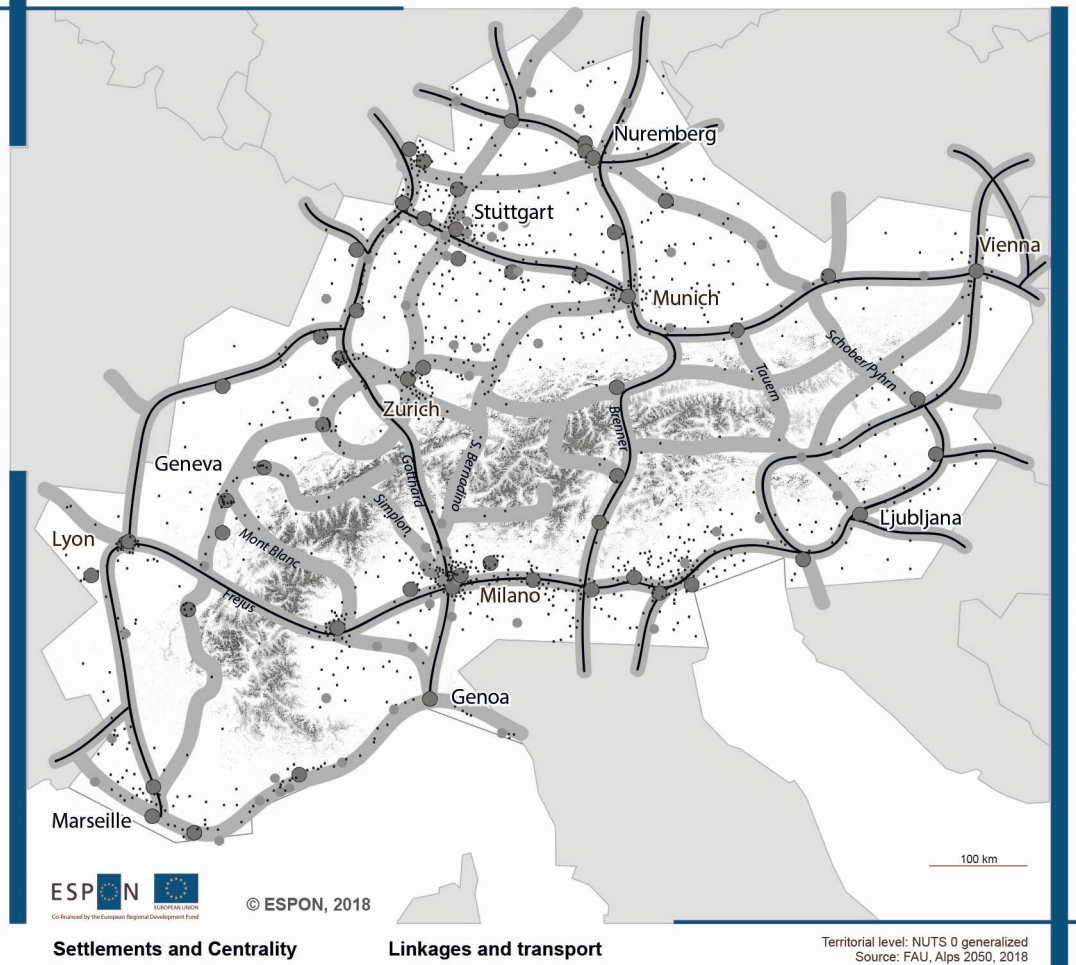
Political action: The organisation of settlement systems is a domestic policy field, following the principle of subsidiarity. Still, the following political activities on the transnational scale can improve the situation:

- Work towards a possible political definition of a common typology of settlement functions on the transnational level as proposed in our map. This may facilitate monitoring and exchange.
- An action plan on the removal of cross-border barriers would improve the organisation of public services across boundaries.

4.2.2 Linkages and transport

The spatial structure of the Alpine region is characterised by functional linkages on different scales that are based on axes and corridors, carrying major parts of transport flows, hosting main parts of the settlement system, and providing important services of general interest.

The challenges are manifold: growing transport quantities (in particular of freight and via road) aggravate current traffic problems which imply a significant economic and environmental burden and question the local quality of life. Non-action would mean almost permanent congestion situations, increasing noise and air pollution and a widely-shared sense of decreasing quality of life in large scale corridors. Already now, political conflicts along transit routes are serious (among national ministries and between subregional entities along the connecting routes and national decision-makers). It is obvious that improved coordination is needed, including both sectoral transport policy measures and integrated spatial coordination. At the same time, local accessibility remains a complex challenge in many mountainous parts.



