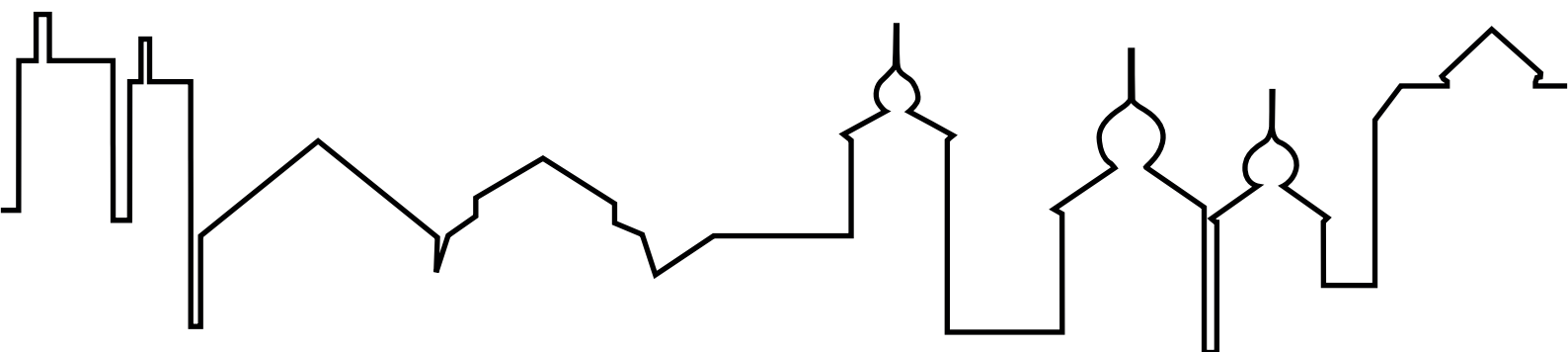


# ALPINE TOWNS

Key to sustainable development in the Alpine region



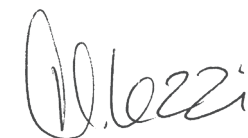
# INTRODUCTION

Only a tenth of municipalities in the Alps have a population of more than 10,000 inhabitants. Yet they are home to far more than a third of the Alpine population. When it comes to research, funding, and policies for the Alps, however, the debate on peripheral mountain regions dominates over that on towns.

In the ninth Report on the State of the Alps, we reflect on the ecological, economic, and societal roles that towns play in the Alps' sustainable development. On the one hand as catalysts for problems caused by urban sprawl, climate change or economic transformation and, on the other hand, as an essential part of their solution! Alpine towns are thus at the heart of most of the Alpine Convention's topics, its protocols, declarations, and activities.

The report considers the Alpine settlement system both transnationally and from the viewpoint of a town. It also offers two different approaches to the topic: Firstly, an analytical one, where interesting maps, surprising facts, and current debates stimulate discussion. Secondly, an exploratory one, where five scenarios provide an outlook and offer answers to the question of how Alpine towns might look in 2050.

As a thematic starting point for the report, we relied on the European Environment Agency's 'six drivers of change'. They summarise the main trends and uncertainties that challenge Europe's progress towards sustainability. We are therefore embedded in a pan-European discourse that we have adapted to the Alpine context: our report focuses on the forces of demography, environment and resources, economy and innovation, global positioning, governance and lifestyles. We are convinced that urban development that embraces these forces early on and knows how to manage them will sustainably improve the quality of life in the Alps.



Dr. Maria Lezzi, Director Swiss Federal Office for Spatial Development ARE

We wish you a very pleasant read

– let it inspire you!



# EPILOGUE

What is an Alpine town? We all have different and unique images of Alpine towns – whether as rural communities, tourist resorts or university hubs – shaped by our personal interactions with these places. Furthermore, various historical or political circumstances have resulted in numerous small regional differences. There is no such thing as THE 'Alpine town', but rather a multitude of larger, smaller, well-connected, remote, growing or shrinking settlements that take on urban functions within their surroundings. This report is dedicated to all of them.

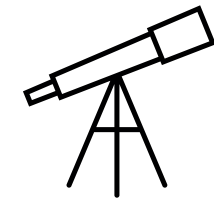
Our thanks go to the experts of this report's working group. Their knowledge and enthusiasm to discuss with a broad audience helped to make it a success. Moreover, we would like to thank the research team of Professor Tobias Chilla, Dominik Bertram and Markus Lambracht from the University of Erlangen-Nürnberg for their creative approach to the settlement system. Likewise, we express our gratitude to Helen Lückge of Climonomics and Susanne Schatzinger of VS Consulting Team for designing and implementing the scenario process and conflating the knowledge into five concise pictures of the future.

**This document contains following parts:**

**Part 1:**  
**Facts, Maps and**  
**Scientific Debates**  
**Page 7**



**Part 2:**  
**Five Pictures**  
**for the Future**  
**Page 63**



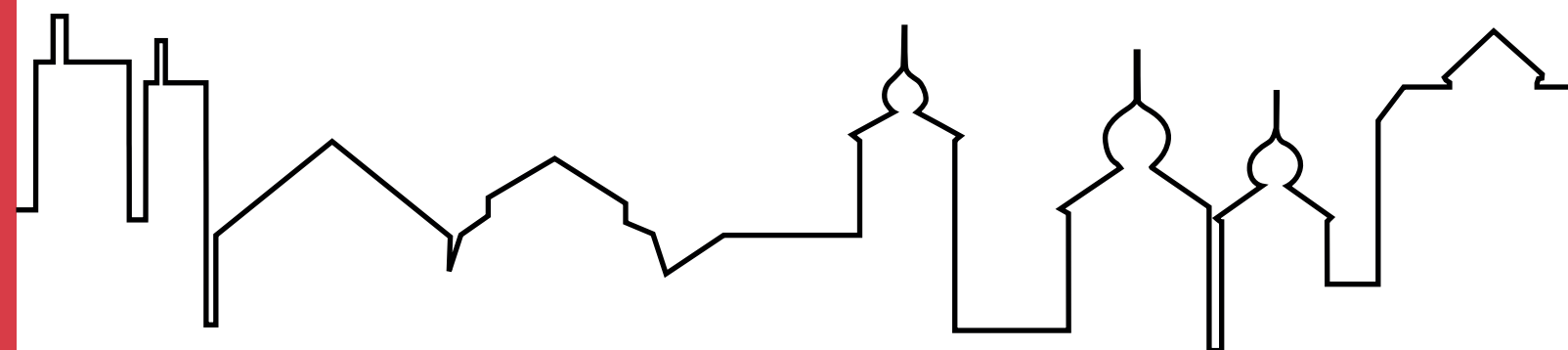
**Four Postulates of**  
**Sustainable Urban**  
**Development**  
**Page 115**



# ALPINE TOWNS

Key to sustainable development in the Alpine region

## Part 1: Facts, Maps and Scientific Debates



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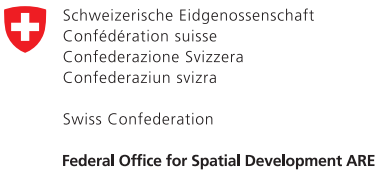


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1. Alpine towns and the settlement system

1.1. Finding: Alpine towns and their relevance ‘beyond size’

Settlements evolve into towns and cities through urbanisation processes and rising numbers of inhabitants. Alpine towns must deal with a variety of issues: the demography of the Alps reflects that of the European population in general, which is ageing and stabilising while the global population is growing (EEA 2019: Cluster 1). The diversification of lifestyles implies new work patterns and career paths. These trends result in a new demand for infrastructure and real estate in the development of towns and cities. A shift in health and social concerns demands a new approach to the provision of essential services such as medical care, mobility infrastructure, and retail offer (ESPON Alps 2050; ESPON Prophecy).

In the Alpine context, urbanisation is a complex and often controversial topic. The first step is to determine how a town can be defined. Given the predominantly rural character of the Alps and the importance of its geomorphology, common definitions based on minimum numbers of inhabitants are not appropriate (cf. Dematteis 1974, Bartaletti 2014). Only very few towns within the Alpine Convention area would be considered if a minimum threshold of 100,000 inhabitants were used (see Fig. 1). Out of a total population of about 14 million in the Alps, only 900,000 live in these towns (ca. 6.5%). If we add towns with populations of more than 50,000 inhabitants, the total comes to about 1.4 million people, or 10% of the Alpine population.

> 100.000 INHABITANTS		> 50.000 INHABITANTS	
Grenoble	160.649	Klagenfurt	97.880
Salzburg	148.420	Luzern	81.295
Innsbruck	126.965	Kempten	66.947
Annecy	125.694	Lugano	63.583
Trento	117.304	Rosenheim	61.844
Maribor	112.325	Villach	60.500
Bolzano/Bozen	106.110	Chambéry	59.697

Fig. 1: Large Alpine cities, located within the Alpine Convention perimeter (Data: Eurostat 2015).



Most countries with Alpine territories classify settlements with a population of more than 10,000 as cities or towns (e.g. Stadtgemeinde in Austria; in other countries often in combination with indicators of labour market, tourism or services). Since most settlements are smaller, mapping towns with this threshold would result in many 'empty' spaces within the mountainous areas. Still, it would be a mistake to think of the Alpine region as completely rural. Instead, there is a 'scaling issue' specific to the Alpine region, particularly in mountainous areas. Small settlements often perform important functions such as economic and political decision-making and providing educational, medical, cultural and retail services. The high number of medium-sized and even small towns play an important role in the region's spatial organisation. Therefore, for this Report on the State of the Alps (RSA), we will use the following definition of Alpine towns: Alpine towns are defined as settlements having a minimum population of 5,000, and a population of at least 3,000 if they are not located right next to a larger town<sup>1</sup>. Using this definition, there are now 8.5 million people in our analysis, or 60% of the population within the Alpine Convention perimeter, spread across a total of 780 Alpine towns. Our definition of Alpine towns combines population size and – with the inclusion of stand-alone 3,000-person towns – the functional role of the town. By combining demography and accessibility data, this approach is similar to the Functional Urban Areas (FUAs), a term used in many international studies (ESPON, OECD, etc.).

Fig. 2 provides a cartographic overview of the Alpine towns in this report.

Even if the definition of Alpine towns is rather broad, we can see distinct spatial patterns. The Alpine perimeter is surrounded by an urban fringe. Even including the under-5,000 population settlements, the inner-Alpine area has considerably fewer towns. However, the large valleys and geomorphological formations have some urbanised corridors, including the Inn, Eisack/Isarco, Mur, Piave, Rhine, and Durance valleys.

**1 Indicator / methodology:** Fig. 2 shows the Alpine settlement system based on a population size and accessibility definition of Alpine towns. The population data refer to the LAU database of ESPON Alps 2050. Alpine towns are defined as settlements with a population of more than 5,000 within the Alpine Convention Perimeter. In addition, calculations of accessibility by car were performed using an API of the Open Route Service (based on OSM data, openrouteservice.org at HeiGIT). The map shows travel times of 5, 10 and 15 minutes around the individual settlements. Settlements with a population between 3,000 and 5,000 are considered Alpine towns if i) the settlement is more than 15 minutes' drive from a settlement of more than 5,000 inhabitants or, ii) the settlement is less than 15 minutes' drive from another settlement of fewer than 5,000 inhabitants but it has more inhabitants than the settlement nearby or has access to the railway. The map uses yellow to show the accessibility isochrones of Alpine towns with more than 5,000 inhabitants. The accessibility of the included Alpine towns that have under 5,000 inhabitants is shown in green colour logic to emphasise the relevance of the small settlements. According to this analysis, the Alpine settlement system consists of 780 Alpine towns, with 161 of them having fewer than 5,000 inhabitants. Maribor and Lecco are not part of the Alpine Convention Perimeter but are included as Alpine towns. This is due to their proximity to mountainous areas and their role in various Alpine town networks (in particular, Alpine Town of the Year). The geodata on 'urbanised areas outside the Alps' refer to the 'Morphological Urban Areas' classification (data source: ESPON project M4D, IGEAT).

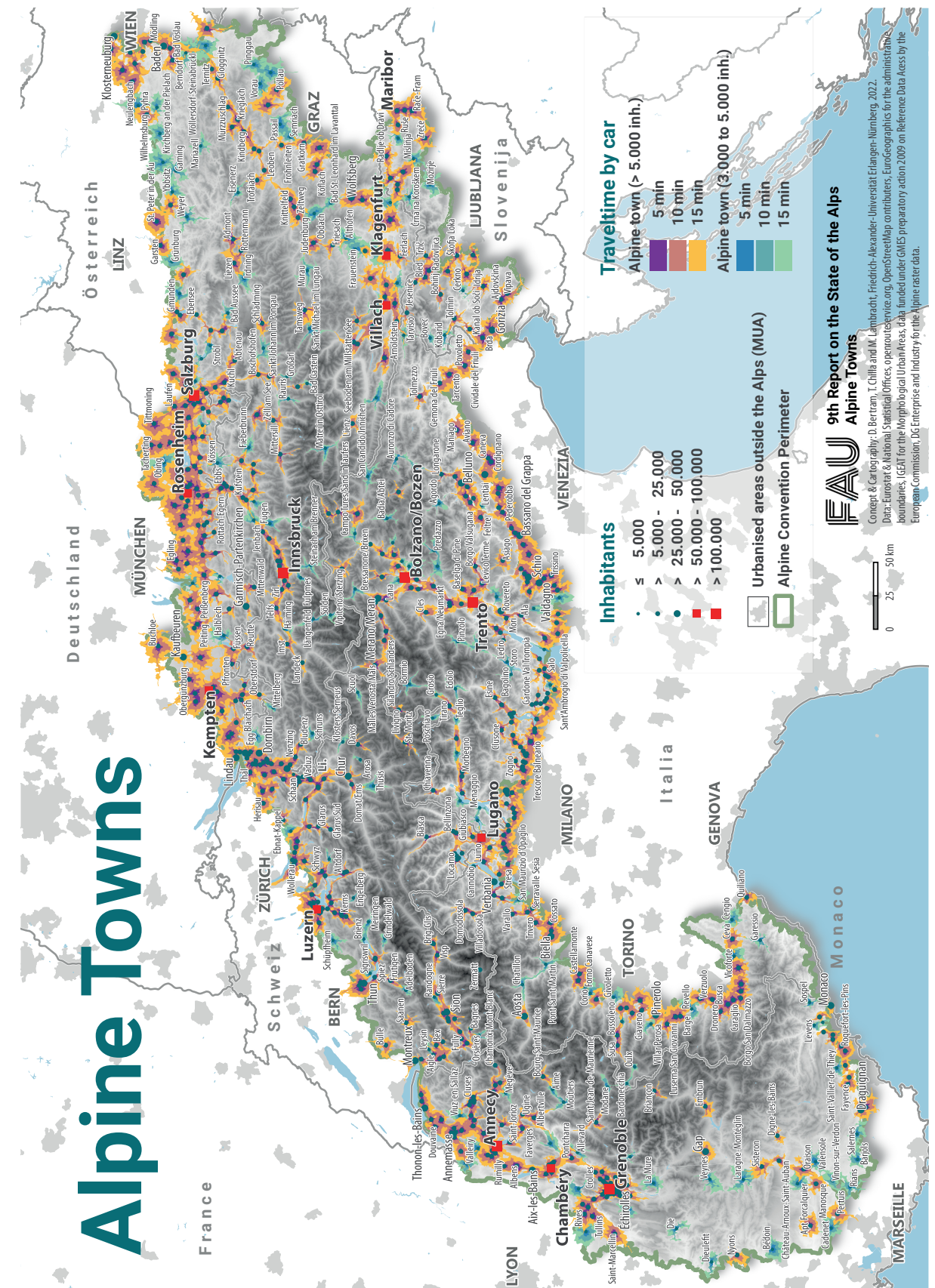


Fig. 2: Alpine towns – definition and mapping

The orientation along valleys is a typical feature of the Alpine settlement system. Since construction on steep hillsides is often dangerous and expensive, the morphology of settlements in inner-Alpine contexts is of a more linear orientation. The settlements along the valleys often grow together over time. This linear and network structure is an important element for efficient land-use patterns. At the same time, it is important that urban sprawl along valleys does not lead to construction zones with no character. The challenge here is to organise multi-functionality while maintaining quality of life.

Focusing on population size can be misleading in the Alpine context. Outside the Alps, settlements of under 20,000 inhabitants often play a rather limited role in metropolitan regions, seen as mono-functional suburbia for instance. Things are different in the Alpine region: many small towns provide key functions for large catchment areas of surrounding regions. They are often involved in global economic networks, and their reputation is impressive. Alpine towns not only often play a bigger role than comparably sized towns outside the Alps, but they also frequently have multiple roles.

The context differs across the Alps depending on the spatial embedding: a number of towns stand out due to their tourism importance (e.g. Kitzbühel, Oberstdorf or Cortina d'Ampezzo with only a few thousand inhabitants but worldwide renown). However, they also play a vital role in delivering essential services in the regional context. Whereas medical, retail and cultural services can be partially linked to visitor demand, this is not the case with education infrastructure. Furthermore, a number of small towns have an exceptional role due to the political context: Davos, for example, has become a famous venue for the annual World Economic Forum, attracting international attention; Vaduz/Schaan and Monaco serve as political and economic capitals. But even beyond these specific tourist and political 'hotspots', relevance beyond size is a common feature of Alpine towns. Many of them host universities (e.g. Leoben), headquarters of 'hidden champion' enterprises (e.g. Reutte, Plansee) and they all have to provide a broad range of education, mobility and healthcare services, etc.

Even if the 'roles beyond size' have yet to be empirically quantified, it is more than plausible that there is a multiplication of functions in the Alpine context. In terms of media reputation, economic and political relevance as well as provision of services, most Alpine towns with just a few thousand inhabitants are comparable to peri-Alpine towns of far greater size. If it is assumed that Alpine towns carry ten times as many functions as peri-Alpine cities ('factor-10 argument'), this has political implications: the high level of importance and vital role of Alpine towns despite their small size means that small-scale functions for sustainable spatial development in the Alpine context must be taken seriously.

## 1.2. Debate (a): Urbanisation in the Alps – potential or threat?

The findings of this study show that Alpine towns are specific territories. They are unique in size and function and, in many ways, they are 'front-runners': sections further on in this report will show that many Alpine towns are much ahead of the EU average in socio-economic terms, and the tourism sector is exceptional. Furthermore, due to the rapid pace of climate change, Alpine towns must take the lead in climate adaptation. The political geography also leads to a high concentration and strong dynamic of territorial cooperation. These positionings of Alpine towns are both challenges and opportunities.

The key question is what kind of urbanisation and settlement system is the most appropriate and sustainable for the Alpine region. Urbanisation in the Alpine context must distinguish between two perspectives: the internal perspective focuses on the role of towns and cities within the Alps, and the external perspective reflects on the role of the surrounding metropolises in close proximity to the Alps (e.g. Zurich, Munich, Turin, Ljubljana).

Starting with the internal perspective, the debate is complex. On the one hand, urbanisation can be primarily viewed as a threat to the Alps' fragile natural and cultural heritage. Urbanisation is often discussed in a critical way when the focus is on urban growth, often linked to sprawl and soil sealing as well as aesthetic degradation (Bätzing 2015).

On the other hand, urbanisation can also be seen as a chance for an efficient spatial organisation, providing a good quality of life. Towns and cities are important hubs for the provision of services, including schools, medical care, culture and retail. The accessibility of these services is the key element for the Alpine population's good quality of life, prosperity levels and lifestyles across all age groups (ESPON Alps 2050). In this respect, the principle of 'decentralised concentration' describes the aim to cover the territory in an effective way. 'Concentration' refers to the necessity to bundle spatial dynamics in selected places, while 'decentralised' indicates that this concentration should be focused on the most metropolitan places. Providing a good spatial infrastructure without fuelling sprawl is the underlying idea. From this perspective, the Alpine settlement system is the basis of spatial efficiency. Supporting the functions of towns of different size and along axes allows for an efficient organisation of transport modes, energy consumption and economic flows. Developing this system contributes to an equitable organisation of life.

Secondly, the external perspective also comes with multifaceted arguments. The proximity to the larger metropolitan areas surrounding the Alps contains opportunities and threats. Fast accessibility to important markets, consumers, and infrastructures certainly offers potential. The socio-economic success of the Alpine region – compared to other mountain areas in Europe and beyond – relies strongly on the strong spatial integration with the peri-Alpine settlement system (ESPON Alps 2050, Bußjäger & Chilla 2017). The short distances to metropolitan labour and consumer markets and the integration in large-scale transport infrastructure provides the potential for economic prospering (Mayer & Job 2014). Places that are not integrated in the international networks tend to suffer from outmigration and economic stagnation. For the more integrated towns, the obvious threat lies in the over-exploitation from peri-Alpine demand (e.g. transport, leisure and tourism). The ecosystem services might end up being overused, particularly as regards biodiversity, climate change and soil functions. Furthermore, the Alpine cultural landscape, including its towns, might be reduced to aesthetic clichés as residual Alpine elements or replaced by purely tourist infrastructure.



The key challenge here is to establish a spatial integration approach that provides an equitable socio-economic balance with high ecological efficiency (e.g. AURG 2019). Some authors stress the risk that Alpine regions and towns might be reduced to simple supplementary functions (“Ergänzungsraum”) as external, metropolitan hubs (Bätzing 2015), together with new disparities such as Alpine gentrification (Perlik 2011). Others stress the potential in “increasing mutual dependences” of inner- and peri-Alpine areas that call for the organisation of increased Alpine centrality (Dematteis 2018: 11). The goal here is to combine endogenous potentials with the smart exploitation of international integration in this context.

It is clear that sustainable spatial development in the Alpine context must balance numerous aspects. This report aims to contribute to this process by delivering current facts about, insights into, and cartographic inspiration for Alpine towns.

### 1.3. Debate (b): Quality of life in Alpine towns – how Alpine-specific?

The debate on quality of life is currently high on the agenda of spatial development in Europe (ESPON QoL 2020). It first came up in the 1970s, underlining development factors beyond pure economic growth and standards of living. It includes material, social (neighbourhood, communication), and environmental qualities, leading to a life that is ‘good’ both subjectively and objectively, resulting in a certain level of “luck or happiness, satisfaction and healthiness” (Borsdorf 1999: 165). Intuitively, the concept is very plausible, but it is not easy to define or even measure. Some aspects (security, absence of diseases) are more obvious than others (leisure facilities, landscape quality).

The Alpine region is often associated with a high quality of life that has the potential to attract people as a labour force, as ‘new highlanders’ (see the chapter above), or as tourists (Mayer & Meili 2016). Even if the general potential is obviously large, the question remains as to what kind of qualities are specific to the Alps and to what extent Alpine-specific qualities are seen as positive (see for the Slovenian case: ESPON 2021).

Simplifying the discussion to a certain extent, the Alpine context comes with a certain ‘leverage’ effect on quality of life: the morphological situation is the basis of the attractive landscape with its panoramic views, fascinating landscape contrasts and outdoor facilities. Living in Alpine towns means living close to many natural and cultural assets and attractions. However, this morphology hampers accessibility and, as a result, the density of essential services is often lower than in non-mountainous contexts (ESPON Alps 2050). Furthermore, the morphological situation very much limits settlement space, which, in combination with high land demand by owners of second homes and tourism businesses, leads to (very) high real estate prices.

Whether the positive or the negative facets dominate the quality of life in Alpine towns depends on three aspects. First, individual preferences differ widely, reflecting personal priorities and lifestyles (for the debate on amenity migration, see chapter 2.5). Second, socio-economic status is important. Affluent people have more opportunities to make the most of the territorial contexts than poorer people, and established local people tend to have more options than non-native relocators (Borsdorf 1999, Keller 2009). In addition, age, family situation and gender play an important role. The Alpine region with its rather small settlements is embedded in a rural context. Depending on socio-economic status,

this context can be perceived differently. Childcare facilities can be more important to new inhabitants than to members of long-established families; traditional values can be perceived as an authentic regional asset, an exclusionary practise or even as outdated relic (cf. Bätzing 2009); personal proximity can be viewed as a good social network or as inquisitive; double income households tend to fit more easily in urban labour markets; and so forth (cf. Ströbele 2017).

Third, the political handling of territorial assets is important for their role in quality of life. Social housing, noise protection measures, programmes for the promotion and funding of local cultural initiatives, and venues etc. can help to avoid polarisation and social frictions.

As a result, the potential for a high quality of life is certainly particularly high in the Alpine context. However, this potential does not automatically unfold and has to face the risks of gentrification and polarisation. If the objective is to safeguard the quality of life for the established population, attract skilled people, and ensure societal integration, all at the same time, then the challenges are considerable. The urban quality and culture need to be developed carefully.

## 2. Demography

### 2.1. Finding (a): The link between urbanisation and location

With regard to demographic development in Alpine towns, the opening question reflects the extent to which urbanisation is a current trend in the Alps. Here, we understand urbanisation as the rising importance of cities and towns in quantitative terms. There are several possible answers to this question, depending on the spatial focus of the data analysis (cf. Fig. 3).

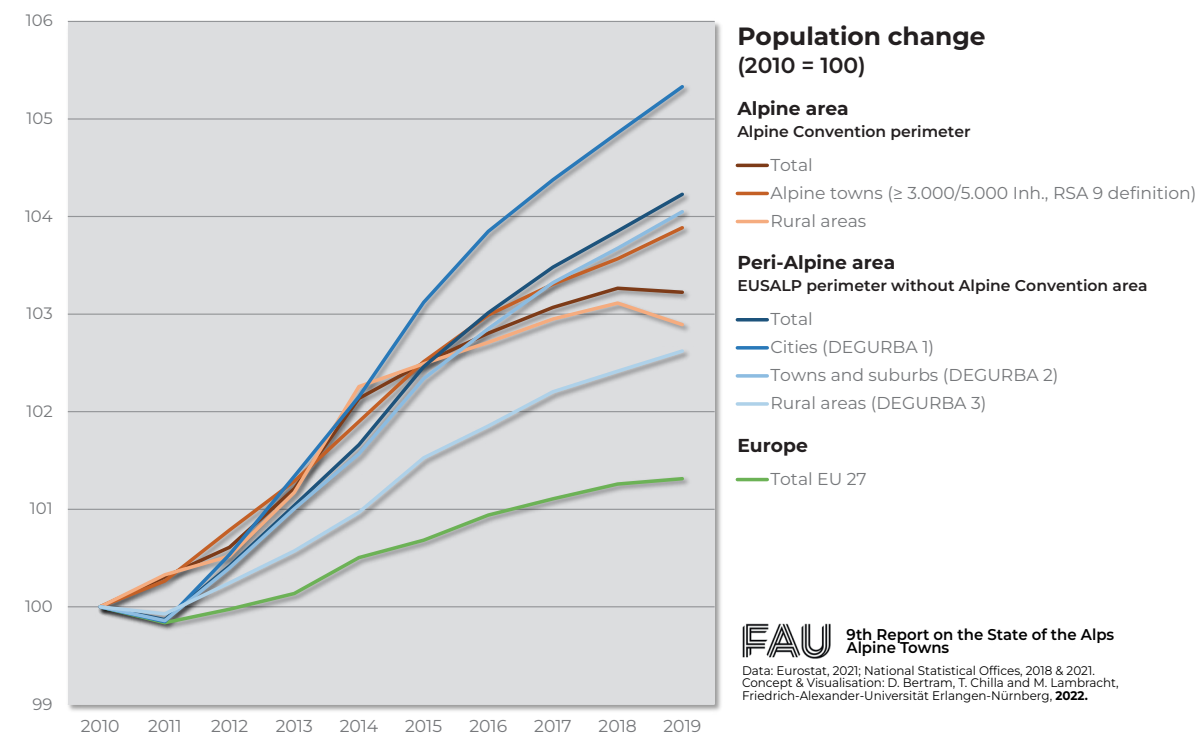


Fig. 3: Population change 2010-2019 in Alpine and peri-Alpine areas (indexed: 2010=100)<sup>2</sup>.

**2 Indicator / methodology:** The graphs in Fig. 3 show the indexed population trends from 2010 to 2019 for different territorial and morphological affiliations. There are two spatial dimensions in this figure: the Alpine area consisting of the Alpine Convention area and the peri-Alpine area consisting of EUSALP minus the Alpine Convention area. Additionally, two definitions were used for the degree of urbanisation: in the inner Alpine perimeter, a distinction was made between Alpine towns and rural Alpine areas using the definition from this Report on the State of the Alps. In the peri-Alpine area, the Eurostat classification DEGURBA was used to define different degrees of urbanisation and to show their development. The population level from 2010 was selected as the set initial value for indexing. A value below 100 on the vertical axis indicates negative population change (population decrease); a value rise above 100 indicates a positive population development (population growth).

If we refer to the fact that the number of inhabitants in Alpine towns has risen over recent years, the answer is 'yes', the overall Alpine region is currently undergoing a process of urbanisation. Over the last decade, the population growth in Alpine towns has been almost 4% (from 2010 to 2019).

However, the answer is less clear if we compare the towns to other Alpine territories. The overall demographic development of the Alpine region is positive, showing a growth rate of just over 3%, whereas the rural areas grew by just under 3%. As Alpine towns have grown slightly more rapidly than the rural areas, this can be seen as a moderate sign of urbanisation.

If we apply the external perspective, we have to relate the development of Alpine towns to the metropolitan areas surrounding the Alps. Generally speaking, all territorial categories have developed in a more positive way than the EU 27 average. On the macro-regional scale, the following pattern is evident: whereas peri-Alpine agglomerations have clearly grown more strongly (more than 5%), the rural peri-Alpine areas have had a weaker growth trend (ca. 2.5%).

What is found is that, despite the Alpine region having had positive demographic developments, including the average values for rural areas, urbanisation processes are only moderate. However, as the development paths on the fine scale are very heterogeneous, we must go into further detail.

### 2.2. Finding (b): The link between settlement size and development trends

The literature on Alpine development tends to assume that smaller settlements develop less positively than larger ones (e.g. Borsdorf 2007, Perlik et al. 2001, RSA5). However, the demographic statistics for the last decade show that such a correlation is currently not dominant. Growth and stagnation can be found in all Alpine towns of all size categories, although demographic decline is only found in towns of fewer than 50,000 inhabitants. However, there are clear differences between the development trends of towns depending on national affiliation. It is worth taking a closer look at the different national contexts of Alpine towns.