Map 17 Linkages, corridors and the transport system of the Alps 2050 vision

The objective is to balance transnational mobility and accessibility on the one hand, and ecological quality and good local quality of life on the other. This can only be achieved by considerable efforts on the domestic level, but requires also increased attention at the transnational level. The new infrastructure and the new modes of mobility lead to new geographies due to new accessibility patterns that fundamentally change regional development paths. – Map 17 differentiates the following elements:

- Backbone linkages:** The (inter-) regional axes further strengthen the existing transport and settlement systems, taking into account the morphological structure (in particular along the valleys). It is important to concentrate growth dynamics along these lines in order to avoid sprawl and to ensure efficient spatial structures in the long run. They have an important role for intra-regional connectivity. In the mountainous areas, they represent the main valleys that are traditional development axes. These axes are important for settlement growth management, economic dynamics, and an efficient organisation of services of public interest.

- **TEN-T:** Many of the backbone linkages host the TEN-T infrastructure that are displayed in the map. It is important to implement the investment measures that were decided on the European and transnational level. Some of these large scale connections have a high transit relevance (North-South, but also East-West).
- **Major Alpine Passes/Tunnels:** The major Alpine passes or tunnels are displayed here mainly for the purpose of orientation and as important elements for regional dynamics.

Political Action: Towards the year 2050, the following actions have to be undertaken:

- **Sectoral level:** The TEN-T has to be completed, including connecting routes, completing a transnational accessibility regime. Moreover, enhancing multi-modality, combining in particular road and rail, is of high priority. A transnational toll policy might be an important element in this respect. In parallel, internal accessibility (passenger transport) has to be developed in a sustainable way.
- **Integrated spatial development:** Transport policy has to be closely interwoven with general spatial planning processes. There has to be a clear differentiation of transit flows of high quantities that have to be organised along few corridors that are capable to handle large flows in a way that does not harm environmental quality. On the other hand, accessibility on the regional and local level have to be closely linked to questions of the settlement system including services of general interest and to economic dynamics.

4.2.3 Territories

Spatial development in the Alpine region is challenging as manifold demands meet on a complex and vulnerable territory. The challenges on the transnational scale are manifold, but the relations between urban and rural as well as between inner-Alpine and pre-Alpine areas are often unclear: the political organisation of transport flows as well as eco-system services, the development of services of general interests and of economic activities is a complex task and has to consider its territorial dimension. Areas of long-standing SME innovative tradition, agricultural communities, hotspots of biodiversity and areas of structural transition meet on the ground. Detecting and developing their potential is the key task.

The objective is to achieve a sustainable spatial development process that goes beyond domestic regimes but that develops potentials on a cross-border and transnational scale. A common definition of priorities and complementarities facilitates a spatial development that addresses common challenges.

From the environmental side, this means all key principles of ecological development, including limitations to soil sealing and settlement sprawl, and ecological connectivity by means of and beyond protected areas. In particular, climate change mitigation and adaptation measures are crucial. In order to address the much accelerated and particularly dangerous threat, the implications of climate change have to be addressed in particular on the Southern side of the Alps. Adaptation strategies comprise risk management, including mountain forest management, and water resources management. Measures of sustainable mobility, new construction modes and energy systems contribute to climate change mitigation.

From the economic side, endogenous potentials have to be developed in many respects. Regional innovation systems have to be further developed in those areas that have a high density of sectoral and cross-sectoral dynamics in innovation and business creation based on networks of firms and institutions embedded in regional economic paths. Generally, these dynamics can be found in both metropolitan spaces as well as in rural areas. The objective has also to be to reduce the North-South gradient in economic performance. In parallel, the agricultural sector will undergo further structural change. Given the high importance of this sector for the Alpine landscape and – indirectly – for demographic development, the settlement system etc., political support is important in order to maintain the functioning of this sector also in times of structural change. Within the touristic hotspots, an orientation towards sustainable modes of transport and activities is strongly supported. Beyond the touristic hotspots, the potentials of soft rural tourism will be exploited comprehensively.

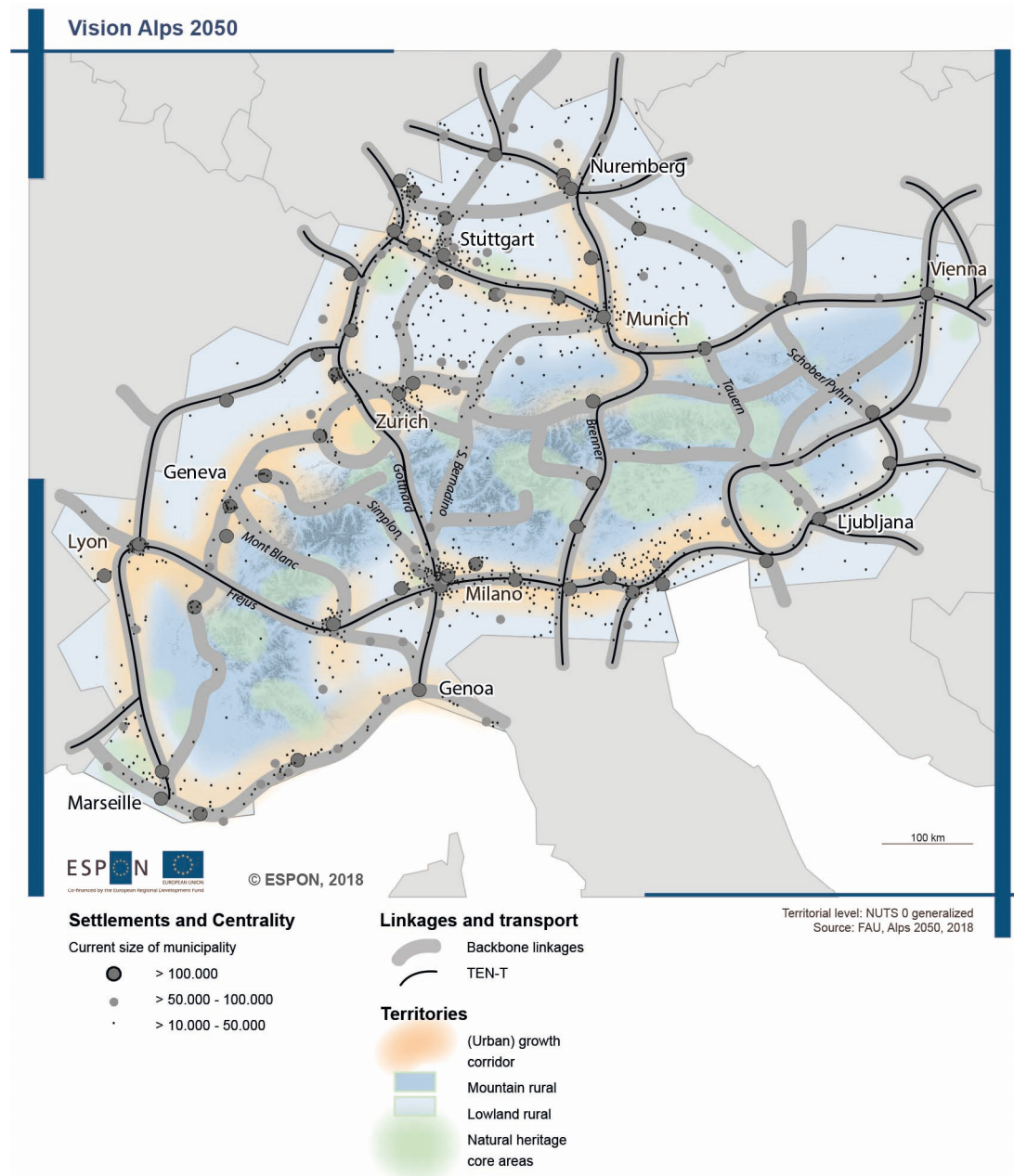
- **Innovation orientation:** in order to safeguard the relative economic strength of the region, and in order to enhance sustainability in economic activity, the focus will lie on innovation. This comprises technical R&D, economic post-growth models, pilot projects, social innovation etc.

Map 18 differentiates four general kinds of territories – not neglecting that spatial development on the ground has to go far beyond these more general categories.