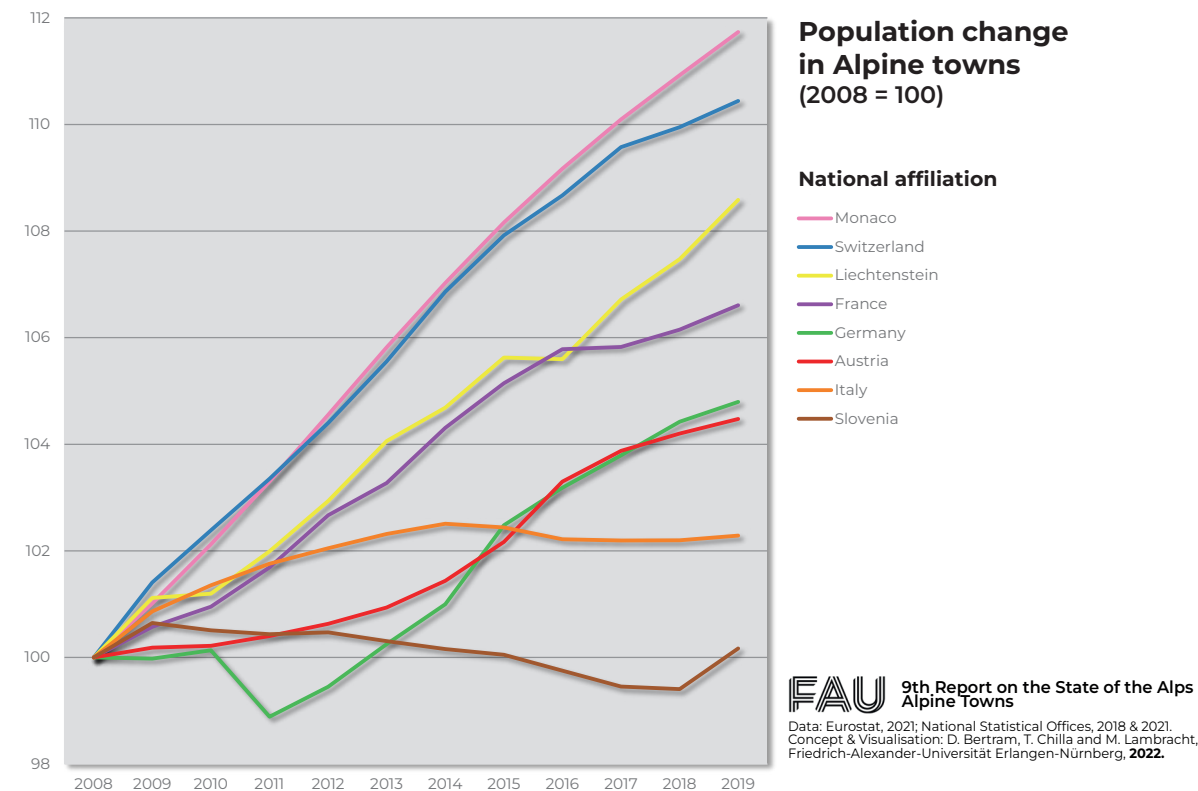


Fig. 4 Population change in Alpine towns by countries 2009-2019 (indexed: 2008=100)<sup>3</sup>

Fig. 4 visualises the progressive demographic developments, with significant differences depending on national affiliation:

- Alpine towns in Switzerland, Liechtenstein and Monaco show a strong population increase with a steep curve and high index values.
- Alpine towns in France, Germany, and Austria also show a population increase, but with a less steep curve.
- The Italian and Slovenian Alpine towns show stagnating values and a temporarily decreasing curve.

Fig. 5 zooms into the situation of Alpine towns in all countries, differentiating the demographic development in relation to the size of towns. The horizontal x-axis shows

the population numbers in a logarithmic scale (50 means 50,000 inhabitants, 100 means 100,000 inhabitants, etc.). The further a dot is positioned on the right side, the larger the town; the higher the dot is positioned, the stronger its growth.

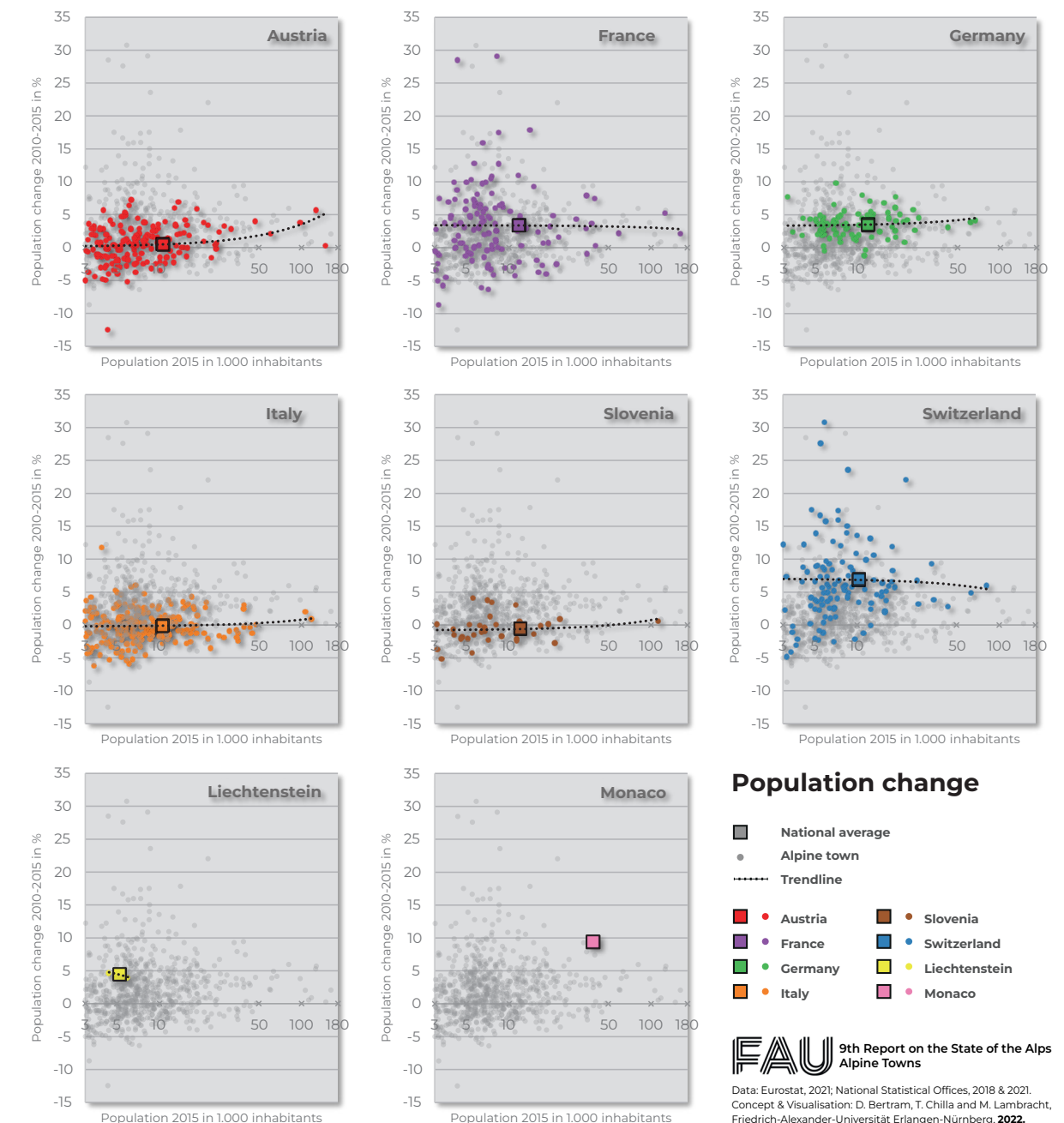


Fig. 5 Population development in Alpine towns by country – the zoomed in perspective<sup>4</sup>

**3 Indicator / methodology:** The graphs in Fig. 4 show the indexed population trends from 2008 to 2019 for all Alpine towns (over 3,000/5,000 inhabitants; for the definition see Fig. 1) differentiated by nation-state. The population numbers from 2008 are the initial value for indexing. A value below 100 on the vertical axis indicates negative population change (population decrease); a value above 100 indicates a positive population development (population growth).

**4 Indicator/methodology:** The scatter plots of are based on the same methodology as Fig. 4. Additionally, Fig. 5 shows a differentiation according to nation-states and a trend line for each nation-state. The Alpine towns represented in grey are not part of the respective country.

Again, we observe obvious differences depending on national affiliations:

- The average Alpine town size in all countries is between 10,000 and 12,000 inhabitants, except for Liechtenstein with an average of approximately 5,000 for its four towns and Monaco with only one city of approximately 39,000 inhabitants.
- Demographic trends in Alpine towns comprise loss or low growth in Austria, Italy and Slovenia, whereas the German and French towns show fairly balanced development. The towns in Switzerland, Liechtenstein and Monaco show a clear growth in population.
- The variation of development (size of the 'clouds') is clearly larger in France and Switzerland than in the other countries. In these cases, the 'clouds' are larger than in Austria and Germany, where they are more compact.
- It is interesting to note a more general correlation: The larger the town, the lower the amplitude of population change. This can be explained by the fact that single elements (e.g. a new development area or the closure of a production site) have relatively less influence since large towns contain numerous further dynamics. Furthermore, in Germany, Austria, Italy, and Slovenia, the larger towns show a more positive trend than the smaller ones. Conversely, in Switzerland, France, and Liechtenstein, the larger towns develop less positively than the smaller ones.

These findings confirm the overall picture from the RSA on demographic development (RSA5) that underlines complexity and heterogeneity as the most obvious characteristics of Alpine demographic development. At this point, we can add that a) the Alpine area is undergoing a modest process of urbanisation and b) the development paths depend to a relatively high extent on national affiliation.

### 2.3. Finding (c): The link between settlement size and the populations' age

Ageing is a key challenge in demographic change. The older the population, the more critical the future prospects: medical care and age-based living space in valley locations is of increasing importance and the share of the working population tends to diminish, putting pressure on labour markets (Borsdorf 2007). Furthermore, a currently elderly population can be a sign of future population decline. It is true that an ageing society must not be seen in a purely negative light: 'silver agers' can be very active members in their local communities and their purchasing power is often substantial. Still, a strong overrepresentation of the older age groups is a challenge for towns (cf. Bausch et al. 2014). The ageing index for Alpine towns is shown in Fig. 6.

Younger people tend to be more mobile for purposes of education, career development and family needs, and they are more likely to have young children. Given this, it could be questioned why the large university towns (e.g. Innsbruck or Grenoble) are not amongst the youngest towns. An important reason is that larger settlements can be very attractive not only for young but also for elderly people (from inside and outside the Alps)

due to their better offer of social infrastructure and cultural activities<sup>5</sup> (Alpine Space Programme 2013).

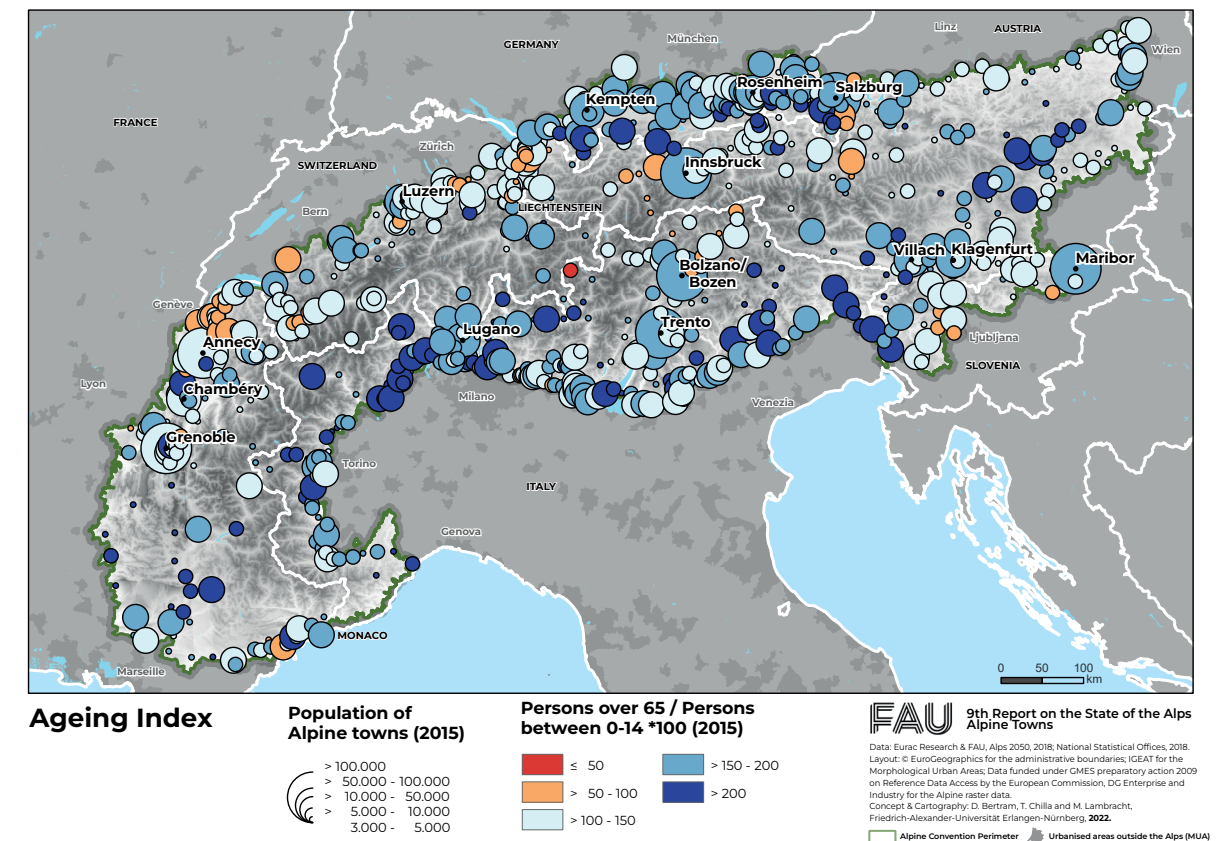


Fig. 6 Ageing Index in Alpine towns (2015)<sup>6</sup>

The towns with the highest ageing index are often located on the southern fringe of the Alps, especially in Italy. Most countries have towns with a high index in less accessible, inner-Alpine contexts, but inner-Alpine towns are not necessarily older than peri-Alpine ones.

<sup>5</sup> The fact that students are not all registered as residents of university towns also plays a role, even if this cannot be quantified.

<sup>6</sup> **Indicator / methodology:** Fig. 6 shows the relation between the number of persons over 65 years and the number of persons under 15 years old (dot colour) as well as the population in 2015 (dot size) for every city within the Alpine settlement system (LAU). The lower the ageing index, the higher the proportion of young people in the total population. For example, the red dot means that there are 1 to 50 people over 65 for every 100 persons under 15. The higher the ageing index, the more the Alpine town is under pressure from ageing effects.

There are some towns with unexpectedly low ('young') values: despite being an almost isolated town on the Italian-Swiss border, Livigno has a value under 50, which can mainly be explained by its special taxation regime. Other small towns with many younger people are in the catchment areas around the larger towns of Geneva, Salzburg, Innsbruck, Ljubljana and also Vorarlberg, explained by the dynamic processes of suburbanisation, i.e. the shift of housing and industry demand beyond the perimeter of the core cities.

To conclude, this finding shows a certain north-south gradient, with lower ('younger') values in the north. Overall, we can summarise that the situation and prospects of Alpine towns are mostly influenced by national affiliation and the north or south location, rather than by the size of the town or the location in the mountainous area.

#### 2.4. Finding (d): The link between altitude and socio-economic development

Settlements located in mountainous areas have to face particular challenges. Geomorphologic barriers hamper accessibility that consequently makes economic integration and the supply of essential services more difficult. Demographic analyses in recent years have shown that growth is found in the broad corridors at low altitude (e.g. Bätzing et al. 1996, ESPON Alps 2050; see chapter 1.1). The question is to what extent the altitude above sea level as such is an explanatory factor. Fig. 7 shows the positioning of Alpine towns in relation to altitude, demographic development and national affiliation.

It is true that the geomorphological context matters, as shown for different periods and sub-regions (e.g. Lichtenberger 1979, Bender & Haller 2017). Geomorphological context comprises a series of aspects, including absolute altitude above sea level (as shown in the figure), but also relative altitude (e.g. altitude range within different towns) and distance to steep areas. Nevertheless, and as with findings from previous chapters, the relevance of national affiliation clearly overrides the geomorphological positioning.

A scatter plot may only be an exploratory tool for data analysis, but it provides solid evidence that there is no correlation between altitude and socio-economic development. It is still true that proximity to large valleys is a positive factor which cannot be seen in this graphic. However, national affiliation, which is visualised in form of the coloured clouds, is of major importance.

It is worth mentioning that GDP trends, which have been analysed in parallel, show very similar patterns as these graphs.

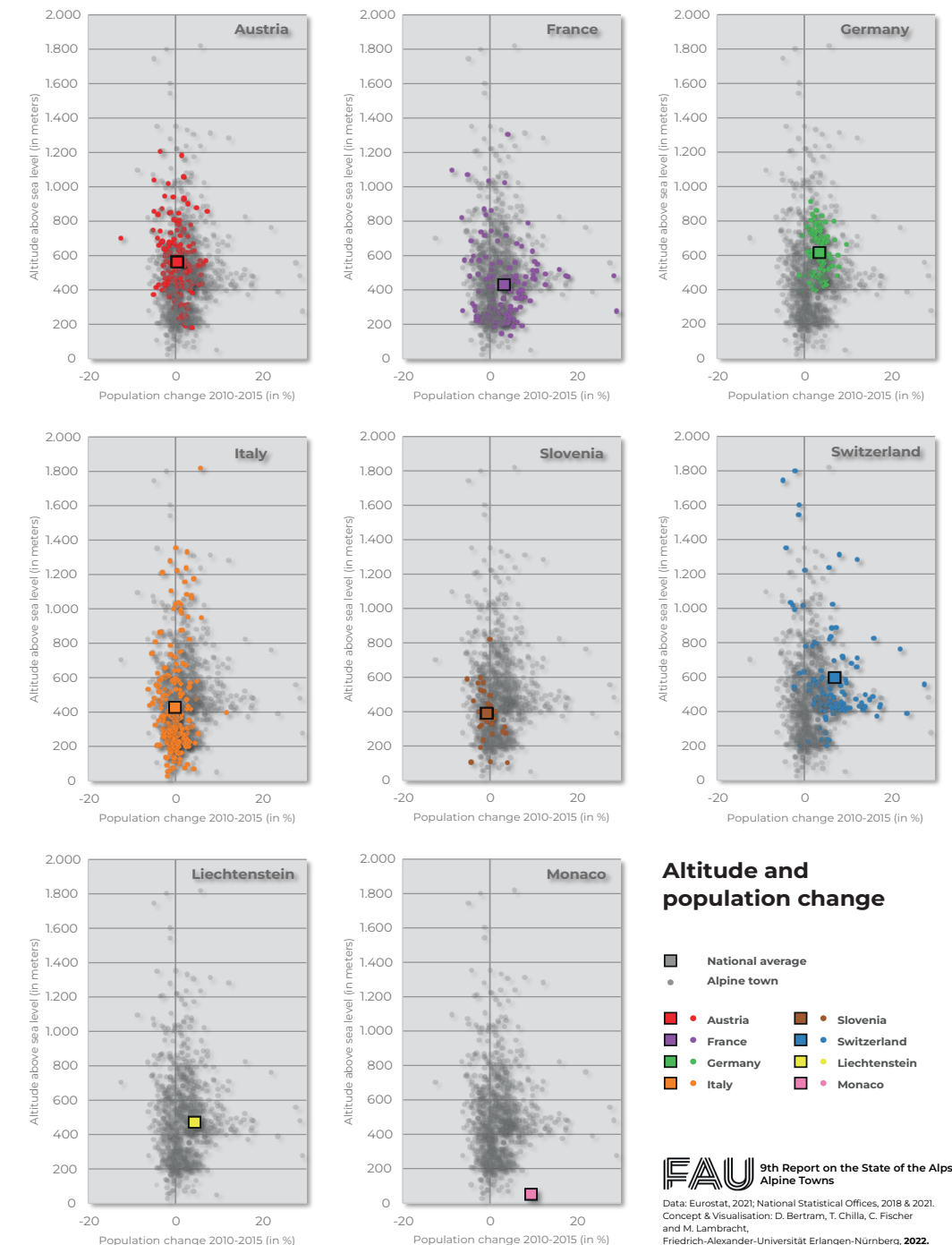


Fig. 7 Altitude and population change for Alpine towns<sup>7</sup>

**7 Indicator / methodology:** Fig. 7 shows population development between 2010 and 2015 as a percentage on the horizontal axis and the altitude above sea level on the vertical axis. Additionally, each point denotes the position of one Alpine town in the grid. The figure shows a differentiation according to countries, illustrated by the different colours. The Alpine towns represented in grey are not part of the respective country.



## 2.5. Debate: amenity orientation as a potential and a threat

Demographic development is the result of natural development (births, deaths) and migration. The latter component is most important in quantitative terms: in- and out-migration are decisive factors for demographic development and, thus, for regional development in general. In recent years, the debate on the Alpine region has focused on the increasing importance of lifestyle-oriented migration. This kind of migration is not predominantly triggered by labour market opportunities but rather by personal choices due to the attractiveness of the landscape, leisure opportunities, and personal preferences (Bender & Haller 2017).

There are several aspects to this amenity approach. A second home, which is often based on longstanding holiday habits, is a first step towards a multi-local lifestyle. Later on, the second home may become the primary or even the only residence. Particularly in regions of outmigration, this can have important potential, both in rural regions and in urban areas (Perlik 2011, Ullmann 1954, Moss 2006). "Second homes can be interpreted as an indicator for an ongoing conversion process of the Alpine Region towards a space for leisure and tourism. Multi-local lifestyles can be considered a major opportunity for the Alps if new inhabitants are willing to take responsibility for both regions and their development" (Sonderegger & Bätzing 2013: abstract).

At the same time, these relatively new patterns come with considerable risks: second homes tend to be inefficient components of towns as they are, by definition, only in part-time use. Even if the amenity migrants live entirely in the Alpine area, their role in the typically traditional setting must be developed carefully. The lifestyle of the "new highlanders" (Bender & Kanitscheider 2012, Löffler et al. 2014) often does not mesh well with existing cultures, and gentrification due to prosperous in-migration can polarise communities (Perlik 2011).

This debate must be viewed in the context of rising house prices in many markets. This trend applies to many European cities, but the attractiveness of many Alpine regions as tourist destinations fuels the dynamic. This trend has recently been increased by sharing economy models such as Airbnb (cf. Domènech et al. 2019).

In practise, the question is not predominantly if amenity oriented in-migration offers potential or is a threat, but rather how to develop the potential and avoid negative implications. This question needs to be handled very sensitively according to the specific local situations. The political question of whether amenity orientation is a risk or an opportunity depends on the local situation (demographic trend, building structure, etc.). In towns with property market tensions, second homes tend to be a critical element; in towns with a high vacancy rate, their potential is mostly far greater. From a labour market perspective, highlighting Alpine amenities can make a difference in attracting a skilled labour force even internationally. A place-based development approach for Alpine towns has to consider the amenity orientation, but in a specific and differentiated way (Bender & Borsdorf 2014).

Even though the issue of amenity migration is of high relevance for many Alpine towns, it is important to emphasise that motivation for in- and outmigration is not limited to amenity aspects – quite the opposite is true. The most important drivers of mobility are education, family change, and professional development (Geist & McManus 2008) which

are not Alpine-specific in a strict sense. But in times of skilled labour shortages in the economic centres and of strong outmigration from some Alpine places, amenity migration is an important facet of Alpine-specific development drivers.

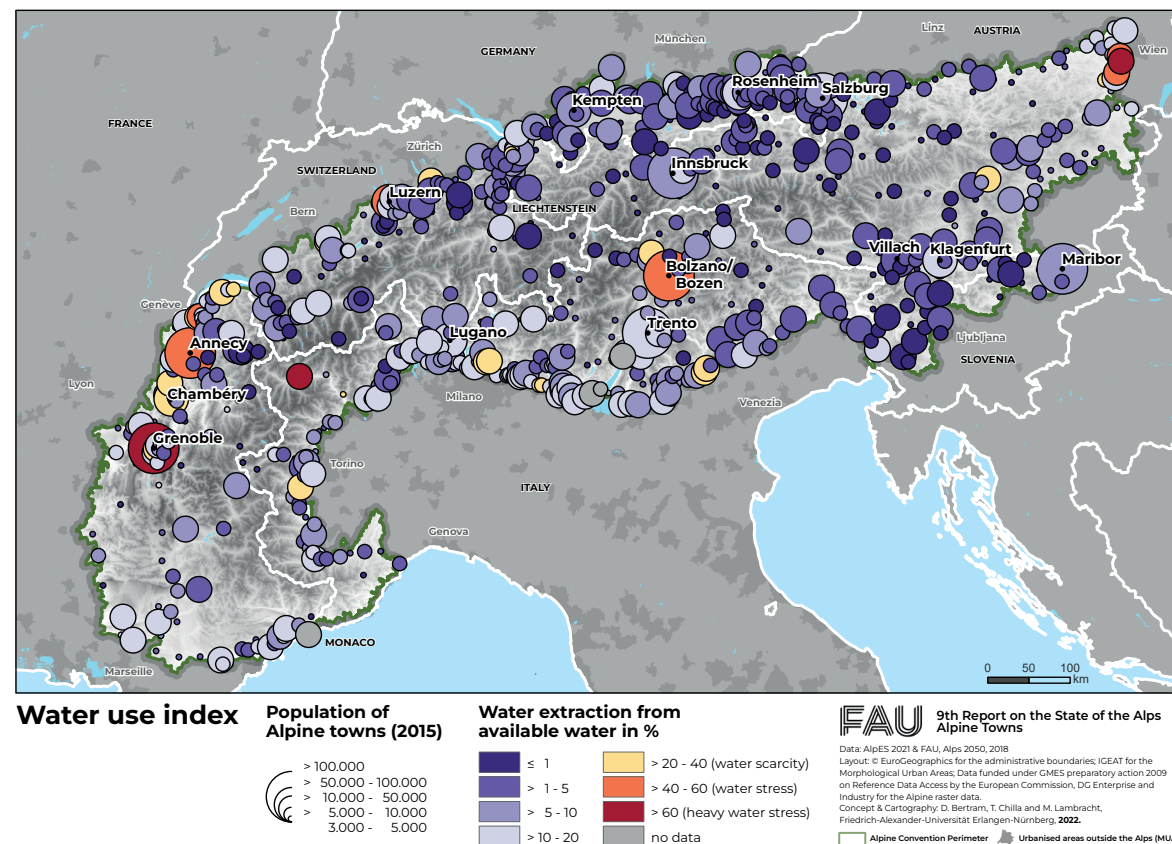
## 3. Environment

### 3.1. Finding (a): Water consumption

Climate change poses a significant threat to the Alpine regions and their inhabitants. The ramifications on multiple levels (economy, health, etc.) are not restricted to Alpine towns but apply to the entire region. Water supply is a particularly pressing issue: due to topography, rainfall and glaciers, the Alps serve as the water reservoir for large parts of Europe. Drinking water supply, industrial production, agricultural productivity, hydro-power and other uses all require consistent availability of Alpine water. This is not only true for the Alpine region but also has implications far beyond – large parts of Bavaria, Lombardy etc. depend on these Alpine ecosystem services (Chilla & Streifeneder 2018). Climate change puts these functions under pressure, as glaciers are receding and precipitation regimes are constantly changing (cf. Mastrotheodoros et al. 2020). Thus, reduced quantities of water and limited reliability of water supply will be a major issue in the coming decades. The competition for water, often between Alpine and peri-Alpine territories, will become a major part of "increasing scarcity of and global competition for resources" (EEA 2019).

Alpine towns occupy a particular position in this context since they are neither major water suppliers (which are found in the inner-Alpine rural territories) nor the dominant consumers (which are the large agricultural and metropolitan actors in the lowlands). Nonetheless, as they are often in close proximity to water supplies, their consumption patterns matter.

Fig. 8 shows the current situation on the basis of the so-called water use index, describing the share of water extraction from the water available. The map shows several Alpine towns that are already affected by water shortage, or at risk of being affected in the near future, mainly concentrated in industrial agglomerations such as Grenoble, Annecy or Vienna, and in/around Bolzano/Bozen where the agricultural sector is a heavy water consumer. The southern Alpine towns (especially in France and Italy) with their drier climates are more likely to undergo water shortages than the northern towns. This is particularly true of inner-Alpine dry valleys such as the Aosta Valley in north-western Italy, already affected by significant water stress (e.g. Obojes et al. 2018).