- **(Urban) growth corridors** are very much linked to the above mentioned backbone linkages. Concentrating growth dynamics on these corridors is important in order to avoid settlement sprawl and in order to achieve an efficient spatial organisation. The spatial development should follow the principle of ‘decentral concentration’: growth has to be oriented on the existing settlement basis. Demographic development is supposed to be more dynamic in the already urbanized areas whereas rural areas in and beyond the mountains are supposed to be stable.
- **Mountain rural:** Due to the lower population density, the morphological context and the often less positive demographic situation, spatial organisation in these regions has to undertake considerable efforts with regard to the assurance of access to public services. From the economic perspective, smart innovations are of major importance that lead in the best case to rural innovation systems, potentially comprising technological, agricultural and touristic dynamics. In particular, regional opportunities along the backbone linkages, but also niche options beyond those areas should be seized and developed. At the same time, mountain areas are particular living spaces where the high quality of life has to be maintained, developed and often improved.
- **Lowland rural:** The category of rural areas beyond the mountains is very diverse and comprises different contexts in the demographic and economic sense. Developing endogenous potentials and developing fruitful linkages to the metropolises and other centres is the main task.
- **Natural heritage core areas:** Protected areas are one important aspect of environmentally sound development. The map is not meant to show the exact protection regimes but illustrates a spatial category that prioritizes action to protect and develop natural heritage, taking into account touristic potentials wherever reasonable (in the map based on existing UNESCO sites and national parks).

Political Action means in particular the following points:

- **Innovation focus:** Economic development strongly depends on innovation in technology, and, at the same time, adaptations in economic and social processes. Supporting innovation with R&D infrastructure, networking facilities on a transnational level have to be organised in a cross-border way where possible in order to develop endogenous potentials .
- **Cross-border protection regimes:** The hitherto established protection areas are predominately selected and restricted to national boundaries. Strengthening the cross-border dimension is very promising, considering the primary challenge of ecological connectivity.

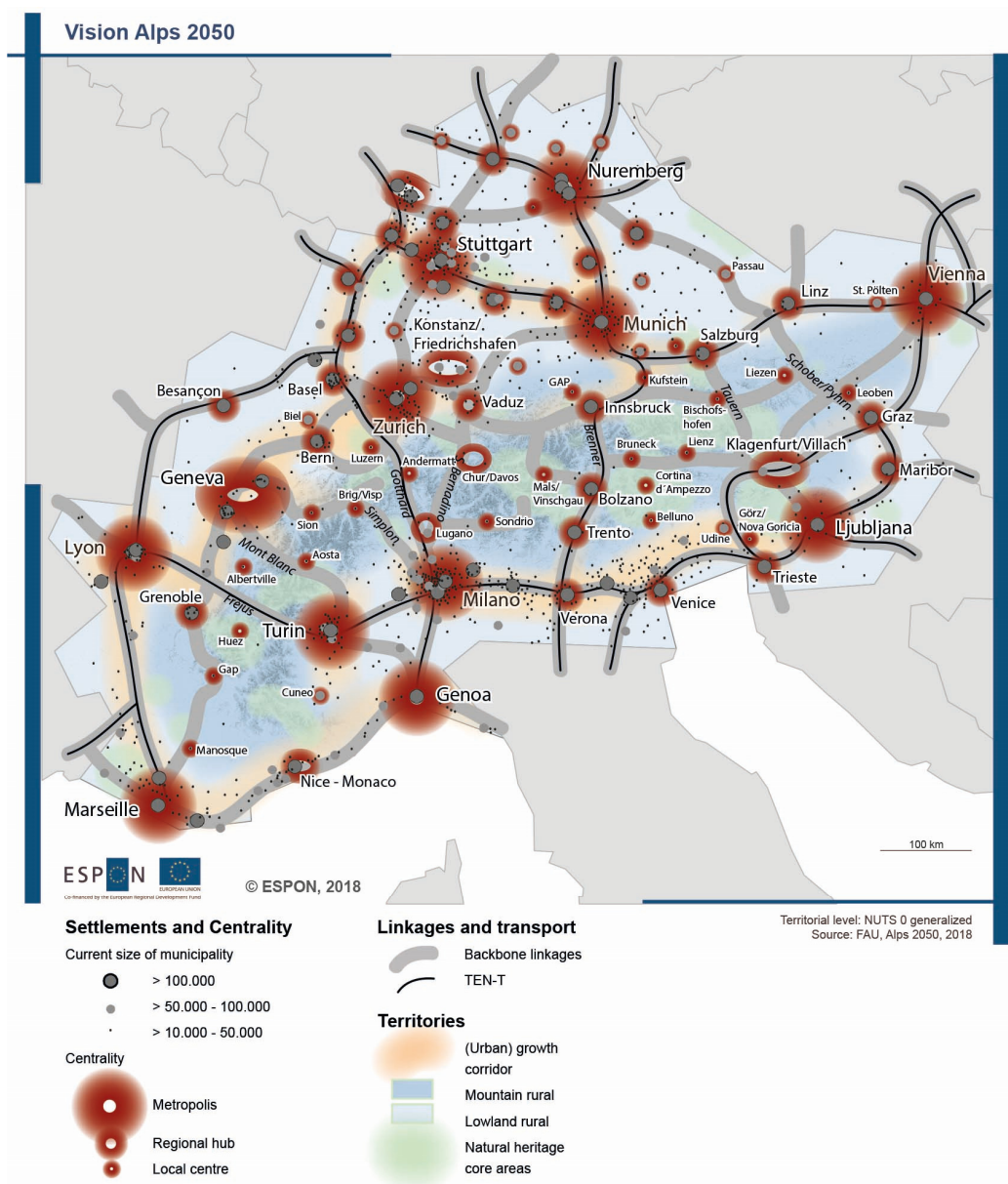


Map 18 The territorial structuring of the Alps 2050 vision

4.2.4 Synthesis

The **general objective** of the Alps 2050 vision is to achieve a balanced spatial development based on sustainability, safeguarding a good quality of life and an efficient management approach of governance. The political measures introduced in the sections above contribute to achieving this goal. Map 19 combines the different dimensions in a visual and simplified way.

The Alpine region is the 'contact zone' of different natural spaces and of regional and national regimes and cultures. Turning this diversity into capacity and creating a real transnational region is the objective. Achieving sustainable development demands to use the synergies and complementarities on the transnational level needs common action of the actors throughout the multi-level system, including sectoral policies and the cross-cutting spatial development perspective.



Map 19 Alps 2050 vision

4.3 Towards implementation

4.3.1 Juridical instruments and governance

The question is which transnational activities can be taken in order to work towards cohesive territorial development and sustainability (see also Table 2). With regard to juridical instruments, the scope is limited. On the European level, the mandates for spatial planning are rather weak, and this is also true for the transnational level. Against this background, soft tools of spatial development, including cooperation processes, strategy formulation processes, monitoring etc. play a key role. A series of INTERREG projects has often helped to initiate and foster these elements.

Certainly, spatial development cannot be based on soft instruments alone, but they have to be embedded in binding development strategies. At the moment, the binding elements are mostly located on the domestic level (e.g. spatial planning, transport system development) and on the European level (e.g. Habitats directive). The intergovernmental treaty of the Alpine Convention is binding among the Parties who have ratified it, including the Protocol on Spatial Planning and Sustainable Development. Against this background, *implementation* is an important topic: Formulating leitmotifs and objectives or establishing committees and seed money programmes is helpful in particular in consensual questions. In more controversial topics, implementation mechanisms have to come into play if political dynamics shall be kept. At the same time, over-institutionalisation and enhanced complexity should be avoided.

4.3.2 Governance

In parallel to the debate on the contents of territorial development, there is an ongoing discussion on the development of the governance setting. The underlying debate can be summarized in a very condensed way: Should the existing institutional structures be consolidated and concentrated or should the high number of cooperation formats be seen as a fruitful diversity ('diversity vs. consolidation'). The common ground in this debate is that there has to be an efficient use of resources and that the institutions should be relevant in what they do. Taking up the above mentioned postulates of promoting *links* and *innovation*, the institutional links between existing governance formats would have to be further developed.

In particular if we take the call for more consequent approaches to soft spatial planning serious, the governance situation has to be further developed which is currently characterised by institutional density and long standing experience. Some experts from the Delphi survey and the Alps 2050 workshop call for *consolidation*, others see clear advantages in institutional *competition* that might be creative and fruitful. In any way, more *effective* settings are a consensual objective (cp. Table 1). A consequent reflection on mandates and division of labour amongst the involved institution is a minimum common denominator. The objective is to reduce overlaps, to concentrate on core issues and to cooperate in order to make better use of synergies.

4.3.3 Funding and discursive instruments

'Soft' instruments are of key importance for regional development in general and they are crucial in the transnational and European context, also due to a lacking strong political mandate on the supranational level. Soft instruments comprise *funding* opportunities and *discursive* instruments, i.e. instruments that serve political agenda setting, publicity, networking dynamic activity etc. Different from binding juridical instruments, the effects cannot be 'forced', but the long-term effects can be strong.