Fig. 8 Water use index<sup>8</sup>

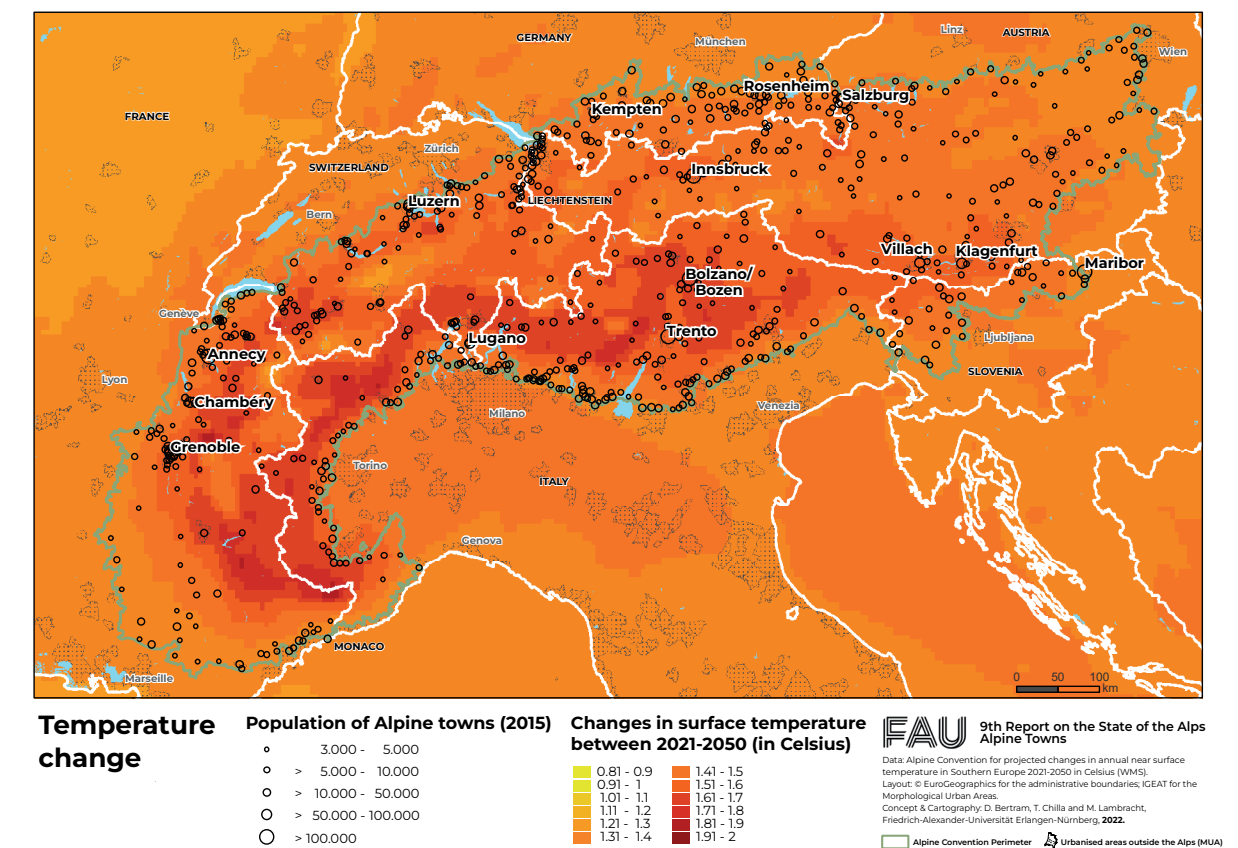
### 3.2. Finding (b): Temperature rise

Climate change is a multi-dimensional dynamic affecting precipitation regimes, biodiversity patterns, natural hazards etc. However, the most prominent topic is rising temperatures. Fig. 9 shows that the Alpine region is having a higher temperature rise than peri-Alpine areas, or at least that its temperature changes at an earlier stage. Alpine towns are located in all categories of temperature rise prognosis. But the majority are expected to see temperature rises far higher than the European average. This is espe-

**8 Indicator / methodology:** Fig 8 shows the percentage of water extraction from available water. The water use index indicates whether the use of water resources in Alpine towns is sustainable or if water shortage is occurring. Water withdrawal is considered sustainable if it does not exceed 20% (threshold for water stress) of the available water supply. When water withdrawal reaches 40%, it is called water stress, and even, at 60%, significant water stress. Two datasets from the AlpES WebGIS are the basis for this analysis: the average annual amount of surface water available during the period 1801 to 2014, and the annual average water consumption of each settlement unit in the study area during the period 2010 to 2013. Both datasets were based on NUTS2 data, which have been downscaled to municipality level (LAU) with reference to population and tourism data.

cially true for Italian and French territories in the south-west of the Alpine Convention perimeter. Many Swiss towns are also likely to be severely impacted.

Returning to Fig. 8 showing the water use index, we can observe a clear parallel: in both maps, the south-western areas are disproportionately affected. Temperature rise is strongly affecting those areas and towns that are already experiencing scarcity of water. These findings clearly confirm that Alpine towns will be severely impacted by climate change. Water management regimes, energy management and urban planning that aims to prevent heat islands (green and blue infrastructure) will all have a vital role to play in adaptation efforts. It is interesting to note that many of the towns experiencing increased heat stress also have a high ageing index (see chapter 2.3). This constellation further emphasises the importance of the medical dimension in climate adaptation strategies.

Fig. 9 Projected changes in surface temperature 2021-2050<sup>9</sup>

**9 Indicator / methodology:** Fig. 9 shows the projected changes in annual near surface temperature in the Alpine area in °C. This raster layer presents the projected variation of near surface temperature between the period 2021-2050 and the reference period 1971-2000. The variation in near surface temperature is obtained as the average of EUROCORDEX rcp45 ensemble scenarios. The layer was accessed through WMS services at <http://www.atlas.alpconv.org/geoserver/ows?service=wms&version=1.3.0&request=GetCapabilities>.



The situation of Monaco, the only Alpine town situated directly on a coast, is worth considering. Monaco would be severely affected by sea level rise, which might reach more than a metre by the end of the 21st century (Jevrejeva et al. 2019, Le Cozannet et al. 2019, Carillo et al. 2012). This particular case too underlines the forerunner position of Alpine towns in terms of climate change adaptation.

### 3.3. Debate (a): Environmental change as an impulse for development?

The current climatic and environmental dynamic is of paradigmatic relevance world-wide. The Alpine region is particularly affected. For example, owing to the morphological situation, temperature rises at a considerably faster rate than in other regions. The much-mentioned goals of 1.5°C and even 2.0°C, which are important arguments in the climate change debate, have already been passed in some Alpine regions. The trend of “accelerating climate change and increasingly severe consequences” (EEA 2019, Cluster 2) is particularly evident in the Alpine area. Steep topography entails an exceptionally higher risk of disasters including floods and landslides (cf. RSA7 on natural hazard risk management).

The focus on temperature rise and water use intensity in the previous sections is just an example. This illustrates typical patterns of many environmental changes in the particular topographic situation. Whether referring to air quality, biodiversity change or noise pollution, mountainous areas tend to be more affected than others. The Alpine region and its towns are clearly forerunners in terms of environmental change as they are affected earlier and more severely. The extent to which this particular situation can lead to positive development impulses is a fundamental question. There is certainly no reason for glossing over the dramatic dynamics of climate and environmental change. However, it is important to explore all possibilities and options, e.g. through the synergetic effects and multiple benefits of nature-based solutions.

Finding solutions might provide market options and business opportunities, allowing for innovative governance approaches. This might lead to first-mover advantages in the Alpine region (cf. Ambec & Lanoie 2008: 51). Energy and water markets are the most prominent examples in this respect. At the same time, adaptation strategies come with economic risks since ‘path dependencies’ and regional contexts can hamper successful transformation (cf. Aghion et al. 2019). Finding the right balance in this major transformation process is of great importance for Alpine towns.

The key notion in the context of climate change adaptation is the adaptation capacity that, firstly, “affects a system’s vulnerability through modulating exposure and sensitivity” (Engle 2011). Secondly, with concepts of reactive and anticipatory adaption, more or less successful positions can be reached. Water governance (Hill 2013), spatial planning (Kruse & Pütz 2014) or forest management (Irauscheck et al. 2017) are just examples contributing to an overall adaptation approach (EEA 2020).

Alpine towns, i.e. their societies and economies, must develop an adaptation capacity that enables them to address threats such as water scarcity, heat stress, and pressure on carbon-based industries etc. At the same time, the opportunities coming with climate change need to be understood early and used properly, like innovation-based economies. Adaptation capacity is an umbrella term that needs clarification and concretisation.

Institutions and governance structures have to be developed in a place-based and innovative manner. Whereas some towns might develop their green economy potential, others will capitalise on the tourism opportunities emerging from deteriorating conditions in lowland destinations. Innovation in governance and technological solutions can help in a variety of ways.

### 3.4. Debate (b): How to deal with land demand?

One of the most pressing issues on the contemporary agenda of spatial development is land demand. It is a key topic throughout Europe, but the Alpine context is particular. The main reason is that the proportion of habitable land in mountainous areas is substantially lower than in peri-Alpine areas. Construction is typically hampered by the steep slopes, and the risk of landslides and avalanches further limits the settlement areas. Even small rivers can mean a high risk of flooding so risk management along the valleys is also critical, and the risks are increasing as climate change worsens. The fine-scale mosaic of important natural heritage has to be considered in terms of protected sites and prioritisation in planning procedures.

This must be viewed against the backdrop of the Alpine area’s socio-economic prospering, which has resulted in population growth in many regions and towns. Thus, high real estate prices and a limited availability of land for settlement and economic development are urgent matters in many Alpine towns.

At the same time, soil sealing, land take and urban sprawl are critical developments in many Alpine towns. This is true for highly attractive tourist regions where chalets and similar constructions contribute to sprawl (Pia 2019), but also for urbanised places and corridors (Obkircher 2017, Hasslacher et al. 2018, Ransberger & Seher 2021).

The objective of minimising and avoiding land take is relevant throughout the political multi-level system, starting with the SDGs and the EU goals and on to a series of national or regional goals (e.g. EU goal of “zero net land take by 2050”). The Alpine Climate Target System 2050 (ACTS 2016) also aims at minimised land take.

While the Alpine region cannot simply stop developing, alternative development paths are under discussion. Optimised spatial structures, efficient land-use patterns, multi-functional land use, and renaturation measures must be combined in a smart way (ARL 2022). Alpine towns play a key role in this context. If the objective is decentralised concentration, then the towns are the core focus.

This is not only a technical debate on how to organise planning, but it addresses the general position of towns. As we have seen in the demographic analyses, the demographic situation in the Alps is characterised by a very diverse picture (Alpine Convention RSA5, 2015: 139). Whereas some towns are characterised by outmigration, ageing and shrinkage, many others are young and dynamic or even ‘boom towns’. This mosaic is part of the European demographic situation that faces an overall stable or declining and ageing population in the coming decades, whilst global trends, especially in Asia, show growth and are dynamic (EEA 2019).

In times of crisis and in weak regions, towns play a stabilising role, providing minimum standards of essential services and aiming at cohesion, at least in the long run. Downward spirals have to be avoided wherever possible. In stronger times and regions, cities have a “primary role in pushing forward societal change, harbouring the circulation of ideas and encouraging the experimentation of social and technological innovations and changes in values, lifestyles and approaches to governance” (EEA 2019). Integration of increasingly heterogeneous groups – in terms of lifestyles and regional origins – becomes a key challenge.

The relationship between urban and rural settlements is fundamental in the contexts of both growth and shrinkage, and is the subject of heated debate. On the one hand, the concentration argument underlines the necessity to focus dynamics on urban settlements in order to achieve the most efficient spatial organisation that takes advantage of economies of scale and prevents chaotic sprawl. From this perspective, hospitals, business parks, commercial zones and new housing areas should be restricted to the most urbanised parts of a region.

Decentralisation arguments, on the other hand, emphasise the necessity to have an even dynamic also outside of urbanised areas (Humer 2018, Möck & Küpper 2020, Seidenberger 2010, Vaz & Matos 2015). In-migration and economic dynamics are vital to rural settlements and might even depend more on political support than the urbanised areas.

The challenge for regional development and spatial planning is to balance these arguments in terms of ‘decentralised concentration’. The goal is to allow for dynamic development while also avoiding land take and soil sealing both outside and inside the urban areas. In this context, towns are important poles that help to avoid sprawl and ensure dynamics outside of metropolitan areas.

## 4. Economy

### 4.1. Finding (a): Employment

The labour market is one of the most crucial functions provided by towns and cities. Typically, they also offer workplaces for many inhabitants from the surrounding rural areas, and they have a higher degree of specialisation and differentiation. As most technological and business innovations originate in urban contexts, Alpine towns have a key role to play in territorial development in general. Fig. 10 provides an overview of labour market centrality, i.e. the ratio of employees per inhabitant. The higher the number (the deeper the green), the greater the importance of the labour market for the surrounding region.

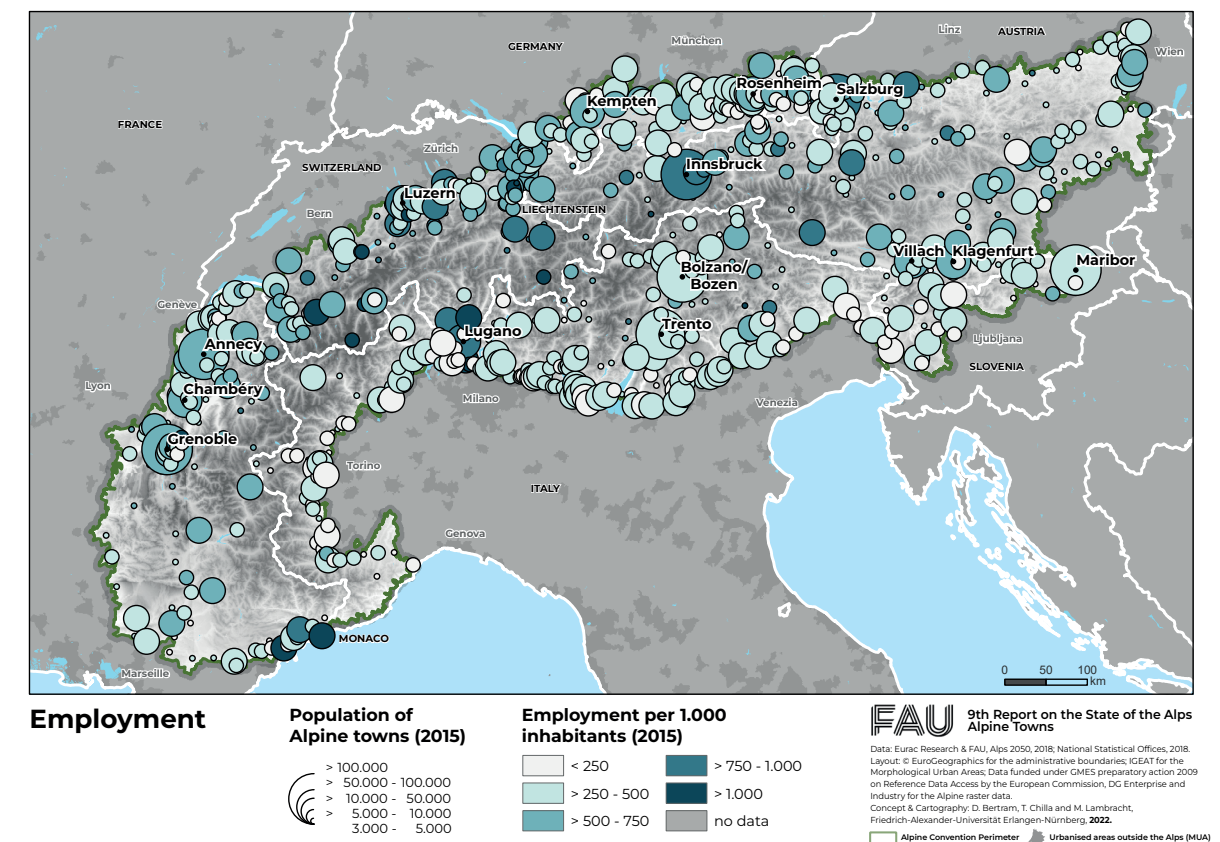


Fig. 10 Employees per inhabitants 2015<sup>10</sup>

<sup>10</sup> **Indicator / methodology:** Fig. 10 shows the employees at workplace per 1,000 inhabitants in 2015 for every Alpine town. High values indicate a high labour market centrality and a high number of incoming commuters.

It is interesting to note that many of the towns with high centrality are located in the inner parts of the Alps. This is true for towns of the Inn Valley and the Ticino, but also for a series of further towns. Apart from this, we see typical commuting patterns linked to Monaco, Luzern, Torino and Vaduz. Vice versa, in the larger surroundings of peri-Alpine metropolises, towns tend to have a rather negative ratio, especially those close to the Munich and Milan area.

This map also confirms that larger cities are not necessarily those with the more important function as they are often surrounded by strong suburban economies. In the inner-Alpine area, cities with 5,000 to 50,000 inhabitants tend to have the highest numbers.

Fig. 11 provides a dynamic perspective by showing employment change over the years 2012-18.

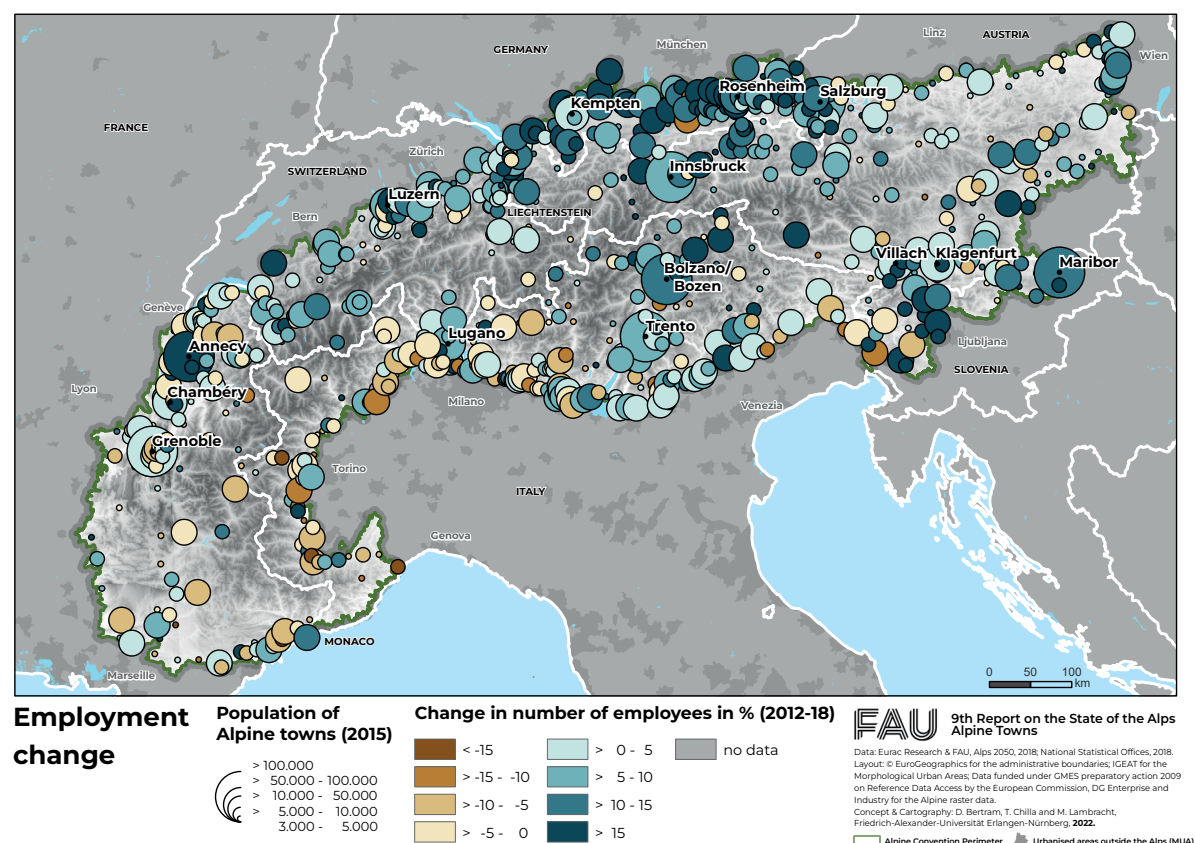


Fig. 11 Employment change 2012-2018<sup>11</sup>

<sup>11</sup> **Indicator / methodology:** The colour gradient in Fig. 11 shows the percent change in employment between 2012 and 2018 for all towns within the Alpine Convention perimeter. Blue colours mark a positive employment change, whereas brown colours point out an employment decrease. The dataset shows the development of the number of employees at the workplace for the years 2012 to 2018.

The pattern is noticeably different from the previous map. Most Alpine towns show a positive employment trend, but this trend is accompanied by a north-south gradient. With a few exceptions, the northern Alpine towns develop in a clearly positive way, whereas the southern Alpine situation is more critical. The labour market in many French, Italian, and Slovenian towns is deteriorating, indicating a declining function as a labour market. This correlates in many cases with higher ageing indices as regional in-migration tends to be lower.

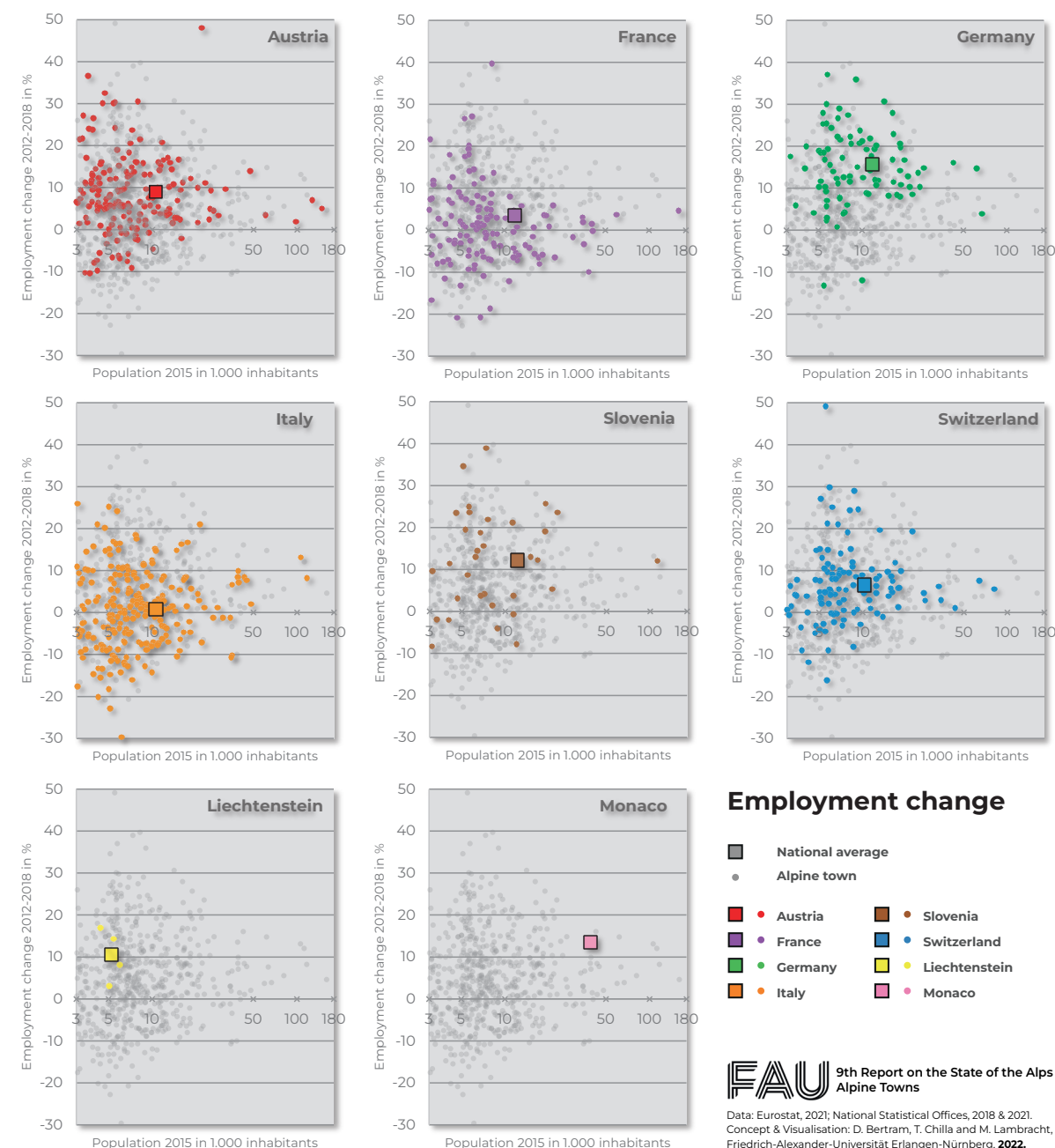
The smaller cities have the highest variation, i.e. the values cover a broad range of values. Single local occurrences like the closure or opening of a large place of work have more influence in smaller towns. However, the development of the labour market is mostly determined by local circumstances and national affiliation rather than by size. This argument is reflected in more detail in Fig. 12. It relates the labour market trend in the towns (y-axis) to the size of the towns. It is interesting to note that the urban systems in federal contexts see a more positive trend in smaller towns (AT, DE, CH) than those with a more centralised system (FR, IT).

The graphs provide the values for each Alpine town, but the interpretation of these patterns must also consider the relationships between these towns as well as the relationships between towns and their rural surroundings.

In terms of metropolitan functions, it is true that the larger the town, the higher the proportion of specialised and highly qualified activities. Moreover, the more specialised the economy, the larger the networks organised in an international and global manner (financial sector, specialised productions like cable cars, medical health, etc.).

At regional level, Alpine towns can play an essential brokering role. This means that the rural areas around towns are not merely the labour market catchment areas in a one-way-relationship. Instead, spill-over effects in terms of innovations, business foundations, and spin-offs are part of the dynamic. Furthermore, hidden champions and other important businesses along the value chain are well integrated, and this should also be true for small-scale and circular economies between towns and rural territories.

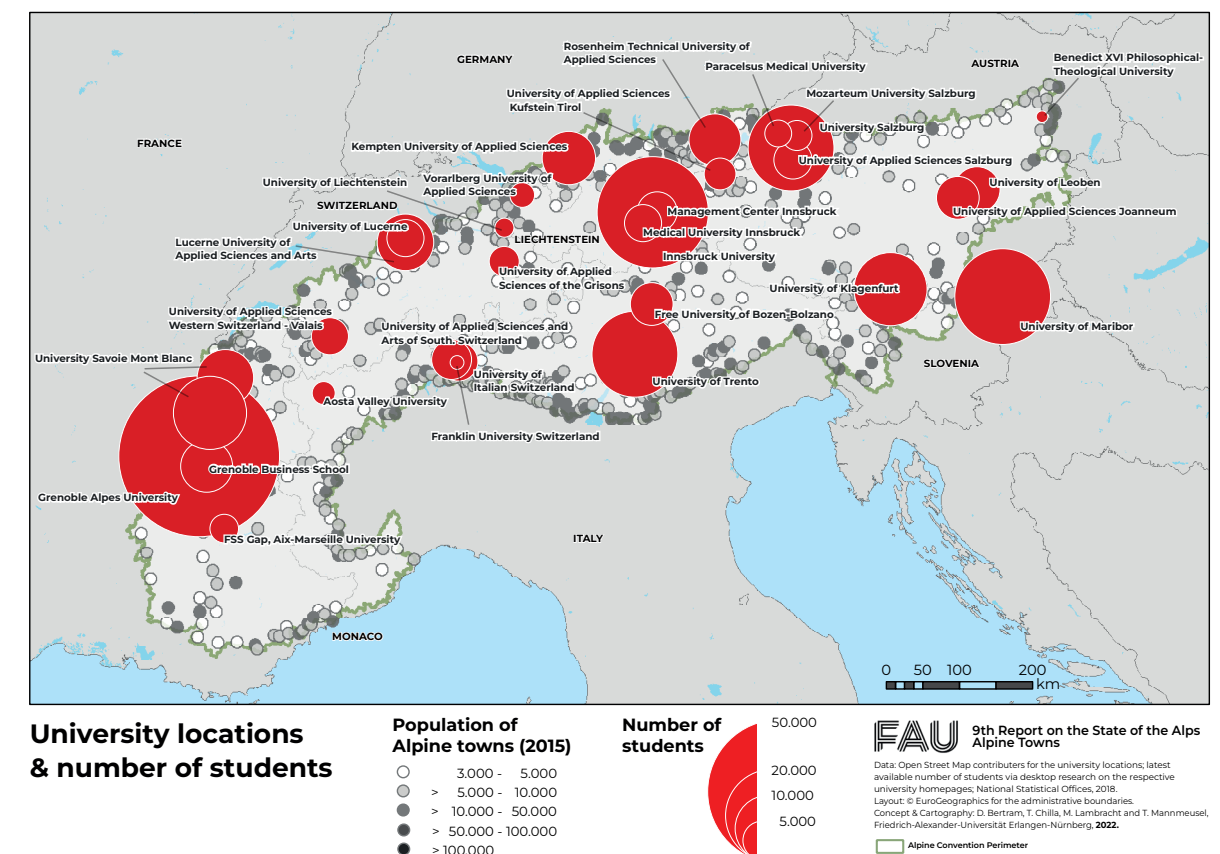


Fig. 12 Employment development in Alpine towns by country – the zoom-in perspective<sup>12</sup>

**12 Indicator / methodology:** The scatter plots of Fig. 12 show the employment change between 2012 and 2018 on the vertical axis and the number of inhabitants on the horizontal axis. Every dot represents an Alpine town (LAU scale). The different colours differentiate the national affiliations. The cities of the different affiliations are marked in a certain colour and the coloured box shows the respective average values for the Alpine towns of each country.

## 4.2. Finding (b): University locations

For a variety of reasons, university sites are important in territorial development. First of all, they provide an important service in higher education which is a precondition for equal opportunities and territorial cohesion in the territory. Moreover, university campuses serve as hubs of public research, which leads to innovation and economic growth in the long run, frequently with regional spill-over benefits. Education-related migration and the economic dynamic related to university research tend to lead to positive demographic trends. Last but not least, university towns tend to have a distinct atmosphere and a 'young' cultural offering. In short, the presence of a university must be seen as a valuable asset for the development of their host towns and the region involved.

Fig. 13 University locations & number of students<sup>13</sup>

**13 Indicator / methodology:** Fig. 13 shows the university locations and the number of students within the Alpine Convention perimeter. The larger the red circle, the more students there are at the respective university location in the Alpine towns. The locations were extracted from the OSM database for each country using the Overpass Query Wizard (tag: amenity=university). The results were cleaned and validated by desktop research and by feedback from the RSA 9 stakeholders. The latest number of students is based on information on university homepages.

Fig. 13 shows the university locations and the number of students enrolled. Some of the major university cities, such as Salzburg and Klagenfurt, are located on the fringe of the Alpine region. Grenoble, Innsbruck, and Trento are the largest towns in the inner-Alpine context. Switzerland, Austria and Germany have decentralised patterns of university locations that also involve smaller Alpine towns. However, large portions of the Alpine region have no university and must rely on the larger cities. Critical mass and available resources are important considerations here, and the economies of large cities tend to have a higher degree of specialisation and a higher share of academic staff.

This relates to the 'factor-10-argument' in the first chapter (relevance of Alpine towns beyond size): the role and importance of Alpine towns is linked to much smaller population sizes than in peri- or non-Alpine towns. As discussed earlier, economic strength, public prominence and reputation can all be significant, even in small towns. The mapping of universities, however, does not seem to fit this pattern. Here, the link between city size and university locations seems rather more conventional, but there are exceptions like the universities in Leoben, Vaduz or Aosta. A number of Alpine towns are located quite far from the nearest university. Creating regional branches could be a good way to better use the potential of universities for regional development.

### 4.3. Finding (c): Public transport accessibility

In the Alpine context, accessibility is a significant factor, and Alpine towns play a key role as they serve as (sub) regional hubs. Their role is to provide access via high-ranking infrastructure (railway, highway) and ensure multi-modal interfaces.