Funding in the Alpine region means the INTERREG Alpine Space Programme (ASP) and the different cross-border programmes; the financial volume is often higher in other European programmes that do not have an explicit territorial dimension. This comprises namely structural funds and sectoral budgets, in particular the agriculture and rural development funding, but also TEN support for the transport sector, Horizon programmes for research, LIFE for environmental policy etc. One has to add that funding remains a predominantly domestic topic and that national and regional governments hence have a decisive role on development trends

Funding on the transnational level is very much dependent on the EU level on the one hand as e.g. ERDF regulations can only be adopted to a transnational area in a limited way. At the same time, the domestic influence is large, due to domestic programming processes and co-funding conditions. But having said this, there is still scope for reorientations in the following directions that have been formulated in the Delphi study and the workshop activities of the Alps 2050 project:

- **Alignment:** Alignment means stronger links between programmes and easier combination of funding opportunities (multi-funds approach). This is of crucial importance due to the macro-regional three no's prohibiting new institutions, new regulations and in particular new budgets. Better linkages between the different strands of European Territorial Cooperation (ETC), between ETC and investment oriented funding (cohesion, agriculture, horizon etc.), and the combination with domestic funding is of key importance.
- **Innovative funding:** Reducing the high bureaucratic burden in European funding in general and in particular in cooperation is an ongoing challenge. Beyond this debate, many experts of the Alpine region call for more openness for innovative projects and experimental action that are currently impeded by formal requirements. This includes a more explicit focus on spatial development and goes beyond purely sectoral policy strands.
- **Inter-regional policy processes:** The existing platforms on the transnational level (in particular the EUSALP action groups and the Alpine Convention working bodies) are without a doubt a good basis for further political dynamic: Improve data availability, ensure public transparency, pave the way towards transnational action is the promising direction (as it has been done for the transport policy under the roof of the so-called 'Zürich process'). Developing such processes for labour market mobility, mountain agriculture support initiatives or ecological connectivity regimes are more than promising.

In practise, *discursive* tools are very much linked to financial instruments: Many programmes are supposed to work as seed money that lead to more permanent processes, dynamics and structures. Alparc, the Alpine network of protected areas, is a good example: it is a network structure – thus discursive instrument – that profits often from ASP funding instruments. There are a lot of success stories of ‘soft’ instruments in the Alpine region, often linked with very engaged (cross-border, transnational) expert communities.

If we take the postulate seriously, that the complex Alpine structure profits from activities that link different territories, their actors and institutions, this is almost a direct plea: Proceeding with the established INTERREG activities of exchange, learning and networking is a precondition for tailor-made territorial development. Maintaining and developing expert communities and fuelling innovation processes has to be based on these opportunities. This is also true in times of tight budgets and institutional reforms on European level.

On the European level, the ongoing processes towards the post 2020 period of regional policy and the multi-annual financial framework (MFF) are a dynamic background which is not easy to understand from outside the political fora. The most relevant recent documents comprise the Commission’s Communication “*A new, modern Multiannual Financial Framework for a European*” from February 2018 (COM 2018a) and the Commission’s draft regulation from May 2018, (COM 2018b), on the Multiannual Financial Framework (MFF) post 2020.

One of the important questions is to what extent and under which conditions the European Structural and Investment Funds shall continue to be available to all EU Member States, or if the policy should be limited to less developed regions and/or Member States. Large parts of the Alps 2050 perimeter can be regarded as economically strong, as described in more detail above. So the Alpine region is concerned by this question – the three scenarios drafted by the EC illustrate this clearly (COM 2018a: 11). At the same time, cohesion policy legislation has to pay particular attention to regions which are characterised by severe and permanent natural or demographic handicaps which is particularly true for mountain regions (Art. 174 of the Treaty on the Functioning of the European Union), and therefore the cohesion policy legislation has to make sure that the Alpine regions will have adequate funds in order to face their specific challenges.

Agriculture and rural development funds traditionally play an important role for the Alpine region, and the Commission’s reflections refer to this by mentioning the necessary support for agricultural production in less profitable or mountainous regions, a focus on small and medium sized farms, investments in sustainable and resource efficient production systems and better coordination with rural development measures” (COM 2018a: 12). If unique landscapes, the balance of human and natural demands, culinary diversity etc. are important topics on the political agenda, CAP has a role to play within the Alps 2050 perimeter.

A good information base is an important basis for evidence informed policies. Despite a rich and performant diversity of scientific and consulting actors in the Alpine region, including the AC Reports on the state of the Alps, there are still gaps: If the potentials of *common challenges* are at the heart of transnational policies, the knowledge base has to be improved. There are good examples on the field of the traffic policy with regard to the transit theme (iMonitraf etc.), but few information beyond. This is true for economic and trade interlinkages, for labour market mobility, for eco-system services etc. (cp. the chapter on “proposal for further research” in the scientific annex).

5 Guidelines for setting up spatial perspectives in transnational cooperation areas

The Alpine region, certainly, is characterized by its unique landscape and the particular political setting. At the same time, many questions of the Alps 2050 project are typical for a transnational space: Balancing needs for development and protection in a diverse and complex territory is a fundamental question in European spatial development.

Fig. 6 illustrates in a simplified overview which elements are most relevant for setting up spatial perspectives on a transnational level. The first strand, the *territorial analysis*, is described in more detail in the scientific annex. Questions of indicator selection and data availability are in the foreground here. It is important to apply, firstly, a sectoral analysis that allows to achieve a differentiated understanding of spatial development of different indicators and interrelations. Wherever possible, a combination of ex-post, state-of-the-art analyses and projections are helpful. In order to achieve an integrated understanding of spatial development, indicator combinations like simple cartographic combinations or more complex cluster analysis are an important step. Synthetic representations (mapshots, clear wording) help to summarise the most important aspects.

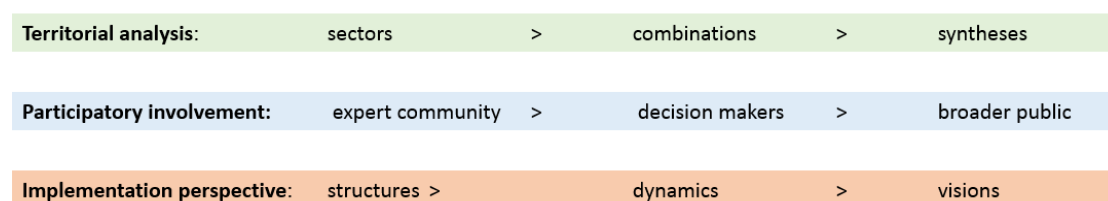


Fig. 6 Basic elements for setting up spatial perspectives

In parallel, *participatory elements* ensure a) the alignment of territorial insights with political agendas and b) the acceptance and relevance of the results for future development. Participation has to respect that those persons involved can contribute with their particular expertise and that their assessment and views will be taken into account for future discussions. This will in most cases have to be done on different levels: It seems reasonable to consider the expert community – typically high ranking officials from administrative institutions like ministries and implementing agencies – in the first place. In the next step, a more political circle should be involved, addressing decision makers from different levels and priorities. The question is if and when the involvement of the broader public is useful. Certainly, a transparent process is indispensable, but surveys and dissemination campaigns are only worthwhile if the questions are comprehensible and relevant to the broader public and if their assessment has a realistic chance of inclusion in concrete implementation. Due to the high complexity, the broad public might not always play a central role in participatory processes on the transnational level.

These three different strands can lead to more congruent or divergent results that have to be combined and aligned in a careful way. There is no easy technical implementation path for this. Instead, the process has to follow some basic principles, using scope for real transformations, namely:

- **Evidence base & transparency:** Territorial development can be described, understood and debated on the basis of the various relevant data bases. The Alps 2050 project illustrates the multifaceted information potentials and limitations. It is important to make use of it in an extensive way. At the same time, the data base tends to become complex and is not always straightforward and easy to interpret. This is why a transparent and reproducible approach and documentation is important.
- **Pragmatism & prioritisation:** Territorial development is multifaceted and complex, so a really 'complete' and 'holistic' analysis is hardly ever possible. Instead, it is important to set priorities and be pragmatic wherever further details do not lead to improved understandings – for example, it is not always necessary to have the most recent year for the data base, it is not always necessary to work on the smallest scale of observation (e.g. LAU2), and it is not always helpful to consider as many local strategy papers as available.
- **Openness & awareness:** In parallel to the complexity of analytical tasks, the sensitivity of political processes has to be taken seriously. It is important to remain open minded to divergent opinions, current agenda-setting processes and controversies etc. At the same time, it is important to formulate new impetus and ideas and to fuel the debate with slight provocations, where a fruitful political discussion can be expected.

In order to feed broad debates and for condensing the information, visual elements are crucial. It is a challenging process to bring together the different sources of information and lines of argument. Fig. 7 draws together the most important steps and elements for scenario mapping. One can differentiate four steps in the drafting process, and within each step, amongst the rich options, the most adequate choices have to be made.