Organising attractive public transport, particularly by rail, is a worthwhile endeavour given the morphology and the decentralised settlement patterns (Ravazzoli et al. 2017). However, rail systems are major investments that rely on national systems, and this means that the presence of the numerous national borders hampers the development of the Alpine rail system (cf. ARPAF cross-border 2018). Nevertheless, if more sustainable mobility is the goal, inner-Alpine rail connections will have to play a key role, even if it is necessary to supplement them with additional modes (bus, car, soft mobility).

Fig. 14 illustrates the current situation – and the overall picture confirms the barrier effects of topography and national borders. The best connections tend to be domestic (e.g. Bolzano/Bozen-Trento, Martigny-Brig) and/or along important valleys (e.g. Rosenheim-Innsbruck, Dornbirn-Chur). Rail accessibility is rather low in some sections of Slovenia and France for instance, due to specific topography, lack of critical mass in rural areas and path dependencies of political priorities. However, large-scale accessibility (e.g. the French TGV network involving Annecy and Alberville) is often excellent, but the intraregional links can be problematic. It is important to note that this accessibility mapping is restricted to towns within the Alpine Convention perimeter. For example, if the metropolitan railway stations in Vienna and Ljubljana were included, the picture would look different (cf. ESPON Alps 2050, p. 61). However, good metropolitan inter-linkages cannot entirely offset intraregional accessibility issues.

The role of Alpine towns in a sustainable, multimodal transport system will need to be developed in the coming decades. Clearly, the current innovations in terms of smart technology and new business models will mostly be anchored to towns (internet of trans-

portation, drones, sharing models, autonomous driving, etc.). Nevertheless, addressing the more traditional barriers, such as cross-border transport solutions, multi-modal interfaces, linking high-speed and regional mobility, and so forth, must remain a top priority.

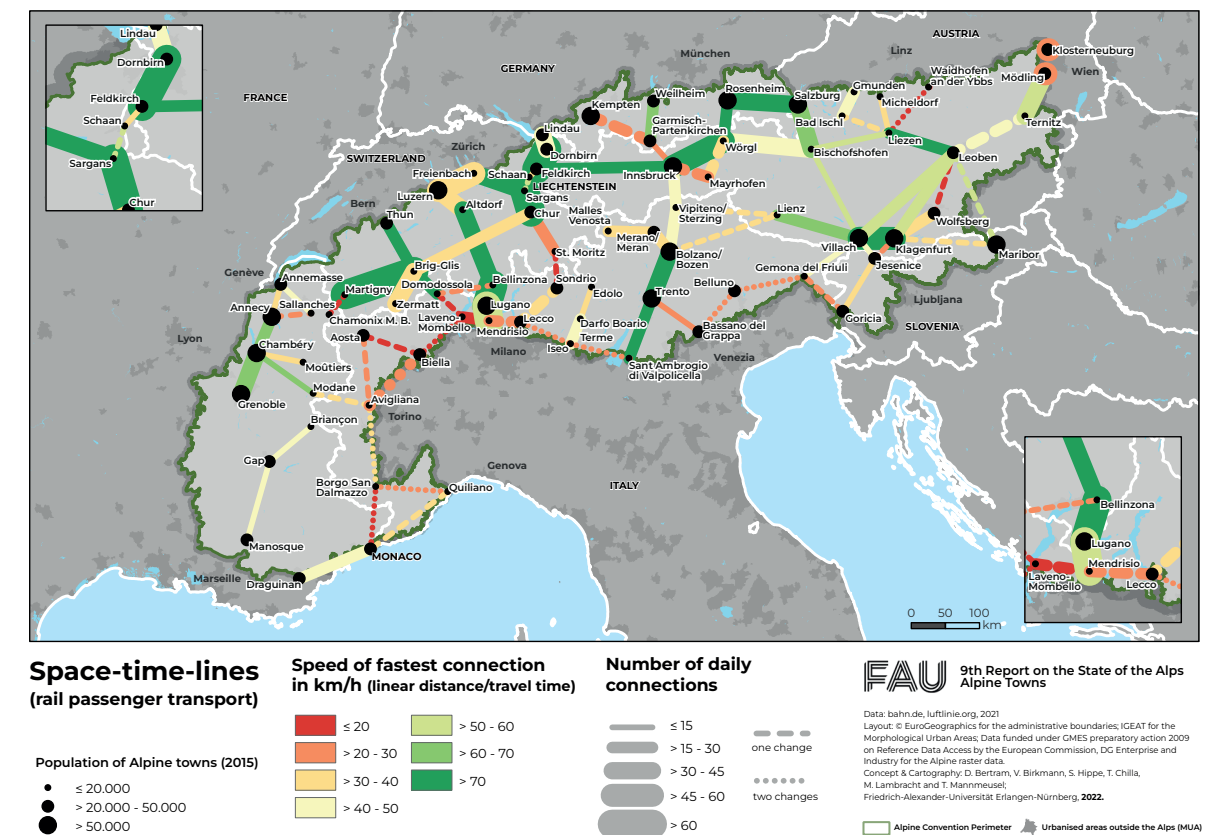


Fig. 14 Space-time-lines, rail passenger transport<sup>14</sup>

**14 Indicator / methodology:** The 'space-time-lines' in Fig. 14 show the quality of rail connections between Alpine towns. Passenger transport via rail is analysed reflecting the speed (referring to air distance) and frequency of linkages (both directions). The fastest rail link between central stations is used to calculate the time. The data was collected via the Deutsche Bahn travel service website. The requests refer to Wednesday 22 September 2021 from 4 a.m. (a normal working day). The line's width denotes the number of connections and the colour of the lines illustrates the speed of the fastest connection (both calculated as an average of both directions). A dashed line indicates that one change is necessary for the connection, and a dotted line means two changes are required.



#### 4.4. Finding (d): Tourism capacity

The current situation is depicted in Fig. 15 by visualising tourist capacity, i.e. the number of bed places per inhabitant. The picture shows a complex pattern: some of the highest numbers are located in the inner-Alpine area, largely for winter sports (e.g. Cortina d'Ampezzo), but there are also several towns on the northern fringe of the Alps with high values. It is important to mention that these statistics do not capture day tourism, which is an important factor, especially for Alpine towns, and particularly those located near peri-Alpine metropolitan regions.

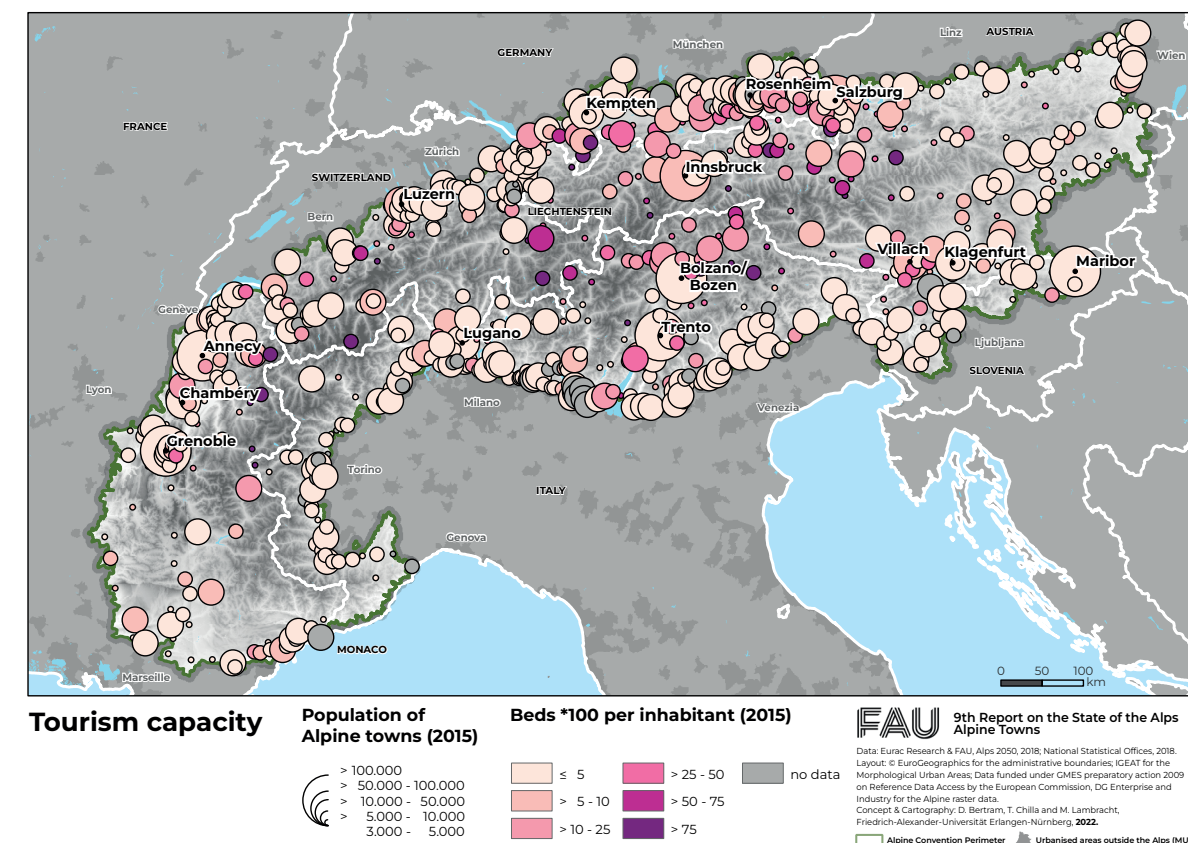


Fig. 15 Tourism capacity 2015<sup>15</sup>

<sup>15</sup> **Indicator / methodology:** Fig. 15 shows the tourism capacity based on the formula “bed places / inhabitants 2015”. It should be noted that the different countries use different approaches for counting bed places. Slovenia and Italy: “permanent beds” (without extra beds or couches); Liechtenstein: hotel industry (“Hotellerie”); Switzerland: hotels and spa facilities; France: hostel beds, holiday residence, villages vacances (holiday villages) and an estimated number of hotel beds (number of rooms x2); Austria: hotels and similar establishments, including commercial accommodations; Germany, Bavaria: bed places without camping places.

The tourism sector is very important in the Alpine region (Pechlaner 2019). Nature and outdoor related tourism tend to prevail over urban tourism: skiing, mountaineering, health tourism etc. tend to be more popular than trips and vacations focused on urban culture, sites, and architecture (Teissl 2020). Large cities like Innsbruck or Bolzano/Bozen are obvious exceptions, but the tourism potential of small and medium-sized cities receives less attention. Alpine towns tend to be somewhat in the ‘shadow’ of landscape and mountaineering destinations. Many Alpine towns serve as a link between rural and urban areas whilst hosting tourists who spend time (and money) in both geographical categories. Developing this role of a ‘broker’, i.e. linking urban and rural spaces, will be an important future challenge. Alpine towns that are currently used as ‘base stations’ for outdoor tourists could expand their cultural offer and their special profile to more than just cuisine and the hotel business. Those towns that act merely as ‘tunnels’ between major points of interests will continue to work on improving their visibility on the map for the current tourist flows that are mostly just passing through.

#### 4.5. Debate: Digitalisation as a potential and a challenge

For at least two reasons, digitalisation is important for Alpine towns. Firstly, the topography entails a relatively high amount of effort for providing services. Digitalisation can help to improve the offer and reduce the effort required. This is particularly true for rural and mountainous areas, but also involves towns when it comes to more specialised offers. Good examples are efficient public administration offers (e-government), mobility-on-demand models, medical care, education and many more. The scientific discourse has recently concentrated on digitalisation in land-use planning (Hersperger et al. 2021).

Secondly, digitalisation is a critical component of economic dynamics in general. As mentioned earlier, the Alpine region is on a successful path of technological innovation. Continuing on this path necessitates a serious approach to digitalisation. It is true that “Europe is lagging behind the United States and China in ICT related innovation” (EEA 2019: 8); also the Alpine region, with its high share of manufacturing industries, must rise to this challenge. The issue is not just to catch up with digitalisation processes, but also to participate in an economically attractive way. Many digitalisation processes have resulted in platform economy effects that risk leading to monopoly structures (cf. the case of Amazon). Innovative business models must be used to capture regional value in a decentralised manner. In general, the Alpine settlement system, with its relatively small towns and villages, can benefit particularly from the digital bridging of critical distances (e.g. mobility apps, last-mile logistics for regional food). An economic digitalisation dynamic would also include classical start-ups based on apps (Outdooractive in Immenstadt, one of the internationally leading app providers in the outdoor sector, is an established example). Industry 4.0 is an important innovative concept that includes digital connectivity of things and services in the manufacturing process as well as artificial intelligence. It is true that Industry 4.0 is not Alpine specific per se, but given the importance of productive SMEs in the Alpine context, its relevance is obviously high. The situation is similar for ‘smart farming’: given the importance of small-scale agricultural patterns, the potentials of digital elements for sustainable farming are obvious but not easy to implement. More generally speaking, digitalisation can boost diversification processes. Integration in large economic networks is much easier in digital formats.

Most Alpine regions provide tools for monitoring the roll-out of digitalisation infrastructure<sup>16</sup>. It is evident that Alpine towns play an important role as regional hubs because their infrastructure is generally superior to that of the surrounding areas. The dangers of a 'digital divide' also apply in the Alpine context, and this must be carefully balanced with the potentials of digitalisation. The concept digital divide refers to the fact that although certain places and groups of people benefit greatly from digitalisation, others do not (to the same extent). This risk of rising disparities can be linked to different levels (Scheerder et al. 2017). On the first level, the differences in technical internet access are the focus. The second level divide reflects on variations in skills and usage of digital facilities. Here it is important to ensure education and training in digitalisation in order to avoid the gap becoming wider. The third level covers the differences in digitalisation outcomes, the use of economic potentials and the increase in provision of essential services in the long run.

The notion of digital divide should not be interpreted in a purely binary way but rather as a progressive scale of gaining or losing from digitalisation trends. While large cities with good accessibility and a high level of education find it easier to benefit from digitalisation, it is somewhat harder for smaller towns. Technical facilities, innovation orientation, and critical mass are just some of the key words that address the prerequisites for a favourable trend in this context. Creating 'smart cities' is also a multidimensional task in the Alpine region (cf. Azevedo Guedes et al. 2018). Firstly, the small-scale character of the Alpine settlement system presents significant challenges in terms of 'critical mass'. Secondly, specific Alpine topics, such as the high importance of tourism, mobility challenges, or last-mile logistics in local food provision (bridging accessibility gaps), can be seen as a particular potential.

## 5. Global positioning

### 5.1. Finding (a): Population share

As discussed earlier in this report, Alpine towns play a significant role despite their relatively small size. This is particularly true in the regional context where they serve as important socio-economic hubs for a wider area. Furthermore, they have to deal with global dynamics – economic and geopolitical shifts raise fundamental questions for Europe in general.

Population development is an important indicator to understand the current global shifts. The demographic development in the Alpine regions and cities, as shown in Fig. 16, is far below the global average trend. This is characterised by continuous growth, owing particularly to non-European growth.

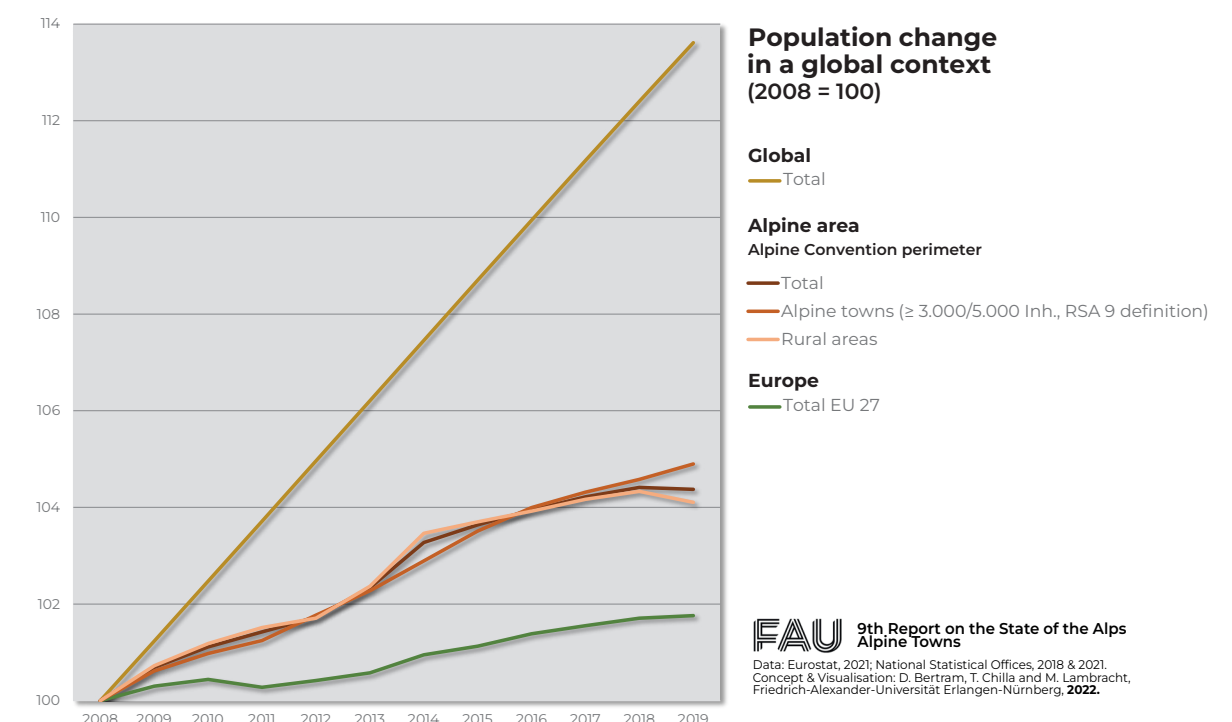


Fig. 16 Population change 2008-2019 (indexed: 2008=100)<sup>17</sup>

**17 Indicator / methodology:** Fig. 16 illustrates the indexed change in population between 2008 and 2019. Different levels are contrasted to compare the positioning of Alpine towns in the global context: global, European and regional (Alpine Convention). With an emphasis on Alpine towns, an additional distinction was made between towns and rural areas within the Alpine Convention perimeter based on the definition in chapter 1. Switzerland has a special role here: being a member of the Alpine Convention, it is included in the Alpine data but not in the European statistics.

<sup>16</sup> For Germany: <http://www.bmvi.de/DE/Themen/Digitales/Breitbandausbau/Breitbandatlas-Karte/start.html>, for Austria: <https://breitbandatlas.gv.at>, for Switzerland: <https://www.bakom.admin.ch/bakom/de/home/telekommunikation/atlas.html>

It is striking that the Alpine territories are growing much faster than the overall European trend, but are still far slower than the global trend. Even though Alpine towns have seen a more positive trend recently, the differences within the Alpine region – urban, rural, etc. – are not very significant.

The political relevance of demographic trends stems from the fact that young and expanding societies can have advantages in terms of economic dynamic and geopolitical assertiveness, when compared to ageing societies. Recent decades have demonstrated that European territories must reflect on their position vis-à-vis the Asian and BRIC dynamics, and also with regard to Arabian and African developments. It is obvious that the general shifts will have an impact on the Alpine region's positioning in the long run. For Alpine towns, maintaining prosperity and balancing international and regional economies is a major challenge. In this respect, there are a number of positive and negative scenarios. In a negative scenario, attractive European regions like the Alps could be reduced to global tourist functions, with a 'Disneyfication', i.e. a focus on clichéd elements (cf. Kunzmann 1996). In a more positive light, the development of the decentralised and innovative economy may pave the way for their position to be strengthened.

## 5.2. Finding (b): Economic share

In terms of the economy, the picture is less clear, although it displays similar patterns as the demographic development. Fig. 17 shows economic development as measured by GDP growth. Since the financial crisis of 2008, GDP has been steadily increasing within the EU and the Alpine Convention perimeter, with slightly higher economic growth in the Alpine region than in the rest of the EU.

This picture is also a consequence of global catching-up processes. Mature (and wealthy) economies usually show a slowing GDP growth in the long run. However, given the remarkable development in Asia, as well as portions of South America, the Alpine region's economic positioning and competitiveness must be 're-invented' over the coming years and decades: which productive and service-oriented economic sectors will be the drivers for innovation dynamics? What balance of international and regional economies ensures prosperity? At the same time, the role of non-European actors will most probably gain importance in the Alpine region. This is already evident in tourism flows, but it is also true for foreign direct investments across many economic sectors.

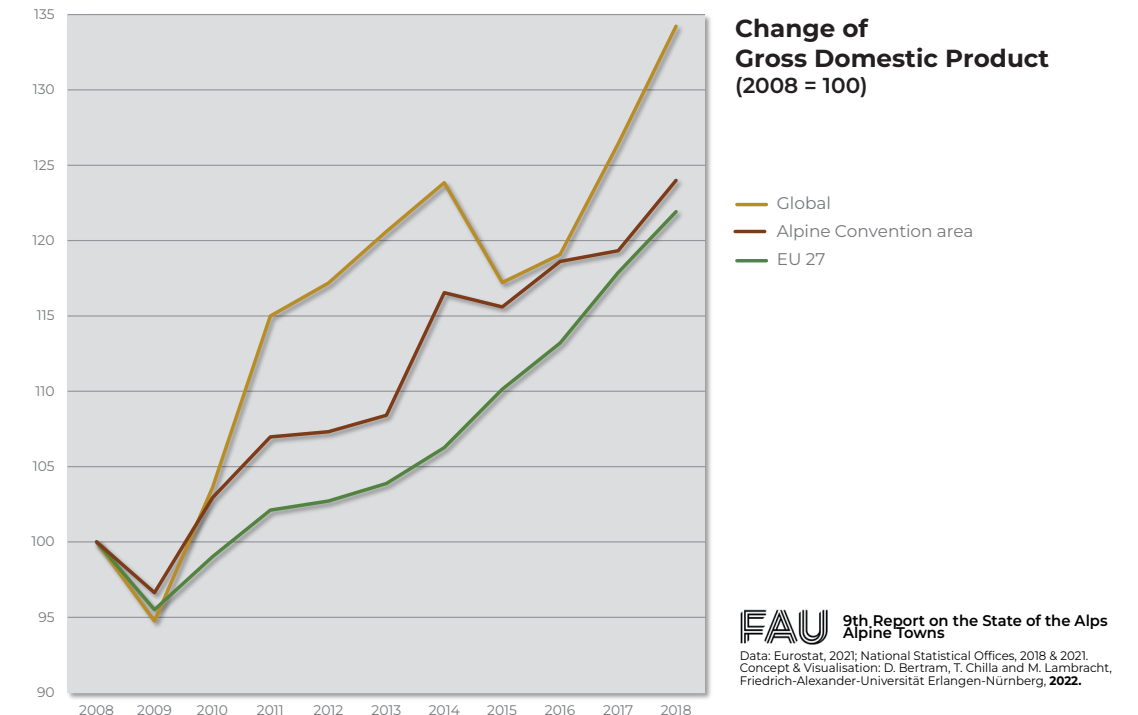


Fig. 17 Gross domestic product change 2008-2018 (indexed: 2008=100)<sup>18</sup>

## 5.3. Debate: What role for Alpine towns in times of global shifts?

The current global dynamic is characterised by "power shifts in the global economy and geopolitical landscape [...] from mature economies to emerging ones", and the "accelerating technological change" (EEA 2019: 83) puts high pressure on many regions. For Europe – and particularly for the Alpine region – this is highly relevant as the current prosperity is far above global average values, and the integration in the global economy is high. The global power shifts also raise questions for the future development of the Alpine region. A simple 'think big strategy' cannot be the answer given the region's fine-scale spatial structure with rather small settlements, hindered accessibility and limited critical mass. The successful path of recent decades, based on endogenous development, innovation, and positive path dependencies, must be transposed into future contexts. The economic 'drop height' is considerable.

On the one hand, the Alpine region has a history of being a rather weak and lagging region, due to its territorial structure and the often limited political attention it receives compared to peri-Alpine, urbanised regions. The socio-economic success in recent de-

<sup>18</sup> **Indicator / methodology:** Fig. 17 illustrates the indexed Gross Domestic Product change between 2008 and 2018. For the positioning of the Alpine towns in the global context, different levels are compared: global, European and regional (Alpine Convention).



acades in many parts of the Alps is an historic exception, and today includes many rural regions and small settlements. On the economic side, many metrics for innovation, R&D spending and economic growth are above average (cf. ESPON Alps 2050). Successful dynamics have an Alpine-specific background in a number of fields. This includes the presence of hidden champions in the industries of cableways and outdoor equipment, and also in production sectors that use hydropower. The high shares of (summer and winter) tourism as well as the prominent presence of agriculture are specific to the Alps, and the dynamic in the wood and timber sector should also be mentioned here. Of course, not all success is Alpine-specific, as the IT sector in many Alpine towns or the financial sector in Ticino demonstrate. Nonetheless, as shown by export flows and the appeal to tourists, the Alpine region's success is based on a unique linkage of traditional, endogenous potentials that are integrated into international economic functioning (cf. Capello & Cerisola 2019).

The need for sustainable solutions, on the other hand, is particularly acute in the Alpine region. The call for green and circular economies might be even louder in the Alpine region than outside. This is due to the region's high vulnerability, which can be interpreted as a call to be a pioneer and leader in the green economic transition (RSA6).

This situation may pose a dilemma that could overburden the Alpine region with its small-scale structure and morphological specificities. At the same time, the specific situation might be seen as a catalyst for innovation. Earlier than in other regions, the pressure for sustainable solutions is high. This could lead to 'early-mover advantages' and help to turn the Alpine specificity into a strength.

The data situation does not allow a filtering down to the level of the towns, although their importance in dynamic development is clear. Towns are an important part of an efficient spatial organisation. They need to be hubs of innovation and platforms of education, training, and exchange, helping to achieve innovation and truly smart specialisation (cf. Rivas 2016).

## 6. Governance

### 6.1. Finding (a): Cooperation patterns INTERREG Alpine Space

Governance in the Alpine region has many facets, due to the numerous national political territories and administrative cultures that come together in this region (ESPON Alps 2050). National borders are 'contact zones' where different political systems and cultures meet, posing challenges to cross-border coordination in general, and especially for questions of spatial development. The different mandates of municipalities or regions on either side of the borders is an important issue. For example, the competences of French municipalities are different from those of Swiss municipalities, and Slovenian regions are hardly to be compared with those of Italy. Cross-border and transnational governance tools are important in this context, complementing traditional governmental instruments. Furthermore, governance across borders not only involves public representatives but also the stakeholders and civil societies of the Alpine territories. Democratic participation and media discourse are more focused on national perimeters. Nevertheless, transnational exchanges on topics that are similar in Alpine towns regardless of national affiliation are promising.

The INTERREG Alpine Space programme is perhaps the most prominent and visible type of cooperation. Fig. 18 provides an overview of the most recent activities and shows the spatial distribution of the lead and project partners. The spatial dimension of the project networks depends on the overall project density in each thematic assignment<sup>19</sup>.

<sup>19</sup> **Indicator / methodology:** Fig. 18 is based on INTERREG related data, provided by the KEEP database. The KEEP database is an opensource website where a variety of information about the different INTERREG programmes is available in tables, graphs or maps. For this map, the project information concerning the INTERREG B Alpine Space Programme was processed and visualised in different thematic network maps. The thematic differentiation is based on the assignments of the programme itself and was then bundled into overarching topics. Every project can address up to three different thematic assignments, so multiple nominations are possible.

The map differentiates the thematic topics of the cooperation patterns:

- **Economy, research & knowledge:** Many lead and project partners are located outside of the Alpine Convention perimeter with major poles in Lyon, Stuttgart, Venice and Slovenian towns. The high project intensity is accompanied by a relatively loose connection to the inner-Alpine area.
- **Spatial planning:** This project category particularly involves large cities as lead partners, which is due to the location of governmental institutions or agencies and also specialised expertise. Many partners are located within the Alpine Convention perimeter, but mainly in the regions of the transit axes. In short: high project intensity is associated with a more urbanised anchorage.
- **Environment:** In this category, the lead partners are concentrated in peri-Alpine metropolitan areas (Munich, Vienna, Ljubljana, Lyon, Turin, Milan) and on the Innsbruck-Bolzano/Bozen axis. The project partners are spread across the inner- and peri-Alpine region. The project intensity is generally high.
- **Governance:** The location of lead partners is more concentrated in Italy, Germany and Slovenia, and less in Switzerland and Austria; no lead-partner is located in France in this category. The networks focus on the inner parts of the Alpine area, and the overall project intensity is on an intermediate level.
- **Health & social services:** We see a clear concentration along the fringes of the Alpine Convention perimeter, thus a rather urban pattern. The overall project intensity is not very high.
- **Mobility:** Mobility projects tend to be located outside the Alpine convention perimeter and concentrate on peri-Alpine metropolitan centres (Munich, Milan, Turin, Lyon, Vienna).
- **Culture & arts:** This topic has a rather low project intensity. The spatial pattern focuses on the inner-Alpine area and especially on the southern parts.
- **Tourism:** Surprisingly, this project thematic has a low project intensity with a spatial pattern that does not correspond to the general economic patterns. Even though the tourism sector is considered a key economic field for many places, this does not lead to a high project activity. Possible explanations might be the high level of prosperity in many tourist regions and the business competition in this field. However, it is worth mentioning that there are networked activities independent from INTERREG (e.g. Alpine pearls, Best of the Alps).

More generally speaking, the maps of cooperation intensity along the different thematic topics demonstrates, firstly, the importance of the larger Alpine Space perimeter of this funding period: it seems to be crucial to involve both inner- and peri-Alpine places. Secondly, the role of larger cities and towns for cooperation is obviously essential. This is due to the presence of governmental institutions, research institutions and enterprises with specialised expertise.