With regard to the geostructure, it means to select which elements are needed to get an accessible picture without overloading it or without giving unintended biases (e.g. showing only national, but no regional borders). It is important to choose appropriate administrative units for comparing data.

Visualising the regional data shares many challenges with classical regional mapping – choosing indicators, time references, scales and perimeters is important here. Beyond this, indicator combinations or integration methods (e.g. cluster analysis) are methodological options here. The underlying 'philosophy' is relevant, in particular with regard to the focus on evidence through quantitative analysis (e.g. prognostics data) and qualitative data (assuming spatial implications of expected megatrends).

The implication of political options and priorities is a very open explorative process, demanding creativity and adaptation, and inclusion of institutional expectations, contexts and changes. The synthesis map(s) is/are designed according to multiple questions of cartographic 'language'. Again, the project's or strategy's context has to be taken into account.

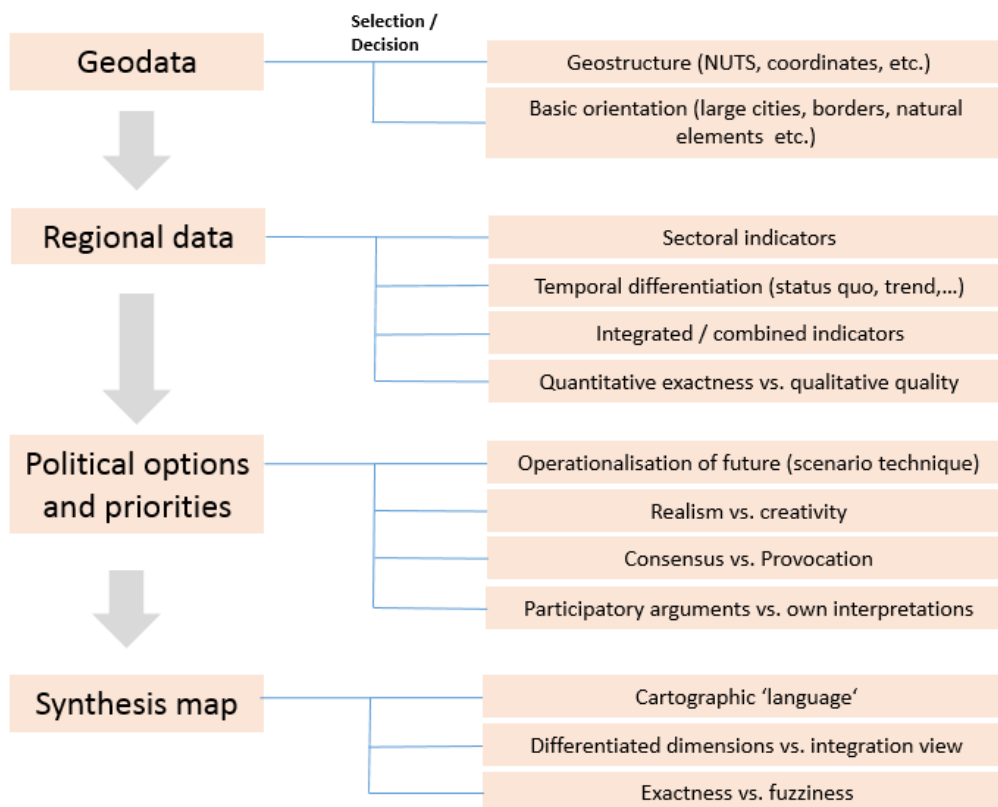
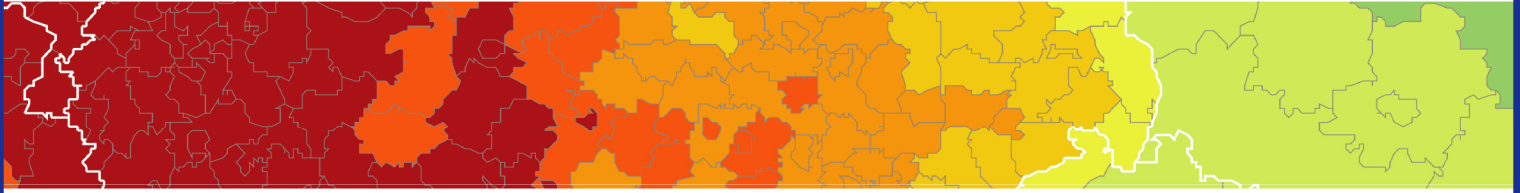


Fig. 7 Elements for drafting transnational perspectives and scenarios



ESPON 2020 – More information

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