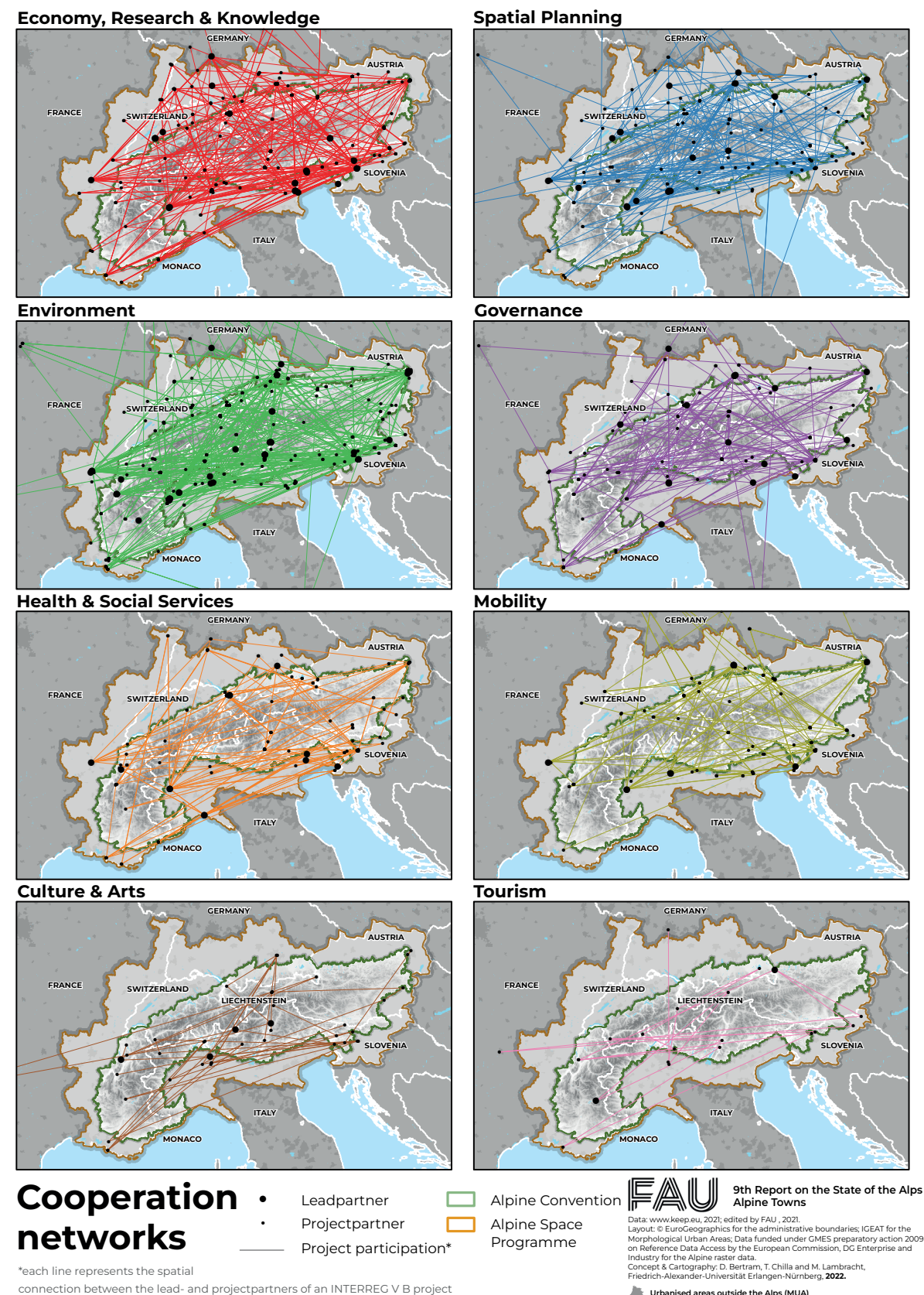


Fig. 18 Cooperation networks in thematic differentiation of the INTERREG Alpine Space programme



## 6.2. Finding (b): City networks

Fig. 19 shows another facet of Alpine town governance, focusing on three functionalities. While the organisation 'Alpine Town of the Year' covers almost the entire Alpine Convention area on a macro level, the towns of 'Alliance in the Alps' are concentrated in selected regions. Some of them are particularly concentrated in southern Bavaria, around Liechtenstein, in Slovenia and in South Tyrol. With Annecy, Bad Aussee, Bad Reichenhall, Chamonix, Sonthofen and Trento, six Alpine Towns of the Year are also members of Alliance in the Alps.

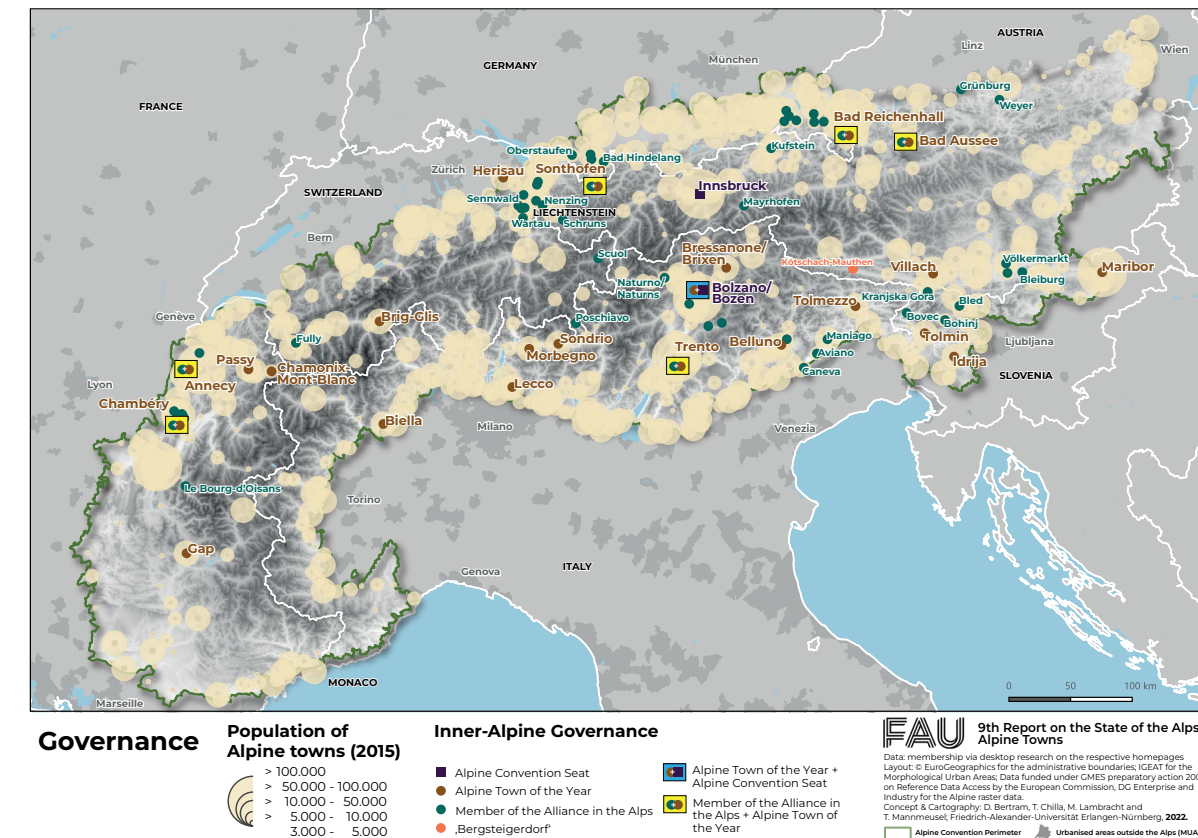


Fig. 19 Inner-Alpine governance: networks of Alpine towns<sup>20</sup>

<sup>20</sup> **Indicator / methodology:** Fig. 19 shows the RSA9-defined Alpine towns participating in inner-Alpine town networks. It shows towns that have been awarded the title 'Alpine Town of the Year' up to 2021, member towns of 'Alliance in the Alps' and the Mountaineering Villages within the Alpine Convention perimeter. In addition, with Innsbruck and Bolzano/Bozen, the Alpine Convention seats are included.

While all the others have significantly fewer inhabitants, with Kötschach-Mauthen (around 3,500 inhabitants) only one 'Bergsteigerdorf' (Mountaineering Village) is considered as an Alpine town. By contrast, the network of 23 Alpine Town of the Year in the Alpine Convention perimeter has about 932,000 inhabitants. Almost all of them have more than 10,000 inhabitants, with the exceptions of Bad Aussee and Chamonix-Mont-Blanc. In the Alliance in the Alps network, only 14 out of 56 Alpine towns have more than 10,000 inhabitants. Nevertheless, with Annecy and Trento as two large Alpine towns, this network has almost 700,000 inhabitants. The map also includes the two seats of the Alpine Convention in Innsbruck and Bolzano/Bozen.

This map shows that the inner-Alpine governance format of the Alpine Town of the Year covers the Alpine area in a spatially balanced way and involves mainly towns with more than 10,000 inhabitants. Alliance in the Alps is an inter-communal network of small Alpine towns with fewer than 10,000 inhabitants, which shows a spatially rather concentrated pattern. It is striking that the map shows many 'blank spaces', i.e. towns of different size that are not involved in any of these networks. This is particularly true of those towns along the fringes of the Alps, and especially those towns with 3,000 to 10,000 inhabitants.

The cooperation formats of the map could be complemented with further networks such as Urbact, Eurocity and Civitas. These European initiatives have involved at least some Alpine towns, but their cooperation is not entirely centred on the Alps.

As already discussed in chapters 1 and 4, small Alpine towns are of high functional relevance for their regional context and for the Alpine settlement system ('factor 10'). From this perspective, there is great potential for further networking among small Alpine towns, which may be facing common challenges in the future (see, for instance, Fig. 9 on temperature change within the Alpine region). Networking and institutional innovation at a micro-level can benefit from shared tacit knowledge and joint forces.

## 6.3. Finding (c): Cross-border integration and Alpine towns

The analyses of this report reveal that many trends and patterns are primarily influenced by a town's national affiliation (see, for instance, the chapters on demographic development or employment trends). Of course, each town's unique setting is important, including topographic altitude, degree of regional urbanisation, regional tourism intensity, etc. However, national affiliation takes precedence over these factors; it is the most important for determining which nation-state a town belongs to (cf. ESPON Alps 2050). On the one hand, this situation raises questions about territorial cohesion and integration. On the other hand, it results in a positive competing of ideas and approaches, which reflects Europe's territorial diversity.

This context is particularly important for border regions. Fig. 20 shows that many Alpine towns are located in a border region, highlighting those that are situated within a 15km buffer zone on either side of the border.



These Alpine towns are places where different political systems as well as economic and cultural settings meet<sup>21</sup>. They are increasingly being characterised by commuter, leisure and retail flows. This circumstance necessitates certain requirements in terms of transport infrastructure, provision of social services, and political cooperation. This cross-border dimension must be dealt with appropriately, taking into account the very different territorial contexts. There are at least three distinct categories in this respect: first and foremost, we have urbanised cross-border corridors with significant levels of interconnectedness. The most prominent examples are Salzburg-Freilassing, the High Rhine valley, Tessino, Geneva-Annecy and Gorizia-Nova Gorica (cf. Chilla & Heugel 2019). In these cases, improvements to the sustainable mobility infrastructure and the equitable organisation of cross-border labour markets are key concerns.

The second category is very different, as morphological 'dead-end situations' like the one in Sölden are characterised by proximity to the border without high relevance of further cross-border integration. The full integration of service provision on the domestic side is in the foreground in these circumstances.

Thirdly, a number of towns are caught in 'in-between-situations', such as Reschenpass (Mals-Landeck) or Brig-Domodossola. Rather low levels of urbanisation and accessibility can mean both opportunities and threats. Accessibility and infrastructure issues are high on the agenda: how to improve accessibility, achieve sustainable mobility patterns, and profit from the location without facing tunnel effects – the challenges here are complex.

#### 6.4. Debate: Alpine governance in a 'soft space'?

The Alpine region connects peri- and inner-Alpine areas, urban and peripheral places (Fourny 2018), and is characterised by a large number of national borders. As a result, the political geography of the Alpine settlement system is complicated. Purely government-led management approaches are unlikely to achieve sustainable development. Instead, governance approaches must work in concert with the transnational, cross-border and inter-municipal levels. This situation comes with 'soft spaces' of cooperation perimeters. The question is whether this relatively soft approach is sufficient or if a somewhat firmer approach is necessary for developments of greater consequence.

Soft spaces are vital for inter-municipal and rural-urban cooperation at regional level. Towns are often embedded in regional development axes where they act as 'power units' and mediators between the more urbanised and more rural areas. The concept of city-regions is an example of the rather flexible and fluid spatialities in settlement systems. This explains why "governance arrangements working at the rural-urban interface are often highly complex" (Oedl-Wieser et al. 2020: 1).

<sup>21</sup> **Indicator / methodology:** Fig. 20 shows Alpine towns based on the same methodological framework as Fig. 2. In addition, a metric buffer was added along the national borders. The buffer zone is 15 kilometres in both directions from the border.

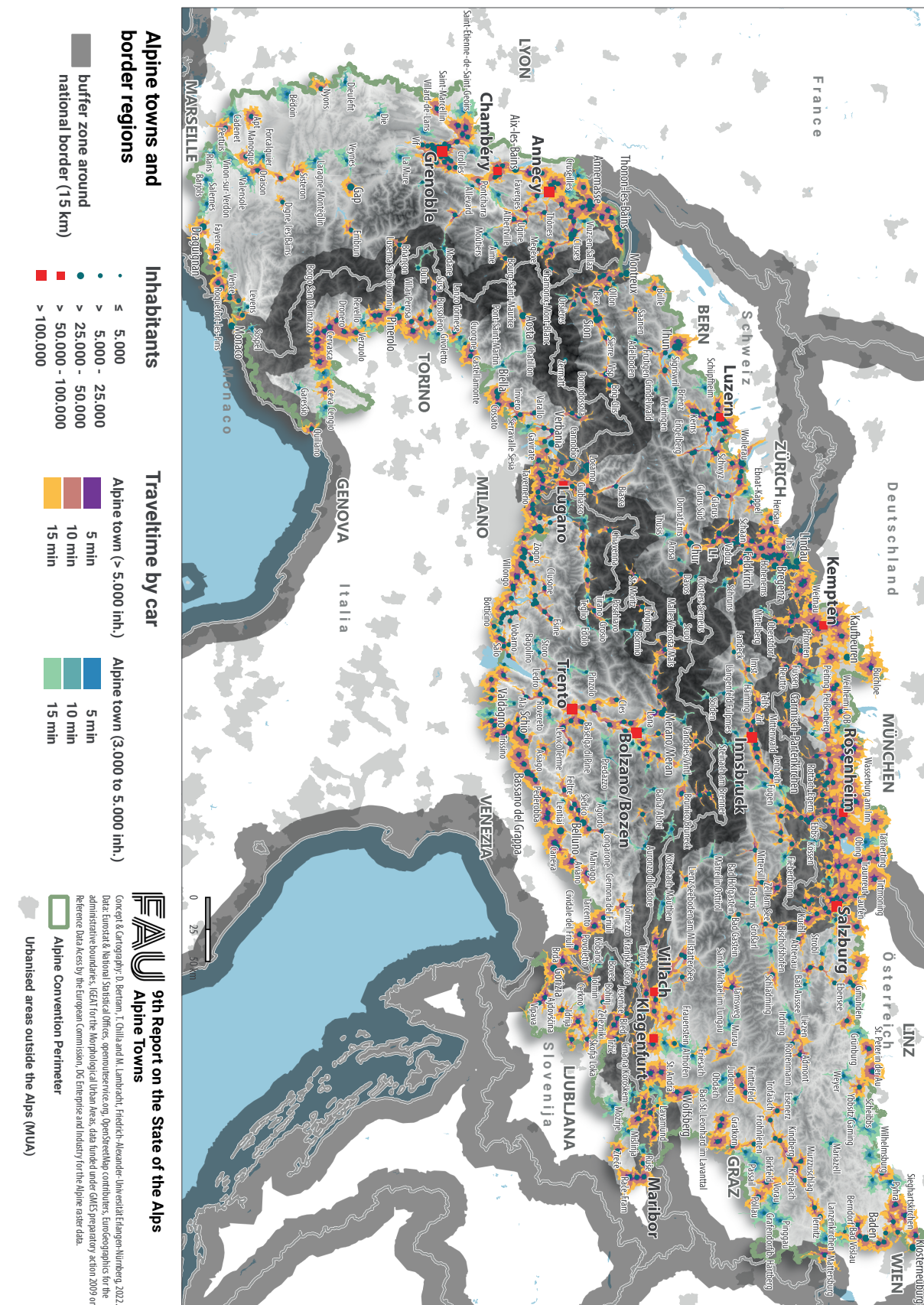


Fig. 20: Alpine towns and border regions

On a transnational level, eight nation states meet in the Alpine region, each with its own political environment, particularly in terms of the roles of mountainous areas within the nations. Political priorities, planning regimes, and urban development play different roles in each country. The Alpine Convention, the macro-regional EU Strategy for the Alpine region (EUSALP) and the INTERREG Alpine Space Programme are all important levels of concertation that offer a variety of instruments for sustainable spatial development. Furthermore, the EU legislative framework is crucial (also for Switzerland and Liechtenstein, whose legislation is largely EU compliant). Nevertheless, the Alpine region remains a 'soft space', meaning that transnational political action is heavily reliant on consensus-based governance procedures, and that implementation depends on the active participation of stakeholders. This must be viewed against the more general background that "the effectiveness of intergovernmental collaboration concerning environmental and sustainability challenges has often been questioned, in particular in relation to the non enforcement of agreed rules or commitments" (EEA 2019: 96).

There is a trend towards "increasing autonomy of cities and technologies that favour decentralised governance of systems (e.g. energy communities)" (EEA 2019: 96). This emphasises the importance of Alpine towns in achieving sustainable spatial development. Whereas towns have a strong mandate for land use and urban development policies, they are entrenched in different systems of regional planning and (inter-)national political target systems. Soft spaces and governance arrangements enable new priorities and territorial focuses without being constrained by formalised top-down structures. The Alpine Space Programme, for example, certainly benefits from the flexible geography of cooperation. Functional regions in the Alps often cross borders in different geometries: cross-border commuting zones can be found in many areas, including Salzburg, Ticino, and Terra Raetica (ARPAF Crossborder 2018).

In the end, soft spaces enable place-based solutions and creative processes. The Alpine region's long history of different, multi-layered governance patterns makes it possible to bridge gaps in political mandates and find experimental solutions. The dilemma, on the other hand, remains: soft spaces imply significant organisational effort and limited solution capability due to the need for consensus. Putting plans into action is the most difficult part.

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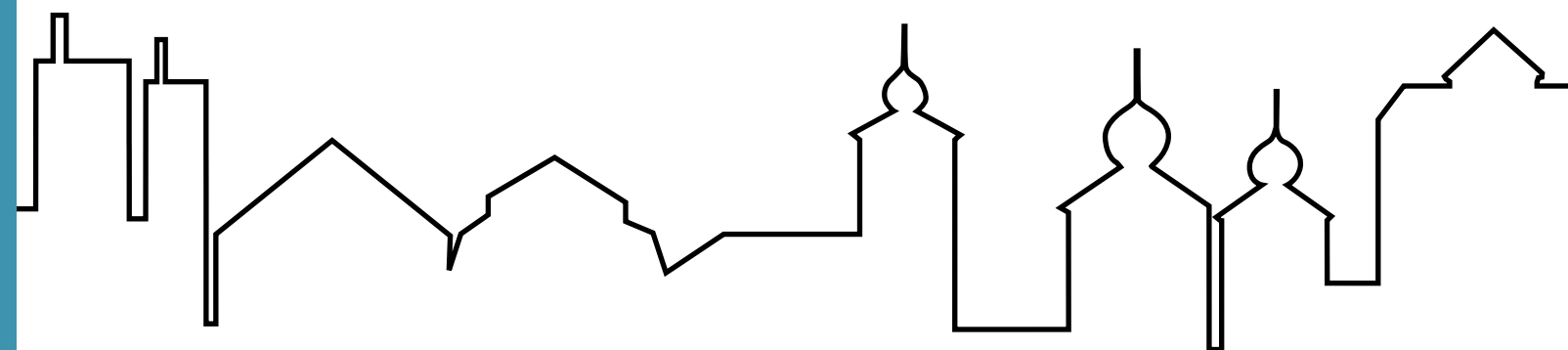
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# ALPINE TOWNS

Key to sustainable development in the Alpine region

## Part 2: Five Pictures of the Future





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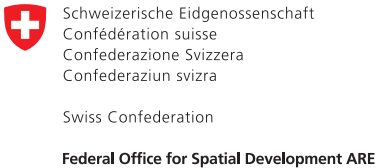


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1. A scenario process for future-proofing Alpine towns

What lies ahead for Alpine towns and cities and how can they best prepare for an uncertain future? – A scenario process in the context of the RSA9.

Each Report on the State of the Alps (RSA) puts a spotlight on specific topics with relevance for the Alps. This report is on urban development in the Alpine setting. The aim is to acquire information about what the current situation is and to reach a shared understanding of how to proceed. For Alpine towns, the present state is always closely linked to future developments, as towns and cities can be seen as engines for many transformation processes. Consequently, this report includes a forward-looking view, developed through a co-creative scenario process.

The scenario process provided a framework for discussing the future of Alpine cities and towns in the context of global megatrends, such as climate change as well as local, Alpine-specific challenges. Its specific goal is to provide a more balanced view on how Alpine towns could develop up to 2050, recognising both their interconnections in the globalised world and their specific role in shaping transformation processes. The outcome is five scenarios that illustrate potential future developments, which include many positive but also several critical developments, and insights on how they can become important to Alpine towns. Although not every scenario is suitable for each Alpine town, the overall set of scenarios can provide guidelines for strategic decision-making: the scenarios should be seen as a menu from which an Alpine town can pick whatever elements fit best for building customised scenarios tailored to their specific situation.<sup>1</sup>

The Alps at the forefront of major transformation processes

The Alps are at the forefront of many major transformation processes: firstly, the need to fight climate change, which is more acute in the highly vulnerable Alps. Changing lifestyles are also more visible in this specific environmental setting with its high quality of life and leisure orientation. Digitalisation has already been embraced as it offers new opportunities for addressing Alpine-specific challenges. These and further megatrends are closely interwoven, and while they may accelerate each other in a positive way, they can also have unintended negative effects and risks (EEA 2019: 14; Zukunftsinstitut

<sup>1</sup> The Thematic Scenario Background to the RSA9 provides detailed information on the topics and future developments that were considered. Alpine towns can use this ‘toolbox’ to develop customised scenarios that fully fit their needs.



2021: 5). This increasing complexity of global megatrends requires improved strategic decision-making, based on forward-thinking approaches. The scenario technique is an ideal way to achieve this goal.

With a high density of people, ideas and resources, cities and towns have the potential to lead the way in these transformation processes (JRC 2019: 15). Through their specific functions in urban-rural settings and in networks of larger agglomeration areas, Alpine towns can play a leading role in helping to future-proof much larger territories.

### Participation and co-creation to work on the future

Towns and cities can be seen as hubs of economic growth, innovation, culture and creativity and often determine the overall wellbeing of a whole region. But developing such an effective hub role requires close collaboration among all stakeholders, including the public sector, civil society and, of course, the economic sphere of the private sector. It is essential to involve them all when developing strategic decisions and planning processes.

A participatory approach was likewise applied in this report's process of scenario planning, using the exploratory scenario method: stakeholders develop the scenarios in a co-creative process, have the possibility to exchange viewpoints on future developments along the way and, through mutual learning, develop a joint basis for follow-up strategic decisions and specific action plans (Oteros-Rozas et al. 2015: 2; Kosow & Gassner 2008: 75).

The Alpine Convention's working group and other Alpine town networks (Alliance in the Alps, Alpine Town of the Year Association, etc.) were at the core of this participatory approach during the elaboration of the RSA9. Representatives of selected Alpine towns and the European Union's Territorial Agenda 2030, as well as students, joined the process to ensure a connection between the Alpine Convention, local levels and other initiatives.

### Implementing the scenario process for Alpine towns

The RSA9 scenario process builds on the well-acknowledged scenario planning method originally developed in the 1990s – first as a planning tool for the private sector and then with broader applications in the field of intersectoral cooperation. This four-step method, on which the RSA9 process is based, is described in detail by Reibnitz (1994). The method is structured around a series of co-creative workshops where all major decisions on delimitation, scope, relevant topics, framing etc. are taken by the group. Between the workshops, the results were structured and consolidated by the scenario team.

For the 9th Report on the State of the Alps, the following steps were taken<sup>2</sup>:

- **Preparatory phase:** identifying the objectives and the leading question of the scenario process and setting the scene for topics that should be considered (based on EEA 2019; see Technical Background, chapter 2.4).
- **Step 1 – Identifying key factors:** setting a neutral framework of important topics to be used for building the scenarios. This was done by defining 21 key factors which set the thematic boundaries for the scenario field.
- **Step 2 – Future projections:** identifying potential future projections for each key factor. This requires picking up different viewpoints and positions 'outside the box' on how the future might evolve, and then systemising them in different projections. The 'Future Map' provides a complete overview of future projections for Alpine towns and serves as the basis for building the scenarios.
- **Step 3 – Scenario development:** developing scenarios by combining consistent future projections based on their role in the influence matrix.<sup>3</sup>
- **Step 4 – Finetuning of scenarios and further strategic steps:** including all follow-up activities by various decision-makers to discuss the strategic implications of the scenarios. Some finetuning to the specific local/regional context might be necessary beforehand.

Figure 1 gives an overview of the working steps of our scenario process.

<sup>2</sup> Please refer to the Technical Background, chapter 4, for a more detailed description of the exploratory scenario method and its application in the context of the RSA9.

<sup>3</sup> The influence matrix and how it is used to develop scenarios in step 4 of the scenario process is explained in detail in the Technical Background, chapter 4.2.

Working steps of the scenario process

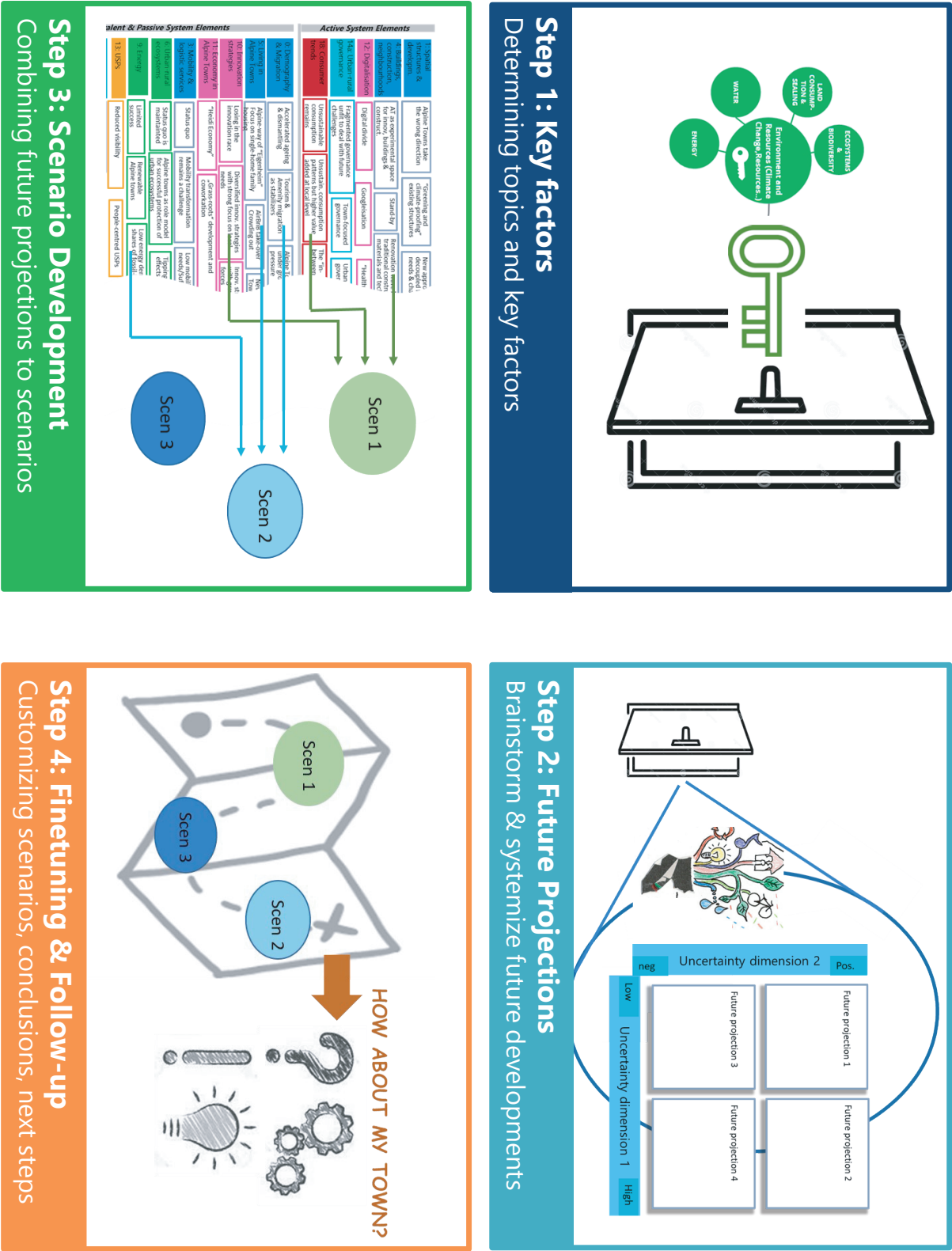


Figure 1: The scenario process for Alpine towns

## 2. Mapping the future of Alpine towns

Which developments will have the greatest future impact on Alpine towns?  
Key factors that serve as starting points and boundaries for the scenarios

The thematic base from which the working group began developing and mapping possible future developments is provided by key factors. The most relevant topics that ‘drive’ the future development of Alpine towns up to 2050, as identified by the working group, are defined as key factors (see Figure 2). They open the door to the future and set the thematic boundaries for the scenario process. They are defined in a neutral manner so that both positive and negative future projections can be made in the next step.

To determine the key factors, special consideration was given to identifying Alpine-specific topics that distinguish Alpine towns from other cities and towns in Europe. However, since Alpine towns are also strongly connected to the globalised economy and because some lifestyles are very similar to those generally found in modern societies, not all the key factors are necessarily specific to the Alps. Instead, Alpine-relevance is the consideration at the core of all the key factors selected.

The key factors are based on the European Environment Agency’s 2019 ‘Drivers of change of relevance for Europe’s environment and sustainability’, which the group adapted to the Alpine context (see Technical Background, chapter 2 for more information on the drivers of change). The key factors are grouped together under these main drivers of change, as shown in the figure below. This strikes a good balance between many topics and aspects.

## Key factors that determine the future of Alpine towns

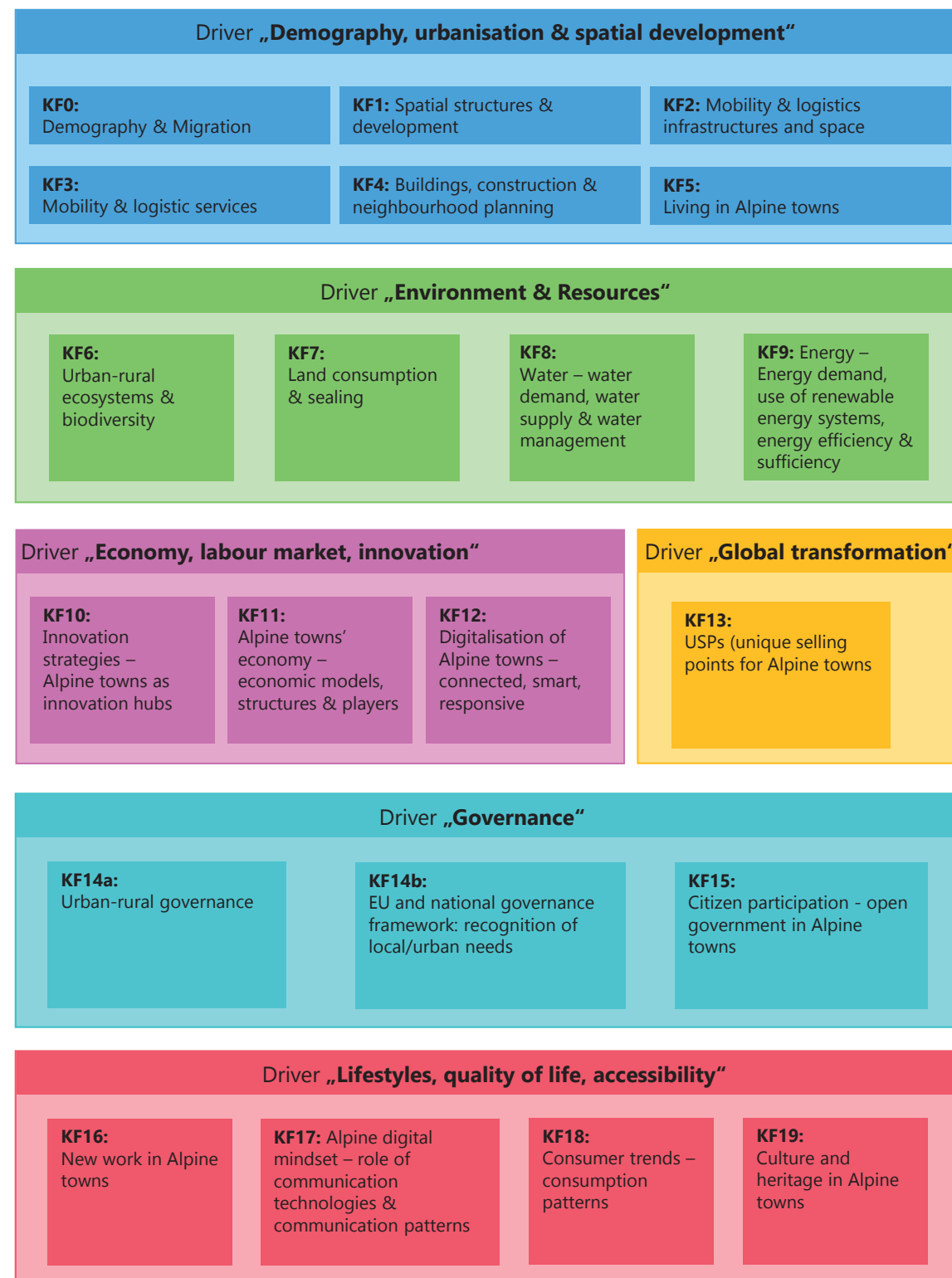


Figure 2: Key factors for the scenario process on Alpine towns

## How could the future look like for specific key factors?

The next step was for the working group to determine possible future projections for all key factors. Future projections were developed systematically: start with one key factor, a brainstorm session on possible future developments, and then structure them along major uncertainties (e.g. the major uncertainties for the key factor 'Urban-rural ecosystems & biodiversity' relate to the level of regulation on ecosystems protection and pressures from other sources that accelerate degradation). This creates several dimensions, allowing the future to be understood as more than just 'black or white'/'good or bad'.

Figure 3 is an example of how the future projections are represented in the form of small portfolios.

## Future projections: capturing major uncertainties

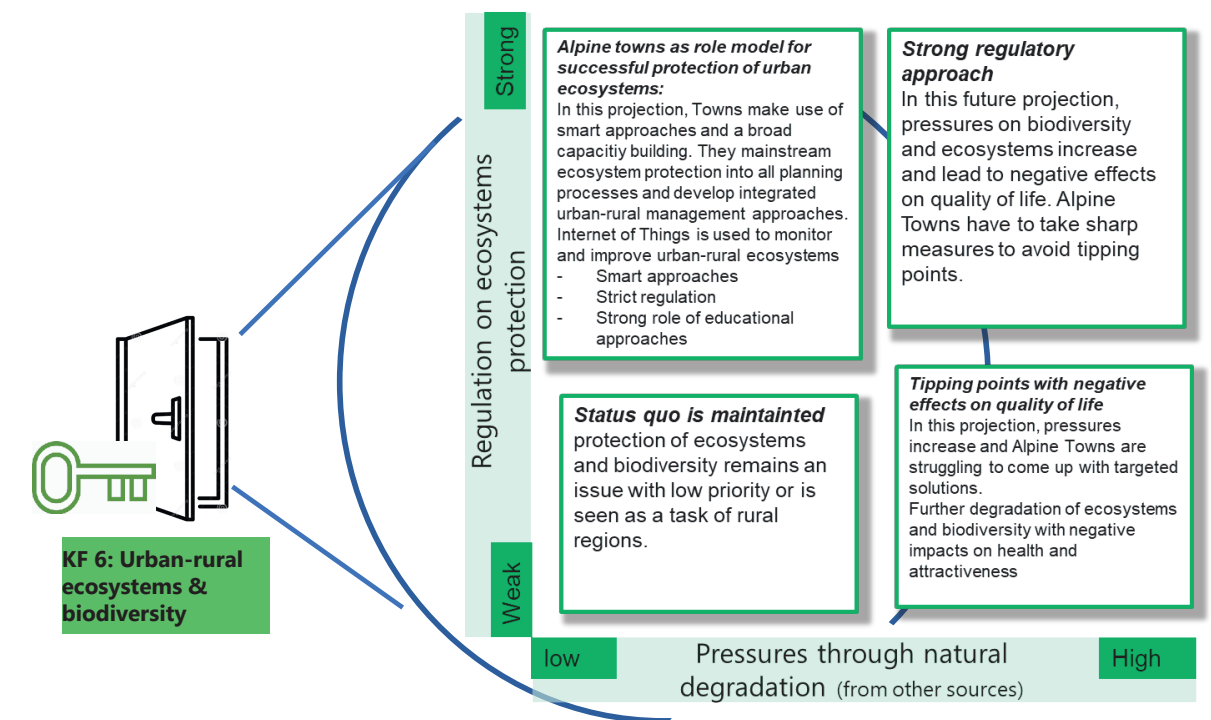


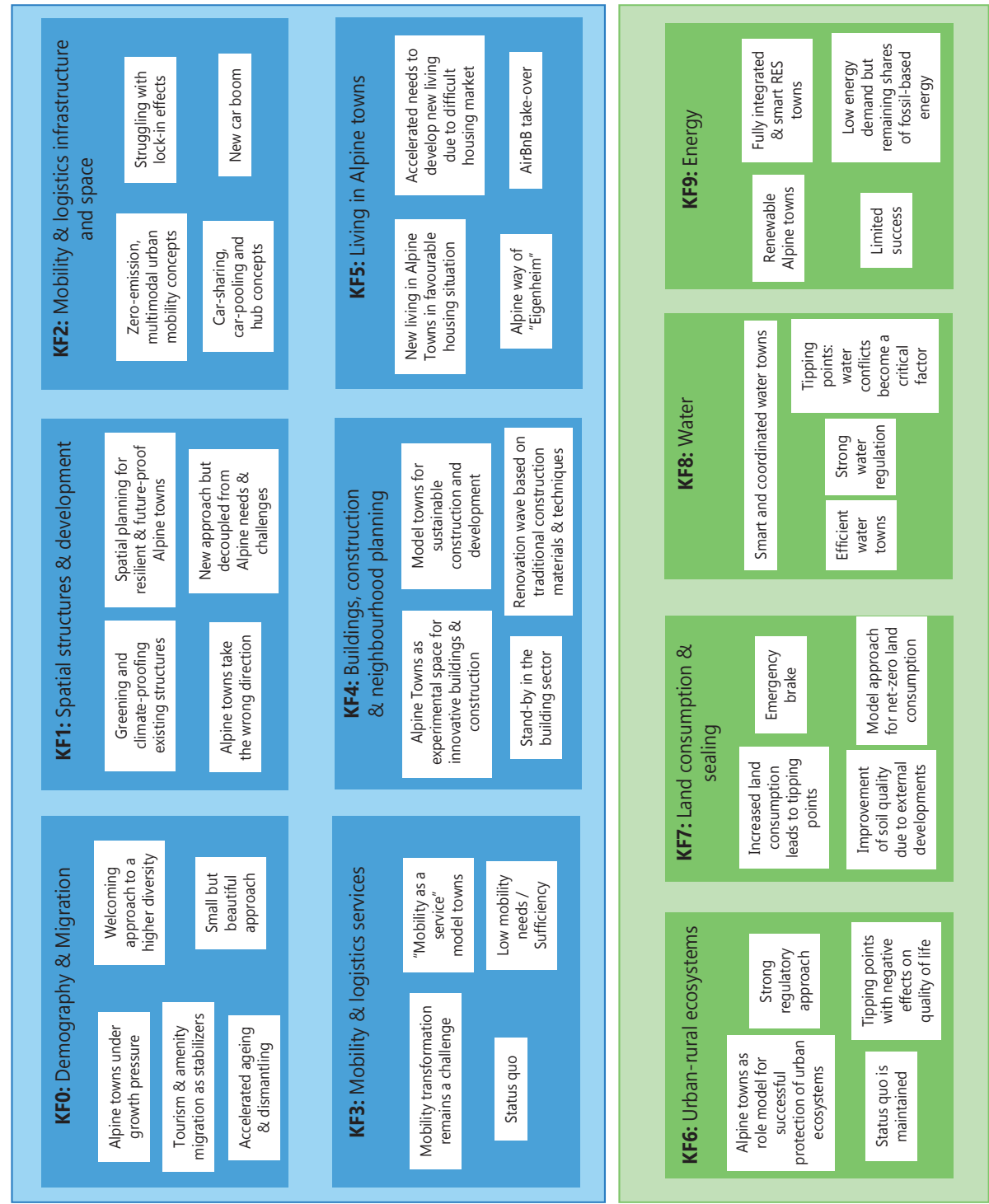
Figure 3: Example of future projections



Future Map for Alpine towns

The following Future Map summarises these future projections for all key factors. Detailed information on the future projections and on how they were structured can be found in the thematic scenario background to this report.

The Future Map for Alpine towns (Part 1)



The Future Map for Alpine towns (Part 2)

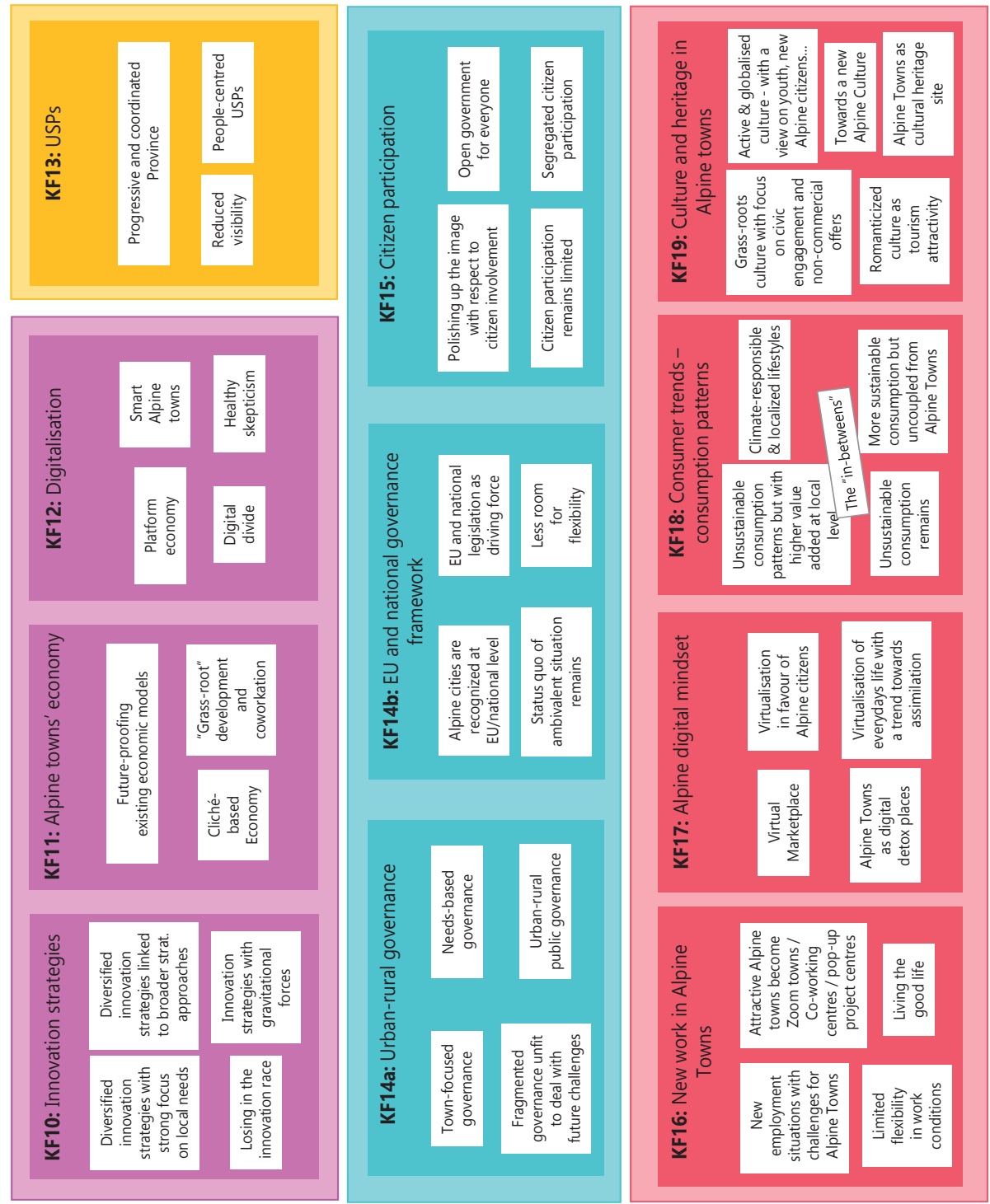


Figure 4: Future map for Alpine towns (Part 1 & 2)

### 3. What future for Alpine towns? Five scenarios illustrate potential developments

Five pictures of the future were created based on all the different projections in the 'Future Map', each of which is clearly distinguishable from the other and tells a cohesive story. These five pictures have been turned into scenarios to show how Alpine towns might change by 2050 and how their future is dependent not just on smart decisions made by public and private decision-makers but also on an active and open-minded civil society. Each scenario takes a specific development direction: the scenario by itself might seem extreme or even unrealistic if read individually – but all the scenarios seen as a whole expand the viewpoint to potential developments and opportunities, as well as threats that Alpine towns might face in the course of implementing them.

#### How the scenarios were developed

The authors created consistent scenarios that are based on the compatibility of the different future projections with one another and their role in the overall system. Key factors most impacting the future are called 'active': they are the starting point for building the scenarios and include key factors such as 'Spatial structures & development' or 'Digitalisation'. Key factors that also have a very active role but which are, in turn, also highly influenced are called 'ambivalent', but similarly determine future developments. The key factor 'Living in Alpine towns' is a good example. Key factors that are strongly influenced by others are called 'passive' and are considered in a targeted way, especially when they pertain to environmental topics such as the key factors 'Urban-rural ecosystems' or 'Energy'. The remaining key factors are less interconnected in the system and are used as 'buffering elements' for finetuning.<sup>4</sup>

#### Five scenarios for a balanced view on future developments

Five scenarios for Alpine towns emerged at the end of the process which, combined, give a balanced view of what the future might look like for Alpine towns. The scenarios take different approaches, focusing on varying degrees of cooperation, different stakeholder roles within the governance process, different approaches to risk but also diverging priorities in future strategies.

The descriptions for each scenario include:

- A synthesis and detailed description of the scenario.
- An illustration of tipping points: where could the scenario go wrong, what dangers are there along the way and which external factors need to be considered?
- A graphic illustration to highlight the five most important key factors that drive the scenario.
- An introduction on finetuning the scenario to specific Alpine town contexts in the boxes 'What about my town?', together with information on the role of stakeholders.
- A story from the future to bring the scenario to life.

<sup>4</sup> For more information on the set-up of the so-called influence matrix and its role in building the scenarios, see the Technical Background, chapter 4.2.

## Scenario 1: Joining forces

### Embedding Alpine towns in urban-rural partnerships



Coordination and partnership approaches are at the heart of this scenario. Alpine towns have realised that future challenges are too complex to be solved individually. They instead need to be coordinated in larger urban-rural partnerships that build on functional approaches reflecting ‘real-life’ rather than spatial boundaries. Pressing issues are jointly identified and solved, governance and spatial planning go hand in hand and major challenges are tackled pro-actively, making use of pilot activities and cooperation that also extend across borders. The urban-rural partnership can thus be described as a ‘progressive and coordinated province’ because its innovation policies are diverse and closely linked to actual challenges and goals.

#### A joint vision as a starting point and a consolidation of planning processes

Public authorities of the urban-rural partnerships have launched a visionary process on the question ‘Where do citizens and stakeholders see their region in 2050?’ to identify major challenges which will influence quality of life and can only be solved together.

- Alpine towns define themselves as ‘anchors’ in these urban-rural partnerships but recognise the need for more flexible governance boundaries.
- Spatial planning on a larger scale does not stop at borders but takes a more functional approach. Also neighbourhood planning and specific construction processes are aligned.
- Coordinated urban-rural approaches, however, require a new understanding of planning processes and responsibilities. Sectoral policies that were previously clearly separated were merged into integrated, cross-sectoral policies. Overlapping administrative competencies (such as locally organised transport planning and regionally organised energy planning that need to be synchronised), differing viewpoints and the multitude of challenges lead to a high level of complexity for the public sector. Support is provided through capacity building, governance tools and coaching of the relevant public bodies.
- The situation becomes especially complex if ‘real-life’ boundaries extend beyond national borders, which is often the case in the Alpine settlement system.

#### Making use of coordinated management and protection efforts

Based on a shared vision, solutions for major challenges are developed and tailored to the needs of Alpine towns and their functional areas.

- New coordination and inter-municipal governance mechanisms have been developed by cities and towns to promote cooperative decision-making, based on a formal set-up at both administrative and political levels. Digital public services can help these new structures to have an efficient governance e.g. by combining environmental and mobility data.
- The development of joint spatial planning strategies, aiming at an optimised land use and planning in the broader functional area, adds significant value to the urban-rural partnership. A common vision of net-zero land usage has been developed to guide the joint planning of settlement and economic areas. This necessitates a new land taxation and revenue sharing structure.
- Further environmental challenges are frequently solved by aligning the protection of ecosystems and biodiversity to the relevant ecological boundaries. These approaches are aided by collecting and using big data and predictive analytics. For instance, water management operates beyond the urban scale and takes account of potential water conflicts.
- Strong urban-rural partnerships now have the power to influence planning processes beyond regional level: they can express their views on large-scale infrastructure investments that directly or indirectly affect their region (e.g. transport or energy networks) and have a say in setting up funding programmes.

#### Visibility through pilot and demonstration activities

Alpine towns and their larger functional areas with their specific characteristics have many pressing concerns, which present opportunities for pilot and demonstration actions. These have been launched on a large-scale, making use of specific funding opportunities. European funds have been considerably restructured to place greater emphasis on implementation efforts.

- Alpine towns agreed to work towards an ambitious mobility transformation and adjusted their overall mobility planning to the ‘mobility as a service’ approach. Mobility systems in large urban-rural settings are also interconnected with neighbouring regions, turning Alpine towns into mobility hubs to better connect the entire Alpine region. These large-scale approaches achieve economies of scale by, for instance, implementing sharing solutions and new logistics concepts.
- The growing challenges in the healthcare sector are similarly addressed in a collaborative manner. New infrastructures and services for an ageing population have been developed – building on both urban and rural experiences, such as setting up regional health centres, community nurse support or digital health technologies.



- Model-region approaches also exploit the advantages of digitalisation and connectivity by developing tailored digital services or improving planning processes and social interactions and so forth. Data availability plays a crucial role in planning, implementation and monitoring of multifunctional approaches.

#### Developing the ‘Progressive and coordinated Province’ as the unique selling point (USP)

- The joint vision and the pilot and demonstration activities mentioned above are complemented by innovation strategies and actions. To develop and maintain a strong economic position, urban-rural partnerships coordinate their innovation policies. They build on a place-based approach which takes account of existing economic strengths, hidden champions and specific local skills and know-how. This includes forming innovation clusters, such as on the topic of ‘Smart digital Alps’.
- Innovation strategies are embedded in a joint USP that highlights the added value and benefits of the specific urban-rural partnership.
- Economic stakeholders are closely involved in the governance structures of the urban-rural partnerships and are empowered to develop new economic models and cooperation structures. For example, cooperative models are being created to support local/regional value chains and to boost urban manufacturing.

#### ‘Nudging’ as an opportunity to carefully steer lifestyles and culture

Consumer behaviour is still ‘in-between’: citizens are beginning to adopt new and more responsible lifestyles, yet many unsustainable consumption patterns can still be seen. The visioning approach which guides overall development is mainly initiated by the public sector.

- Capacity building and empowerment have been carefully supported through planning mechanisms. The goal is to steer citizens and economic stakeholders towards more sustainable patterns using a well-balanced mix of incentives, information and participation opportunities. Digitalised local networks support this process. Urban planners and decision-makers are cooperating with universities and research institutions to develop an effective ‘nudging’ strategy that incorporates the latest findings in lifestyle research and sociology.
- This progressive approach includes an open mindset of urban/rural partnership strategies towards new lifestyles, living concepts and culture, while still remaining attentive to local identity.
- Urban culture has developed into a broad variety that merges old and new – the traditional and modern.

#### What could go wrong in this scenario?

- Winners vs. losers: for this scenario, stable cooperation mechanisms that build on trust and mutual understanding are critical: if one partner uses the urban-rural set-up on its own behalf, such as by influencing decisions that determine financial flows or economic prosperity, the partnership could become ineffective – the costs of cooperation would then outweigh its potential benefits.
- Risk of path dependencies: the larger the area, the greater the risk of a path dependency occurring. If a whole urban-rural area takes an unwise decision, e.g. in the service, mobility or tourism sector, large investments could become unprofitable. This means that strategic decisions need to be developed in a balanced way, taking account of the potential risks and external factors.
- Social tensions: if cooperation does not lead to social cohesion in the region but instead increases social tensions, this could motivate people and businesses to move away, resulting in a tipping point in the overall appeal of Alpine towns.
- Inability to take well-informed decisions and to act on short notice: the cooperation of many stakeholders from different sectors and entities requires an efficient governance structure in order to take well-informed decisions. If the governance structures are neglected, decisions will not benefit the overall urban-rural partnership and urgent problems will not be solved effectively.

The following illustration highlights five key elements of this 'Joining forces' scenario. The complete Future map with all relevant future projections that build this scenario can be found in the Thematic Scenario Background (Part II).

## Scenario 1: Joining Forces

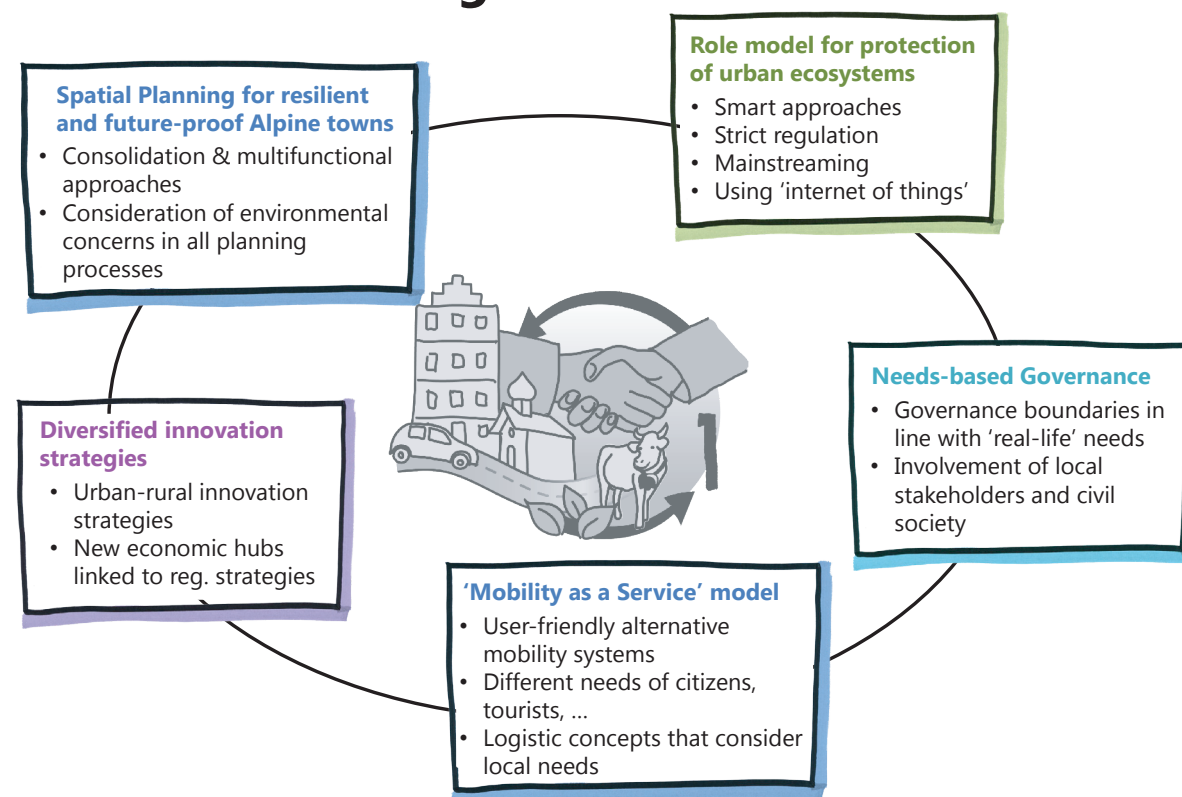


Figure 5: Scenario 1 – Joining forces

## HOW ABOUT MY TOWN?

### Finetuning the 'Joining forces' scenario:

The 'Joining forces' scenario will encourage towns and municipalities to work outside of their national political and institutional affiliations and create place-based added value. The dynamics of this scenario will very much depend on the **size of Alpine towns and their position in the surrounding settlement system**:

- **Larger towns** will have a stronger 'gravitational force' and can play a bigger role in initiating urban-rural or cross-border partnerships and setting their agendas. They can become transition engines, not only for their urban perimeter but also for initiating new dynamics in the broader region.
- **Smaller towns or towns with significant suburban or rural surroundings** will need to take a different approach, focusing more on cooperation mechanisms and on establishing new governance structures (e.g. experiences with municipality mergers or the set-up of regional development associations can provide insights).
- **Alpine towns that are part of larger suburban settlement systems** need to closely analyse their 'real-life' boundaries to develop targeted partnership approaches. Improved collecting and accessibility of data (e.g. on commuting patterns, use of services of general interest, use of leisure and cultural activities) can help identify useful boundaries.

This scenario is also influenced by the national context and the different territorial governance structures, especially when 'real-life' boundaries and hence functional regions stretch beyond borders.

## Role of stakeholders and players in this scenario

The public sector is the driving force behind the partnership approach in this scenario. Mayors and other crucial decision-makers recognise that major difficulties can only be overcome by working together with the surrounding area and so they initiate a stronger governance structure for the larger functional area.

This requires organising new planning approaches, which may include the aligning of competences and responsibilities among the various levels (e.g. organising mobility plans or innovation policies at regional rather than local level).

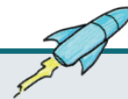
Economic stakeholders are closely involved in setting up the new planning approaches as public bodies require their local know-how and expertise in developing targeted solutions.

## Story from the future:

*The Mayor from ‚Monalps‘ talks about challenges in organising new planning approaches*

The Covid-19 pandemic in the early 2020s underscored the importance of working more closely with our neighbouring towns. In various sectors, we have worked closely with ‚Ville de la Vallée‘ and ‚Ville de la montagne‘ since early 2020. The pandemic had a significant impact particularly on the mobility sector: many people changed their commuting patterns, tourism demand changed with greater emphasis on weekend and short-term trips, and the pandemic can also be seen as the starting point of the ‚bike-boom‘.

Since mobility doesn't stop at boundaries, we have begun a visioning process for a future mobility system. Many conflicts on competences and funding surfaced during this process, which we struggled to resolve. Thanks to the European project ‚MWB2050 - Mobility without Boundaries‘ we received additional assistance from a professional mediator and coach who helped us to disentangle the interests from people and responsibilities, to work towards compromises instead of entrenched positions and to identify elements that can serve as entry points for this new planning culture. It was a difficult process with many conflicts, but we are proud of what we have achieved.



## Scenario 2: High-risk/high-reward

Potential for economic wellbeing  
but low resilience to tipping points



In this scenario, Alpine towns have taken a high-risk strategic approach that fully focuses on further developing economic strengths in order to maximise local wellbeing. The strategy was launched after demographic and economic developments became unfavourable in the pandemic years of the 2020s. Alpine towns have chosen a future-proofing approach that is fully focused on ‘amenity migration’, tourism and attracting wealthy people. This is an economically successful approach in the short term. However, if it is hampered by external forces, it has the potential to produce social tensions by creating imbalances between winners and losers.

### Amenity migration and tourism as stabilisers

To increase attractiveness for amenity migration and tourism, all services and offers in Alpine towns are tailored to meet the needs of target groups such as tourists, athletes, the elderly and wealthy working nomads:

- The positive effects of tourism on local value creation drive urban development. In the most attractive areas of the towns, all planning processes have been adjusted to provide high-quality living conditions in terms of building standards and aesthetics, as well as the quality of the surrounding ecosystems. Additional land use has prioritised hotels or high-end apartment buildings which must meet prosumer building standards and incorporate green infrastructure.
- With the influx of many amenity migrants who live in Alpine towns and work from home, some conditions have improved for the locals: a high-quality digital infrastructure has been established and co-working spaces have evolved. However, this benefits only some professions and certain groups of residents.
- While the historic and well-situated parts of towns are oriented to the needs of the high-profile target groups, other areas have been neglected: living conditions for lower-income inhabitants have not been improved and urban sprawl is intensifying. This in turn creates a challenge for soil protection and leads to trade-offs with the agricultural sector.



## Ecological ambitions remain focused on local projects

Highly visible environmental projects are developed in a targeted approach to support the local brand.

- Greening of towns, particularly public spaces, is important for improving quality of life. To avoid high levels of vulnerability to climate impacts, targeted climate-proofing strategies were employed (e.g. implementation of measures to reduce heat-island effect in urban spaces).
- While renewable energy projects contribute significantly to the amount of local power required, they are insufficient to meet the ambitious objectives of the energy transition because they remain focused on local considerations (e.g. locally produced renewable energy is used in hotels, but energy is still bought on the general energy market for all other purposes). In this scenario, Alpine towns continue to rely heavily on fossil energy sources.
- Many public and private mobility solutions have emerged to strike a good balance between attracting tourists (who drive their own cars) and reducing private car use in towns. However, sustainable mobility is exclusively designed for local requirements in the shape of isolated but highly visible schemes such as local car sharing or urban cable cars. They lack overall, cross-city and cross-border concepts that address the needs of a broader user group in the Alpine context. New means of transportation such as using drones within the health and logistics sector have emerged and areas for autonomous driving are increasing.
- Regarding lifestyles, there are positive spill-over effects: the lifestyles of the 'new residents' are more sustainable due to their greater consumption awareness and higher willingness to pay. The demand of these residents leads to an adjustment in local supply. More people are adopting these more sustainable and climate-responsible lifestyles.

## Economic concentration: 'Cliché-based economy', 'Zoomtowns' and global platforms

Both the economy and digitalisation strategies have been fully optimised to serve tourists and stakeholders within the tourism sector:

- The local economy has developed into a 'Cliché-based economy' focusing solely on the needs of tourists, seasonal citizens, 'nomad workers' etc. This has led to positive economic development and significant business opportunities but has also resulted in a concentration of power in the hands of 'big players' that dominate the business scene.
- Amenity migration and multilocal lifestyles have promoted new working conditions – which are, however, mostly relevant for the new citizens: Alpine towns have become 'Zoomtowns' (people working from home and getting in touch with their co-workers and clients via virtual web meetings, using new services such as 'Zoom')

or serve as co-working clusters. In turn, the digital mindset has shifted towards a strong virtualisation and a trend towards assimilating global patterns, putting the socio-economic cohesion of some Alpine towns in jeopardy.

- Local culture is also part of the 'Cliché-based economy': cultural offers focus on a romanticised Alpine culture that meet the needs of one target group, but neglect other interests.
- The wealth generated through tourism and amenity migration has made a lot of digitalisation projects possible, such as in the field of public services, administration and smart city infrastructure. Towns are able to easily access expensive corporate solutions and thus realise new projects quickly. But the chance of developing customised solutions has been missed in many sectors. This creates a reliance on digital services developed globally, even running the risk of a digital divide. Many towns are lagging in the digitalisation race because they cannot afford these solutions and services.

## What could go wrong in this scenario?

In this scenario, Alpine towns face a high vulnerability to tipping points. The risk of social segregation is the most obvious and shall be examined more in detail:

- For citizens from lower but also medium income groups that do not belong to the target groups, the housing market has become challenging – attractive buildings and houses in favourable areas have all turned into private apartments, hotels, co-housing/co-working spaces etc. The 'Airbnb' effect is progressively leading to a crowding-out of existing residents and local businesses that are not linked to target-group specific services.
- Governance structures have also been fully optimised to meet the needs of the specific target group and to bring all relevant stakeholders on board with this specific vision. Citizen participation is only implemented in a segregated way – focusing on the empowerment and involvement of wealthier citizens.
- Not all newcomers are assimilated into the local culture. The economy and the administration are focusing on certain tourism and economic needs. This reduces the range of shopping, leisure and cultural options available to other citizens, lowering their quality of life.
- A segregation between locals, tourists, working nomads (and other groups as well), in combination with a high degree of over-tourism, can lead to social tensions that reduce attractiveness.

**Other risks such as climate change, future pandemics or other so-called 'Black Swan' events** with low probability of occurrence but high impact, completely devastate the specialised economic and settlement structures. There is very little capacity to absorb any external shocks or deal with unwanted developments linked to the high-risk strategy.

- Tipping points relating to imbalanced spatial development: urban sprawl and developments outside the highly appealing parts planned for the target group receive little attention. This imbalanced development can lead to environmental and social tipping points.
- The risk of an overly narrow economic specialisation: concentrating on developing a single economic sector that may be lost as a result of climate change (e.g. with an increase in natural hazards or a disruption of critical infrastructures). Also, with the economic concentration in the hands of a few large players, new stakeholders and small start-ups are finding it difficult to fit into this narrow focus – resulting in a lack of overall economic resiliency.
- Lagging in environmental protection efforts: European and national governance frameworks may even exacerbate the situation if tighter regulations on many environmental and investment topics limit the flexibility available to Alpine towns struggling to meet higher-level targets.
- Tipping points related to environmental resources: the amenity orientation runs the risk of over-exploiting environmental resources. Where these reach tipping points, the attractiveness and quality of life are negatively impacted and people decide to relocate.

The following illustration highlights five key elements of this 'High-risk/high-reward' scenario. The complete Future Map with all future projections can be found in the Thematic Scenario Background (Part II).

## Scenario 2: High-risk/high-reward

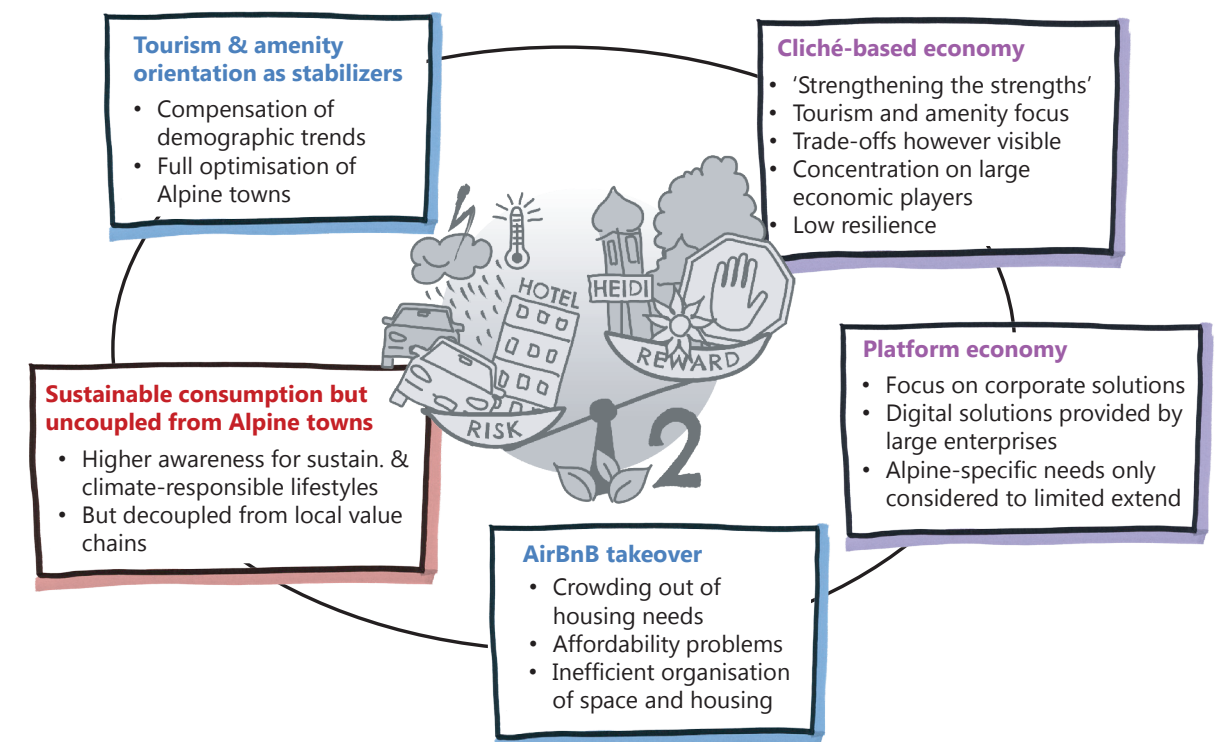


Figure 6: Scenario 2 – High-risk/high-reward

## HOW ABOUT MY TOWN?



### Finetuning the 'High risk/high-reward' scenario:

High-risk strategies can only be sustainable if opportunities and threats are fully considered in the strategic planning process. For Alpine towns, it seems important to consider specific threats linked to climate change but also to 'Black Swans'. The specific risk of tipping points, however, depends on the type and size of the Alpine town:

- **Monofunctional towns** and **smaller municipalities** with a high reliance on one sector (e.g. tourism hotspot, one major employer) are particularly vulnerable to tipping points and at risk of lock-in effects. They have limited capacity to deal with external threats.
- **Medium-sized towns** could gain a stabilising or boosting effect by 'strengthening their strengths'. This could be their launching pad to a more sustainable future: after they have achieved a point of stability, however, they need to diversify and develop broader strategies that are more resilient.
- **Avoid being on the 'flipside' of this strategy:** beware of major shifts in the regional landscape, as not all Alpine towns can win in this High-risk/high-reward strategy. Following this path might trigger direct competition with the immediate surroundings. Negative effects for the rest of the region could, in the long term, lead to 'retaliation' by withholding cooperation and general fairness. To avoid such unwanted distributional effects, strategies should be co-developed with respect to a wider functional area and with the backing of strong regional networks.

### Role of stakeholders and players in this scenario

The private sector plays an important role in this scenario: economic strengths are further developed, based on an analysis of important economic players and their development potential. New business solutions are supported in a targeted way to fill gaps in the amenity-orientation portfolio. This can, however, lead to winners and losers and, due to the strong focus, to a concentration of economic power in the hands of few major players.

The public sector plays an important role as enabler in this scenario: it supports business development and focuses strongly on innovation policy and related measures. However, social aspects could end up being neglected. Segregation effects can only be avoided through actively involving citizens and broader civil society.



### Story from the future:

**„Old Europe at its best: If you want to experience a trip to the good old times, don't miss this!“**

*Kiano Dapar, solar power entrepreneur in Sub-Saharan Africa wants to escape the exceptional summer heat that hit his zero-carbon city in 2052 and booked an unusual trip to Hintertal in the Alps. Read what he posted in his Metaverse profile:*

**Day 1:** Hi guys, I think I ruined my personal carbon balance for the next ten years. Even by taking the solar ferry from Africa to Europe, this trip goes way beyond my usual carbon performance. But arriving here, it seems worth it: I have never breathed such wonderful air and you cannot believe the smells and sounds of the mountains! And our Airbnb flat is beautiful, it even has a wood-burning stove to heat the apartment – just had to ask my host how to use it!

**Day 2:** Wow, European culture and clichés at its best: today we visited a real (not vegan!) cheese producer and had a wonderful buffet with Alpine food – seems a bit outdated for our carbon-responsible diet but during the holidays I decided to treat myself.

**Day 3:** Talking about treats: even for me this cost a fortune, but today I booked a slot for the high-speed lane on the Brenner motorway: you can even book an old-fashioned Diesel Porsche with it.

**Day 4:** Hangover from the road trip: we tried the Alpine spa which is heated by the local solar plant and re-uses glacier water. Met people from around the world, but locals don't seem to use this place.

**Day 5:** Hiking day! My first time in real walking boots and the day started out fine. But when we met some locals at the edge of their farm, they yelled at us that we should not trample all over the protected area. Started talking to them and realised that this cliché-economy shown to us tourists is just one side of the coin...



## Scenario 3: Eco-model town

### Serious climate action and green economy



Alpine towns decide on a ‘forward escape’ strategy. Climate change and other environmental pressures have become more and more visible in the Alpine region, which is particularly vulnerable. Towns have developed a strong ambition to be front-runners in climate action and to strengthen the green economy approach. By drawing together all Alpine-specific skills and expertise (such as specific construction techniques, climate-adapted farming etc.) they improve their own resilience and at the same time turn economic threats of climate change into opportunities. In this front-runner approach, towns also recognise that serious climate action goes beyond technological innovations and requires a new approach to lifestyles and consumption patterns as well.

#### Model approaches at cross-sectoral level

Model approaches have been targeted on actions beyond the sectoral scope. Many measures to improve energy efficiency and to implement technological solutions lie at the cross-sectoral ‘friction points’ and can only be achieved with new cooperation arrangements.

- Consequently, sector coupling is the main rationale of successful urban administration and governance and thus improvement of the ecosystem: mobility, energy, water and waste management have been developed using an integrated and place-based approach. This is possible thanks to new administrative structures (e.g. a climate taskforce or a smart city agency), the constant flow of information between different authorities and the possibility to share and analyse (big) data through customised digital solutions.
- A serious approach to energy transformation has made use of integrated energy solutions and has fully exploited all local energy supplies (developing local approaches to district heating, bioenergy usage etc.) and possibilities for reducing demand. Alpine towns have developed smart ways of dealing with conflicts that arise from the large-scale development of renewable energy systems, especially as regards land use and nature trade-offs that are critical in the Alpine setting (e.g. smart set-up of PV panels making use of noise barriers instead of ground-based panels).
- Eco-model towns have recognised the synergies between climate action and protection of ecosystems and biodiversity: they have designed approaches to limit land consumption and to strengthen green and blue infrastructure as well as nature-based solutions with strong social and environmental safeguards, which at the same time benefit biodiversity conservation, climate mitigation and adaptation measures and

address further challenges, like sustainable development. These approaches have already been transferred to and adapted by many other Alpine towns since there is constant dialogue about usability and replicability.

#### Bold administrative and governance measures

A courageous and forward-looking public administration is the key to successfully develop the model-region approach. The potentials of the European and national frameworks are fully exploited or even pushed beyond their limits in the eco-model towns.

- Spatial planning practices as well as neighbourhood planning have been fully aligned to resilient and future-proof objectives: integration of settlement and transport planning, land-saving and sustainable-mobility friendly spatial patterns, a focus on green buildings and ecological renovations have a high priority. The construction sector uses local resources and cradle-to-cradle approaches that match the characteristics of the Alpine building stock. The new standard of Alpine architecture increases the lifespan of buildings, supports traditional construction techniques and the use of local materials, and combines them with modern designs that fit in well with the remaining building heritage.
- Eco-model towns have implemented an ambitious incentive framework to support decarbonisation and the transition towards a green and circular economy. They apply ambitious standards for construction (e.g. a climate-positive building standard), financial incentives to boost a non-plastic strategy (e.g. charges for all disposable packaging) or local subsidies for start-ups that close gaps in the local value chain.
- This courageous approach also relates to mutual learning and knowledge exchange which is guaranteed by the establishment of an accompanying research project and a knowledge transfer agency that supports the exchange not only between eco-model towns but also with other towns.

#### Targeted use of digital solutions to support the model approach

Digital opportunities are used in a targeted way to support the model-region approach, to share experiences and to ensure that successful approaches developed in Alpine eco-model towns are rolled out on a more extensive scale. Alpine towns have taken an integrated approach to digitalisation and have developed customised services that incorporate local needs and expertise - with a healthy scepticism that can be explained by sustainable and aware lifestyles. Above all, Alpine towns have taken a balanced approach to digital solutions, always keeping in mind their potentially negative impacts on energy demand and their limited lifespan.

- Mobility, energy systems, water management and the building sector made use of smart solutions when it came to developing on-demand mobility services, sector-coupling approaches or water management that is adjusted dynamically to water needs and supply (making use of predictive analytics). These solutions are Alpine-specific as they include specific features that take account of Alpine topography, settlement system, tourism demand etc.

- Open data platforms including private and public data have been set up/improved in many towns. They are all interconnected and collect and evaluate data from various sources. By this means, the development of integrated smart and ecological town solutions has been boosted and has thus supported the sector-coupling approach. New ways of monitoring specific measures improved the overall level of efficiency.
- To be able to implement the above model region approach, a strong coordination with the broader functional area has been established, applying a needs-based governance model.
- Digital solutions are, however, applied in a balanced way. Where possible, low-tech solutions and social innovation are preferred over digital approaches because of their higher efficiency in reducing carbon footprints. Citizens, companies and the government work together to reduce sectoral or regional demands with a more frugal exploitation of resources.

### Climate-aware lifestyles have become mainstream

As a driving force for this scenario, consumer trends have been moving towards more climate-aware and localised lifestyles with a recognition of the hidden values in a sustainable economy, especially regarding its benefits in the sensitive Alpine environment. Alpine-specific features of this lifestyle relate to local value chains, as well as to a new mindset with respect to Alpine leisure activities. Empowerment and co-creation have led to creative solutions, including different skills and know-how of civil society (inter-generational and intercultural learning).

- The 'Fridays-for-future' generation shapes decision-making processes and political discussions. Also, new citizens who consciously choose to live in a climate-neutral town can be seen as driving force.
- Citizen participation has been the key: such a strong transition has only been possible because all citizens have been empowered to become active partners in the planning processes and major challenges are discussed in co-creative processes. The 'virtual marketplace' has been a helpful tool for supporting this new urban governance.
- Citizens have also been playing a stronger role in implementing and financing specific activities. They develop social innovation approaches and support new business ideas through local crowdfunding opportunities. Many local projects have been realised in the fields of energy, mobility, urban gardening or housing with participation and financial ownership by citizens.

### Business opportunities in the transformation process

Innovation strategies, the development of a green economy and a strong awareness of local value chains have provided many new business opportunities.

- Start-ups with a focus on a circular economy approach or developing new energy storage or water management concepts are target groups of this innovation policy.
- Alpine towns aim at developing strong business clusters in this segment – also reaching out to new economic models and stakeholders.
- The model region approach has been also adapted to the tourism sector and provided a new USP for Alpine towns and their tourism destinations – attracting climate-responsible tourism demand from the European market but also from around the world.
- In the private sector there are both winners and losers: companies and businesses that are able to develop climate-neutral business models or which are closely aligned to the circular economy approach stay competitive or can even develop into new 'hidden champions', whereas others are unable to keep up with the transition process.

### What could go wrong in this scenario?

- Risks of over-digitalisation, tech aversion and cyber attacks: the eco-model approach makes use of smart digital solutions and big data. Public administrations but also citizens and economic stakeholders are supposed to make use of new digital tools (e.g. by using administrative services), booking their mobility trips via mobile apps etc. This could lead to a growing aversion to the digital transformation and the ever-increasing role of information and communication technologies. If more and more stakeholders opt out of this model, this could put the whole model-town approach at risk. Similarly, cyber attacks and skyrocketing energy demand could become threats.
- Social tipping points: specific social groups could be left out of the transformation process, or the economic transition process could be managed in the wrong way. If the eco-model approach leads to too many economic losers, this could result in widespread social unrest or conflicts.
- Economic risks: the approach depends on a good management of the economic transition process, with support for existing economic sectors to develop new business opportunities. Especially if large manufacturing companies are situated in an Alpine town and provide a high number of jobs, losing these companies could hit the financial stability of the entire town.

The following illustration highlights five key elements of this 'Eco-model town' scenario. The full Future Map with all future projections can be found in the Thematic Scenario Background (Part II).

## Scenario 3: Eco-model town

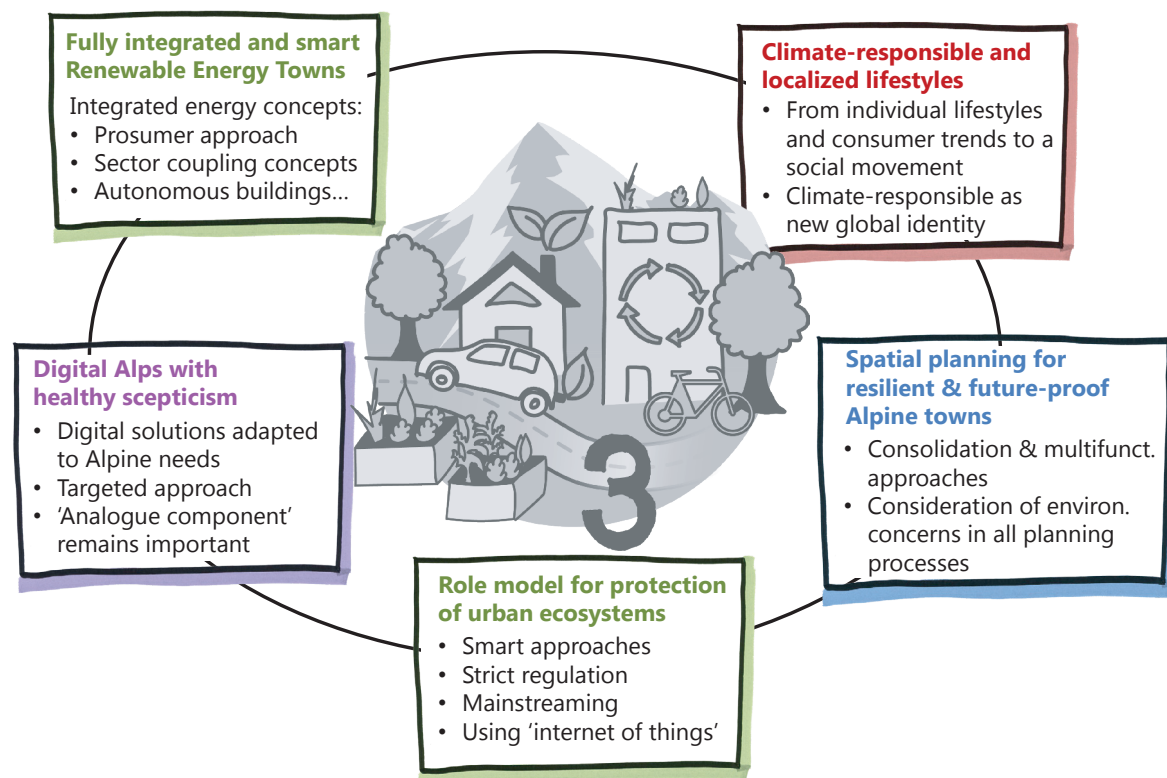


Figure 7: Scenario 3 – Eco-model town

## HOW ABOUT MY TOWN?

### Finetuning the 'Eco-model town' scenario:

Implementing the eco-model town approach depends on the size of towns but also their economic and social structures. Different starting points need to be considered when specifying this scenario:

- **Alpine towns with a strong economic profile** will face specific challenges in developing this eco-model town approach.
- **Towns with a strong tourism focus** will face the challenge of delimitation: which tourism services can be included in the eco-model approach, and which lie outside the action range? Also, large seasonal changes in population and capacity use will lead to specific challenges.
- **Towns with a strong production sector** have to look at a broader range of measures that go beyond the scope of private households and small-scale businesses. Larger manufacturing companies require specific consideration: rather than leaving them outside of the model town approach, they should be seen as opportunities to develop smart solutions (e.g. making use of industrial heat).
- **Towns with a close interface to agricultural-oriented regions:** In this case, Alpine towns will have specific opportunities to develop local value chains and reach a high degree of energy autonomy with the help of bioenergy.

Also, the size of town plays a role in finetuning the eco-model approach:

- For **smaller towns**, especially for those struggling with their current situation, the eco-model approach might be a rewarding prospect. It could lead to more resilient business models, a higher attractiveness for living and a future-proof USP. However, they might need a considerable financial input in the beginning, which could be found in new funding instruments.
- Eco-model **metropolises** could create the highest leverage effects: The first concern should be about their role in regional, low-emission mobility and energy systems. The second issue is about urban planning measures and improvement of the building stock. This means building strong alliances in cross-border and urban-rural contexts as well an efficient organisation of sectoral policies.
- **Towns in higher altitudes and more remote areas** will face specific challenges resulting from climate change: If your town is located in a fragile ecosystem, dependent on natural resources, this picture might be interesting for you as ecological topics will determine your development possibilities.



## Role of stakeholders and players in this scenario

The private sector plays a crucial role in this model approach scenario. The public sector alone cannot implement the vast number of actions that are required for such a large-scale transformation process. Skills, expertise and also commitment to protect the sensitive Alpine environment are needed to make this happen.

This leads to a broad range of new business opportunities, also going beyond traditional business cases: public-private-partnerships, local crowdfunding and social innovation concepts will play a stronger role (e.g. to set up new logistic concepts, urban farming solutions...). To avoid too many economic stakeholders not keeping up with this transformation process, support mechanisms should be put in place – such as in a caretaker approach.

## Story from the future:

Excerpt from the new ‚Lonely Planet Alps 2050‘  
Three things not to miss in Eco-Town!

### 1. Climate-positive holidays

In Eco-Town, you have the unique opportunity for a fully climate-positive travel experience. The hotel Edelweiss offers a holiday package, including door-to-door travel agreements by public transport and locally sourced organic products for breakfast. The hotel itself has won the latest Constructive Alps award, so if you are there on a Friday, don't miss the building visit with the architect.

### 2. Biodiversity day

In Eco-Town, each first Saturday of the month is Biodiversity Day. Residents and tourists alike are welcome to help the town environment service. Get to the town hall by 10am and 10 minutes later, you might find yourself visiting birdhouses, maintaining hedges or building a dry-stone wall: let yourself be surprised!

### 3. Open Air Museum

Finally, the new Open Air Museum of Eco-Town which opened a few months ago, displays a well-preserved residential district of the 1990's: single-family houses, each with several parking spaces, cedar hedges and bare lawns, etc... There is even disposable plastic tableware on some garden tables. You won't be disappointed!

## Scenario 4: Citizen-based approach

An inclusive approach for building bridges



This scenario has a strong social focus with an inclusive approach that leads to new lifestyles and a higher awareness of human-environment interactions. In a bottom-up manner, it leads to spill-over effects towards environmental protection. The scenario starts from the assumption that Alpine towns will experience a strong population shift, with a tendency towards population growth and a much higher diversity. But instead of focusing on mono-dimensional developments and rejecting new influences, this scenario assumes a welcoming approach – Alpine towns use this higher diversity as an opportunity, they develop a new image and local identity based on a strong citizen involvement.

### Population growth: How to turn challenges into an opportunity

Since the 2020s, Alpine towns have seen a high population increase: on the one hand, the moderate climate and the leisure orientation is attractive for many elderly people, who chose an Alpine town as a retirement location. On the other hand, global migration flows have led to more refugees reaching the Alps. Also, high quality of life and good job opportunities have made Alpine towns attractive for young families and the overall favourable situation has led to higher birth rates than in other European regions.

- Alpine towns have a good reputation and functionality. Yet, compared to other towns and cities, they are smaller and more flexible in many ways. Local networks and connections play an important role. Alpine towns have a long history of significant movements of people and have always collected experiences and adapted to the specific needs of different cultures and new groups. In particular, the tourism-oriented cities and towns are constantly adjusting their services to new cultures (e.g. tourists from the Arabic or Asian markets), and towns with a strong focus on agriculture or production depend very much on workers that come from beyond the Alpine region. Diversity can thus be regarded as a long-standing and distinguishing Alpine feature which can be strengthened into a pro-active and welcoming approach.
- New citizens (amenity migrants, urban nomads etc.) purposely select Alpine towns as their new home and, for that reason, can be more easily motivated to contribute to their new living place – they are ready to build up something new if they find open doors and are integrated into the local community.

- Local networks and new community approaches have also been used for setting up an assistance structure for global refugees, creating win-win solutions for both new residents with a migration background and local residents (e.g. by merging traditional and foreign skills, by filling gaps in the labour market...).

### Supporting the welcoming approaches through targeted policy making

Fostering the citizen-based and welcoming approach, however, depends on a dedicated public framework, based on the objectives of supporting pluralism and enabling social integration. A municipal 'social mediator' has been mandated in many Alpine towns to support this process.

- For this purpose, Alpine towns have set up dialogue opportunities and provided public space to engage newcomers with long-term residents. The newcomers are also actively involved in shaping participative planning processes.
- In addition, education and capacity building play an important role in this scenario: the benefits of greater diversity are highlighted through local good practices.
- To support this diversity approach, neighbourhood planning has been adjusted accordingly and many new approaches have been tested. Regulations on social housing have been modified. A new housing mix has been explored – with accommodation for refugees and new residents integrated into existing neighbourhood areas. There are also stricter conditions for second homes: if they are used less than 50% of the time, extra taxes have to be paid. Alternatively, they can be used for social purposes.
- Towns are making use of experimental approaches that support quick transition processes for neighbourhood developments, such as the creation of spaces for neighbourhood projects or non-profit associations.

### New living formats as the dominant approach

Alpine towns have recognised that coping with a growing population and their housing needs requires new living formats. New housing and living formats have been developed in a targeted way, reflecting the diversity approach but also the net-zero vision.

- New living becomes the new normal: more and more people live in new housing concepts (e.g. multigeneration houses or co-housing concepts, multifunctional buildings with flexible layouts that adapt to the different stages of life, mixed used areas and buildings) and profit from them: social isolation has been reduced and community ties have strengthened.
- The positive dynamics emanating from these new housing forms have also affected other developments: social innovation concepts have increased, new community-building approaches (e.g. urban gardening) have emerged and existing associations and clubs profit from new members. This not only improves the quality of local products but also attracts tourists looking for sustainable travelling experiences.

- Fortunately, the housing market is rather favourable in this scenario (e.g. due to public investments, where there are transition processes in the business sector resulting in vacancies in production buildings or former logistic centres, or due to changes in the tourism industry) and new forms of living can be tested in different formats and housing conditions.

### Economic development with a strong role of bottom-up approaches

With changing lifestyles and a greater awareness of environmental and social concerns, economic patterns in Alpine towns have changed considerably and also reflect a higher diversity.

- Larger companies provide (mandatory) job try-outs for newcomers to help them assess their skills and find an appropriate work opportunity, while sectors that face labour shortages (like the care or agricultural sector) provide the opportunity for job rotation or traineeships to integrate newcomers in a way suitable to them.
- Economic structures have become more diverse: small businesses and start-ups have become more important, building on bottom-up approaches and supporting local value chains. New 'hidden champions' have emerged which are, in many cases, directly linked to the diversity approach (e.g. new start-ups in the textile sector that merge Alpine traditions with skills from abroad).
- The economy in Alpine towns has acquired a new face: social innovation concepts and non-commercial offers play an important role, e.g. offering work solutions for refugees or volunteer work for elderly citizens that have chosen to live in Alpine towns due to their high quality of life.
- Also, co-workation plays an important role in this scenario: tourists, 'working nomads' and people on sabbaticals contribute to local projects and support both environmental and social development.

### Spill-over effects on environmental protection and cultural development

The new forms of living and new lifestyles also bring with them a higher awareness of human-environment interactions and especially of ecosystems and biodiversity. The citizen-based approach has led to:

- Upcycling, urban manufacturing, urban farming and gardening: they all have synergies between the new social concept of Alpine towns based on new lifestyles and the preservation of ecosystems and biodiversity.
- The sharing economy plays a strong role in this scenario: not only in the mobility sector but also with respect to housing, production material and workspaces. Co-working spaces offer an efficient way to provide office space for people that work remotely or that work in the Alps on project-based contracts.

- Urban culture and heritage is developed in line with the higher diversity – blending old and new, traditional and foreign skills. This new Alpine culture has become a point of attraction, and alternative tourism offers have been developed on its basis.

### Digitalisation and open government

All these developments have been achieved through digitalisation strategies of Alpine towns that support a fully inclusive open government approach.

- All citizens are integrated in management and planning as active partners, as part of a strong empowerment approach. They are asked to co-create new strategies and to actively take part in local decision-making.
- In Alpine towns, digital solutions also support the sharing economy, the local job market as well as social innovation approaches. Open innovation platforms provide a virtual marketplace for all residents to create ideas and to exchange products and services.

### What could go wrong in this scenario?

This scenario illustrates an idealistic picture of a pluralistic Alpine town that fully exploits all the synergies and benefits deriving from a higher diversity and which puts all political forces into developing this approach. Several tipping points could however be reached along the way:

- Conflicts arising from xenophobia or misinformation: long-term residents can be overwhelmed by the newcomers and their different needs and ideas. They are interested in preserving their status-quo and fear negative social and economic consequences, especially if the economy is struggling. Indeed, the welcoming approach can only function in a set-up where dialogue and participation are used, building on the experiences of mediators and conflict resolution mechanisms.
- Social segregation: If spatial planning and neighbourhood planning is not fully adjusted to the welcoming approach, tipping points with respect to social segregation could arise. For instance, if refugees live in remote districts, it might be difficult to reach out to them and integrate them in the local labour market and society. Similarly, amenity migrants of the silver generation could end up in 'parallel universes' that are not connected to other parts of Alpine towns.
- Also, future health or environmental crises could hamper the diversity approach: if people have to isolate themselves to prevent the spread of diseases or if heat waves or recurrent storms are a threat, they are not able to get involved in dialogue and exchange and the whole process gets stuck.

The following illustration highlights five key elements of this 'Citizen-based approach' scenario. The full 'Future Map' with all future projections can be found in the Thematic Background (Part II).

## Scenario 4: Citizen-based approach

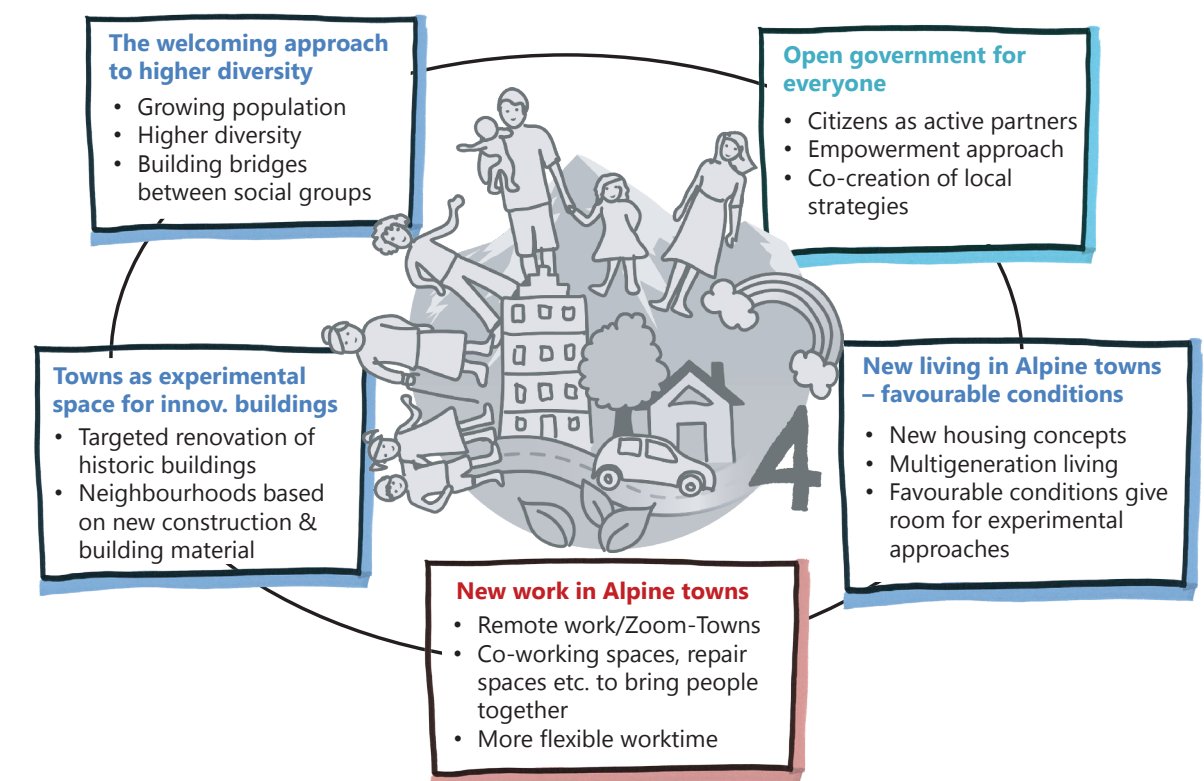


Figure 8: Scenario 4 – Citizen-based approach



## HOW ABOUT MY TOWN?



### Finetuning the 'Citizen-based approach' scenario:

Changing population patterns and a new approach to deal with a greater diversity cannot be developed with a 'one-solution-fits-all' approach. Towns in different geographical settings will face different challenges:

- **Towns on an economic or social downward path** might translate this picture into a development vision. Negative transition effects like emigration, emptying spaces and decreasing prices open the way to more easily accommodate new lifestyles and new working patterns. In addition, developing or supporting co-creation and sharing initiatives will multiply the efforts and enhance identification with the local community and culture.
- **Smaller towns with a more 'stand-alone' position** can develop targeted solutions that fully fit their needs and that are based on existing social networks. Co-creation strategies and experimental approaches can be tailored in an easier way.
- **Towns that are part of larger settlement areas** and that are closely inter-linked with commuter flows and larger economic networks will face greater difficulties: social ties are already less pronounced, even beforehand; lifestyles and consumption patterns are more 'globalised' and interest in experimental approaches will probably be rather low. For such towns, it might be interesting to kick-start a higher diversity approach with some pilot projects, e.g. a repair café or co-working space that is open to everyone and brings together long-time citizens with new residents and opens the door to an exchange of skills and ideas.
- **Alpine metropolises** probably have niches or neighbourhoods where this diversity approach is already taking shape. Instead of leaving these developments in a niche position, larger Alpine towns can actively promote the benefits of these new living formats and adapt them to other parts of the town. For example, when developing new residential areas or when reorganising neighbourhoods, the already existing niches can serve as 'twinning partners' to extend the benefits to a broader level.

### Role of stakeholders and players in this scenario

This scenario is strongly driven by civil society and bottom-up approaches (citizen-based approach). The public sector withdraws to some degree: from stronger regulation towards provision of frameworks and enabling conditions.

The boundary between civil society and private stakeholders blurs in this scenario, as social and non-profit businesses play a larger role. This could also require a readjustment of municipal finances if, for example, business taxes are not applied to social enterprises.

The public sector has to redefine its role in this scenario, particularly in order to meet its function as enabler. This includes not only the provision of new digital solutions to support open government structures or a virtual marketplace, but also support for business development and coaching. This will require new skills and a new culture in the local administration.



### Story from the future:

#### Come and join our Café EsperALPo!

Our international youth café is the place to make friends and to learn more about your Alpine town. We started out as a mentoring programme at Mont Blanc school, but we are now THE hub for newcomers to our town. What we offer:

- Esperanto for all: we embrace the new dynamics of the global Esperanto movement – everyone finds a partner to chat with.
- Alpine rope teams: tandems are for 'lowlanders', here we build rope teams: we can help you find a job, internship or training with our local companies – you can see all our supporters and their job offerings for young people on our EsperALPo app.
- Repair café and heritage shop: do you have a specific craft or artisan skills? In our repair café and heritage shop you can find all the tools and technical support you could need – the floor is yours for giving your cultural touch to our Alpine products.
- Incubator Friday: every Friday we open our café to start-up entrepreneurs, crowdfunding investors and our supporters: together with the leaders in the local economy, you can develop your business idea or social innovation project.
- Walk the town: meet us for our weekly city walks: they range from guided tours into our beautiful mountains to visits to local projects and initiatives. Please apply if you want to organise a 'walk the town' tour.

## Scenario 5: Emergency brake

Strong regulation and protection to maintain a good quality of life



In this scenario, unsustainable lifestyles and economic patterns have led to an accelerated environmental degradation and over-use of Alpine carrying capacities. Climate change has increased water conflicts, challenges for mountain agriculture and heat-induced illnesses. An ever-rising share of individual mobility and tourism demand has brought the carrying capacity of Alpine towns to its limits. Tipping points have become perceptible and Alpine towns have been forced to pull the 'emergency brake' to maintain a good quality of life and to avoid further and irreversible impacts on Alpine nature and biodiversity. They established very strict regulatory approaches based on command-and-control mechanisms. Technologically driven transition processes, changes in consumption patterns and lifestyles were also necessary.

### Regulatory approaches to avoid irreversible environmental impacts

All sectors with impacts on the local environment, nature and biodiversity are regulated with the help of contingency planning approaches.

- With more and more people streaming into the Alpine region in the 2020s, pressures on the natural ecosystems and environmental resources have accelerated compared to previous decades. Towns have therefore strongly limited the share of amenity migrants, urban nomads and tourists by regulating population growth as well as the share of second homes and tourism beds. The priority is to maintain a good quality of life for the existing population in terms of 'small but beautiful'. Tourism is still a source of income, but eco-taxes and prices for accommodation have risen sharply.
- Spatial planning practices are strongly aligned with greening and climate-proofing. All planning processes now contribute to preservation efforts, among others through the integration of nature-based solutions with strong social and environmental safeguards to provide multiple benefits for biodiversity, climate and people. Similarly, the renovation of houses and buildings based on the cradle-to-cradle principle is enforced – making use of traditional construction materials and techniques but also using new approaches such as building information modelling.
- 'Deep decarbonisation strategies' have been developed in conjunction with large companies or industrial facilities: together with experts in the relevant fields, the full range of clean-technology solutions is identified and quick transition periods are imposed on local companies to fully implement them.

### Environmental protection: consideration of carrying capacities

All environmental protection efforts have been accelerated, with a special view to the limited carrying capacities of the sensitive Alpine environment:

- Renewable Energy Systems have been upscaled considerably to also support energy-autonomy. This option is especially appreciated by Alpine towns with difficult topographical conditions which face risks of being cut off from energy supply due to natural hazards.
- An emergency brake has been used on land consumption: no new land take is allowed; instead, towns focus on consolidation and densification by, for instance, prioritising vacant lots for new buildings, recycling of urban spaces and increased vertical developments. Existing sealed areas are unsealed and covered with more permeable materials and, where possible, green spaces.
- Water consumption is strictly regulated to avoid water shortages and conflicts. Negative impacts of this water regulation on mountain agriculture or tourism (artificial snowmaking) have been carefully weighed against each other and water resources are prioritised for those uses that are consistent with overall environmental goals.
- The housing situation has relaxed due to the emergency brake mechanisms, pressures have been reduced and housing has become more affordable again. When the emergency brake first came into force, housing costs saw an increase as investments in efficiency measures were required at short notice. But these led to lower maintenance costs in the mid-term. Additional regulations on tourism beds, Airbnb rentals and an overall cap on rental prices then led to improvements in the housing market.
- As there are no longer any growth pressures, living patterns remain rather traditional with a focus on single-family homes, however taking on board some new trends and developments (e.g. tiny houses, multifunctional buildings).

### Lifestyles: quick transition from unsustainable to highly aware

Since the pandemic decade of the 2020s, lifestyles and consumption patterns have become very unhealthy and environmentally unfriendly. Even with a high awareness about climate change and other environmental pressures, many individual measures were only half-hearted. Especially with respect to mobility patterns, the 2030s have seen a re-emergence of the car-boom, especially after electric cars with long battery ranges and autonomous cars entered the market. Public transport solutions and other alternative mobility formats were neglected.

As tipping points become perceptible in this scenario, these unsustainable lifestyles and

consumption patterns need to be quickly transformed:

- Lifestyles have been quickly steered towards sustainable formats. This was accompanied by strong regulations and financial incentives. Many Alpine towns have, for example, implemented a support system for citizens who decided to abandon their private car or to move to a smaller apartment.
- In this scenario, cars and delivery vans are practically banned from Alpine towns, with only a few exceptions, while all other trips and logistic processes are shifted to alternative transport solutions. Free public transport has been established and efficient co-working solutions are provided in order to reduce commuting.
- Regulations and incentives have also led to more localised consumption patterns: people become much more aware of the need to protect their towns and their identity and thus support local producers and even contribute themselves to support local value chains – both as customers and as part of social innovation projects.

### Localised economic and governance structures

Governance structures are aligned to the geographical scope of the visible tipping points, with a tendency to go back to small-scale and protective structures. This is similarly true for economic structures.

- Governance structures are optimised towards the towns themselves with the main objective of maintaining a high quality of life – this could be at the expense of the surrounding areas or of other towns with less ambitious regulations.
- This approach is mainly possible with a strong, science-driven public governance, while citizen involvement is limited.
- Urban solutions to digitalisation and automation are developed in a targeted way to support protection efforts (e.g. monitoring of ecosystems) but also to help citizens reduce mobility demand and energy consumption. This leads to new work patterns with more remote and flexible work ('Living the good life') and a virtualisation in favour of Alpine citizens.
- Due to the strong protection efforts, Alpine towns in this scenario become cultural heritage sites.

### What could go wrong in this scenario?

This scenario in itself is a reaction to already observable environmental tipping points, focusing on a strong regulatory approach. But this approach must be carefully developed, considering previous experiences with similar crisis situations to avoid other tipping points along the way.

- Social conflicts: regulation mechanisms are rapidly developed in this scenario, with

negative impacts on planning security. The experiences with the COVID pandemic have shown that participation in such processes is difficult and that a strong and transparent leadership with clear framework conditions is necessary. Good communication is thus essential in this scenario for social stability. Social conflicts arise where there is an unequal, higher economic burden on low-income households faced with increasing costs of housing, food and mobility due to the regulations.

- Economic stability: it is questionable if such an isolated regulatory approach is economically feasible over the long-term. Yet with their strong focus on local value chains and the potential to become energy autonomous, Alpine towns could avoid economic tipping points.
- Sanctions from other regions or boycotts: the isolated approach might also lead to negative effects for the surrounding towns and regions and could mean economic sanctions, boycotts or similar effects that, in the long-term, destabilise not only the functionality of the town itself but also the larger region.

The following illustration highlights five key elements of this 'Emergency brake' scenario. The full 'Future Map' with all future projections can be found in the Thematic Scenario Background (Part II).

## Scenario 5: Emergency brake

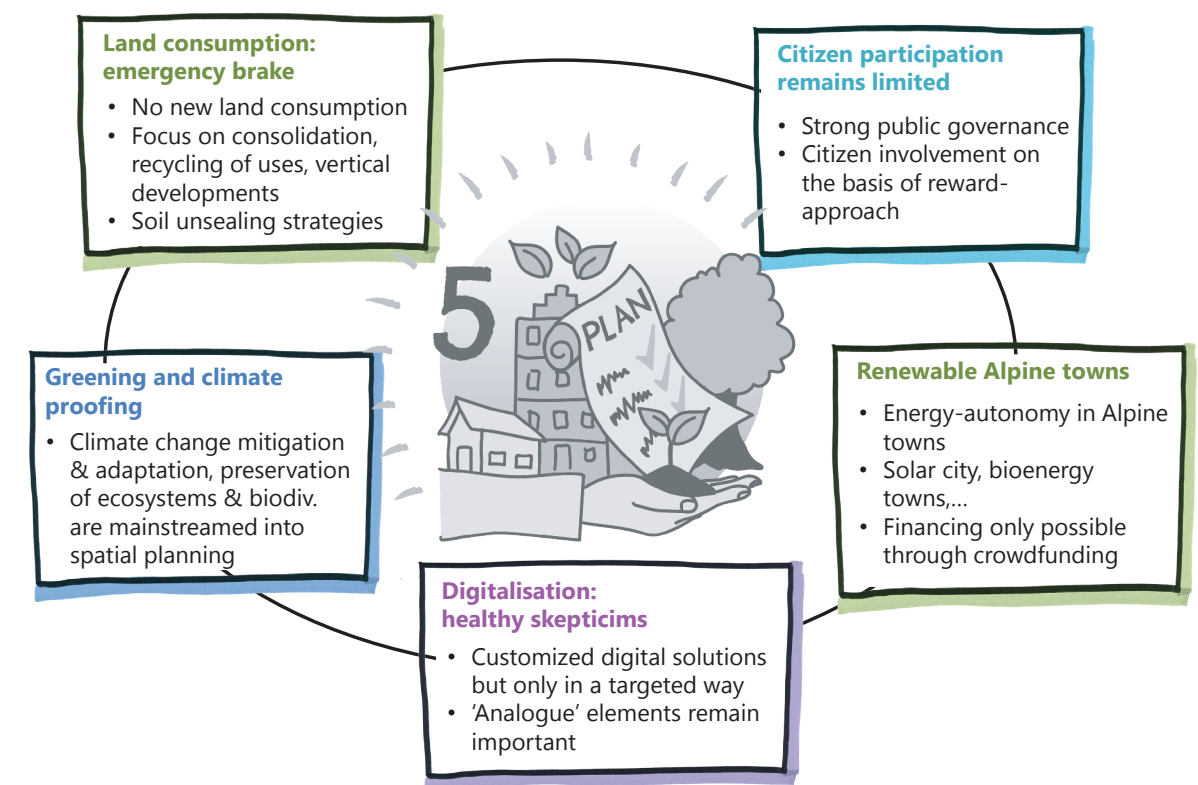


Figure 9: Scenario 5 – Emergency brake



## HOW ABOUT MY TOWN?



### Finetuning the 'Emergency brake' scenario

The emergency brake scenario will be easier to implement in specific settlement and economic frameworks than others. For this scenario, the degree of interlinkages in the broader settlement system plays a crucial role:

- This situation increases exposure to tipping points: Only **towns with a strong and diversified point of departure** in an efficient and functional region will be able to balance protection against inclusive living conditions.
- In particular, Alpine towns that already have quite **high autonomy** in terms of local value chains, energy production etc. will have the means to implement elements of this scenario. These can be towns in Alpine-specific topographic situations, e.g. at the end of a valley or on a mountain plateau. **Towns that are closely interlinked in larger settlement systems**, e.g. in major Alpine valleys, will see greater difficulties, especially if the settlement system extends across borders. In this case, the emergency brake scenario first requires a re-organisation of governance structures and an alignment of legal responsibilities (which might be easier to implement if a major crisis is looming).
- **Tourism towns** will need a specific approach to deal with this scenario, to avoid a breakdown of the tourism economy. Tourism activity will need to adapt substantially: however, a limited number of visitors, environmentally friendly infrastructure and offers, and ambitious building renovation programmes could raise the places' appeal in the long run.

### Role of stakeholders and players in this scenario

In this scenario, the public sector takes on a central role. After two decades of overall 'laissez-faire' in the 2020s (when all forces converged on fighting the COVID-19 pandemic and its aftermaths) and the 2030s, with a technology-centred approach to deal with climate change, public authorities finally recognised that a strong and fully committed protection effort is necessary to avoid irreversible environmental effects.

Civil society and the economic sphere are integrated in this approach, not so much in a co-creative role but rather in a way to identify hardship cases, to support mechanisms to ease the transition and to develop flanking measures in case of unwanted distributional impacts. The overall approach is based not only on regulatory measures but also on individual rewards and financing, e.g. making use of 50:50 approaches where savings from energy reductions in public buildings are partly shared with their users.

### Story from the future:



#### "Sorry about underestimating climate threats"

*Interview with the unseated mayor for the 'South Tyrolean Podcast of the day'*

Reporter: Mr. Villaqua, you were mayor of this town for almost 20 years until the damaging landslide led to public unrest and forced you to resign. You have now joined the exchange programme for Alpine public decision-makers – what are your first impressions from this programme?

Mr. V: *I am currently posted to the small town of Santa Maria for an internship. At first sight, their approach seemed rather peculiar to me: they had similarly faced severe climate events in the 2030s and a complete change in precipitation patterns, so that winter tourism completely vanished. But instead of going for a high-risk approach as we did in my town, decision-makers in Santa Maria decided to pull the 'emergency brake' and started to enforce a strong regulation policy.*

Reporter: This seems a peculiar approach indeed, but I have heard from Santa Maria that quality of life is supposed to be very high there. How does this fit together?

Mr. V: *My first impression was that this is crazy, everything is protected and prohibited. But I learned that the measures are accompanied by a social and economic programme which has fostered a climate-responsible local economy – indeed decision-makers from all over the world are interested in visiting and learning more.*

Reporter: What are your main learnings from this exchange so far?

Mr. V: *My key insight is that you need to take a closer look at uncertainties, unlike in my town where we enjoyed 'living in the moment'. Employment was at its highest, tourism was booming, and we just couldn't imagine implementing any regulatory measures. But when the landslide happened and we were cut off from the main road and the railway for over a year, this 'sweet life' quickly came to a stop. From my point of view it would be great if we could develop an approach that draws on the best elements of both approaches: considering environmental tipping points and at the same time allowing for economic prosperity. But for this to happen, we need to join forces with other municipalities in our region – small neighbourhoods and bigger centres – and prospectively manage these issues over the whole territory.*

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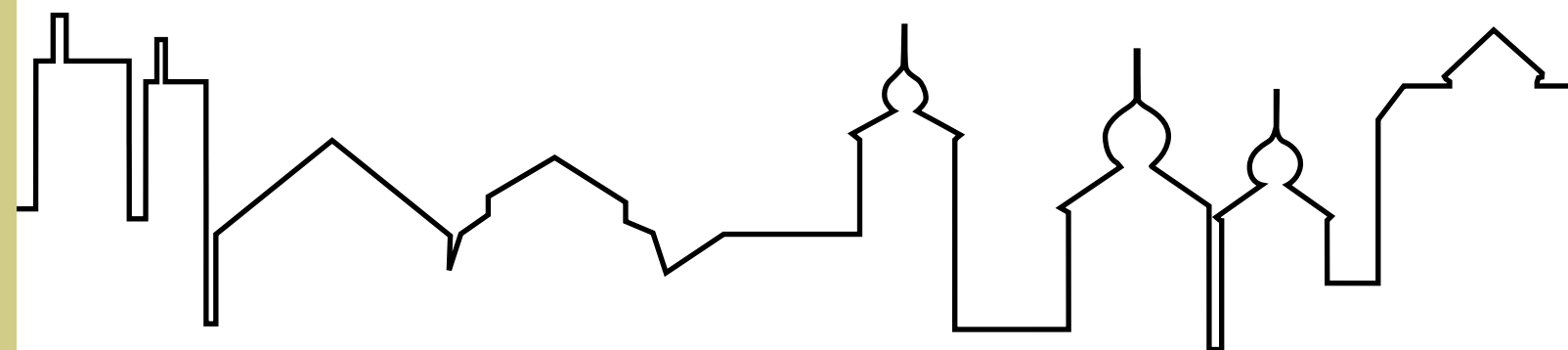
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# ALPINE TOWNS

Key to sustainable development in the Alpine region

## Four Postulates of Sustainable Urban Development





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Four postulates of sustainable urban development

The ninth Report on the State of the Alps (RSA9) ‘Alpine Towns’ is addressed to local policy-makers as well as aiming at the international Alpine cooperation. It comments not only on the *state* of Alpine towns but also on the *challenges* and *opportunities* that shape future paths<sup>1</sup>. Part 1 of the report provides a significant evidence base for political action. For the application in individual strategies, the thematic priorities and practical options will need to be concretised. To this end, Part 2 of the report offers a series of possible scenarios and solutions.

One overall impression is that Alpine towns have not yet been a very prominent topic in strategic considerations on Alpine development on the transnational scale. Obviously, Alpine towns play a key role for sustainable spatial development: economic prosperity and innovation, good living conditions, effective provision of general services and efficient mobility structures depend very much on Alpine towns.

Alpine towns are also a key for the sustainable development of the whole territory. An efficient spatial organisation is an integral part of fighting climate change and biodiversity loss, while also contributing to general environmental protection efforts. Through strong urban-rural linkages, Alpine towns can act as drivers of socio-economic transformations for larger territories. Taking note of all these functions and developing them further is of crucial importance for sustainable development in the Alps.

The RSA9 shapes new ideas and perspectives on Alpine towns to inspire policy-making from municipal to international levels. We have condensed the findings of the report into *four postulates for Alpine towns*. We believe these four postulates to be fundamental for all places and that they should be the beginning for our change of perspective on the Alps:

1. Alpine towns have key roles beyond size
2. Alpine towns connect urban and rural territories
3. Alpine towns stay front-runners
4. Alpine towns become networking hubs

<sup>1</sup> See the academic discussion of the report in “Part 1: Facts, Maps and Scientific Debates” and the participative developed scenarios on future development paths “Part 2: Five Pictures of the Future”.

## 1. Alpine towns: key roles beyond size

Many Alpine towns are of small size, but they provide essential functions for large regions. They are frequently involved in important global networks, and their reputation – for instance due to their importance for tourism (Sölden, Oberstdorf or Cortina d'Ampezzo), their political role (Davos, Vaduz or Monaco), or as headquarters of enterprises (Reutte, Schaan) – is impressive. It could be said that the number of inhabitants of Alpine towns can be multiplied by a 'factor ten' to express their importance in relation to towns outside the Alps. Even if this has not yet been empirically quantified, 'key roles beyond size' seems to be an important characteristic of the Alpine context. If one considers that Alpine towns carry similar urban functions as peri-Alpine cities multiple times their size, this has political implications:

- **Build a new understanding.** In the Alps, size itself is not decisive for the significance and for the urban functions of settlements. A small Alpine town most certainly has a greater radiance than the average suburban area. Common (statistical) definitions create a bias that underestimates Alpine urban qualities. A change of perception of this space is needed for future policies, if they are to provide solutions better suited to Alpine challenges and opportunities and unlock the full potential of the settlement system.
- **Support 'decentralised concentration'.** The polycentric Alpine settlement system is an important asset that should be fostered, with policies that respect this distinctive spatial pattern. Services and amenities should be organised in a 'decentralised' way – covering the whole Alpine settlement system – but at the same time efficiently, building on the centrality and regional significance of towns. Policy and funding instruments that set the same development standards for all places, or purely focus on the major Alpine towns, will most certainly be futile. 'Decentralised concentration' calls on policy-makers to consider the settlement system as a whole and develop individual urban offers, coordinated over wider areas.

## 2. Alpine towns: connecting urban and rural territories

Alpine towns link different spaces and connect diverse functionalities. They concentrate population and economic stakeholders and offer a variety of ideas, resources and cultural activities. They interact with Alpine nature and landscapes, but they are also interlinked with larger agglomeration areas. It could be said that they act as 'brokers' between rural territories and the main metropolises in and around the Alps. With their specific role in the settlement system, Alpine towns might not only buffer critical processes such as depopulation, economic transformation and environmental degradation, but can also pass on positive effects to the surrounding territories:

- **Multiply effects of transformation.** Through their 'broker' role in the settlement system, Alpine towns can become engines of transformation for larger areas. Consequently, policy-makers can make use of this and might enhance the impact of new solutions by promoting them through the settlement system. Model approaches for environmental, social, economic and governance solutions could particularly benefit from such multiplying effects.

- **Create fair spatial structures and networks.** If the transformation of settlements affects much bigger areas, it will be crucial to understand and address the structures and networks they are embedded in. This is particularly true for transitioning zones between different territories, whether they are urban-rural, cross-border or transnational. The challenge is to create a spatial integration that leads to equitable socio-economic outcomes without neglecting ecological needs. Successful strategies for the future rely strongly on capacity building and coordination within entire functional regions to deliver positive effects and to avoid unwanted trade-offs inside the spatial network.

## 3. Alpine towns: staying front-runners

In many aspects, the Alpine settlement system can build on socio-economic strengths: demographic trends are more positive than in many other European regions. Alpine towns are comparably rich and diverse, with a central position in Europe and unique potentials. Such potentials exist for all towns and settlements, regardless of their size. They need to be carefully and strategically reinforced because Alpine towns will face particular challenges in the future. Towns that simply try to maintain their status quo while ignoring potential tipping points face very uncertain future prospects. Alpine towns will rather need to play a pioneer role in addressing the economic, social, cultural and ecological implications of increased urbanisation. But what are the genuine opportunities for the future?

- **Provide an efficient settlement system.** The Alpine settlement system relies on towns of different sizes, along valleys and corridors as well as in mountainous areas. Supporting this system's complexity contributes to a more equitable organisation of life, an effective energy consumption management and the net-zero land take goal. It allows efficient economic flows and facilitates environmental protection efforts.
- **Channel urbanisation with spatial organisation.** To support the Alpine settlement system, it is necessary to channel urbanisation through efficient spatial organisation. It should halt haphazard expansion yet still deliver services, accessibility and urban qualities to all. An active management of urbanisation calls for special attention to the push and pull effects of mobility networks, economic flows and the influence of metropolitan areas around the Alps.
- **Establish first-mover advantages in times of environmental change.** Within Europe, Alpine towns are more strongly and rapidly exposed to climate change. Climate-proof urban structures will become increasingly important in the Alps to provide a resilient base for life. Finding acceptance for the necessary transitions will require governance structures that reach out to all sectors and to the public. The integrated management of water and energy resources could be seen as testing area for such a governance approach. Early innovation with respect to climate change also brings future economic opportunities, especially in Alpine regions where towns are hubs for specific economic specialisations such as tourism or mountain agriculture.

- **Mind ambivalent potentials.** Two popular responses to counter negative developments in the Alpine settlement system are digitalisation and tourism. Both can create opportunities but come with risks that could disadvantage towns in the long run. While digitalisation will continue and can help with economic diversification, it also might increase dependencies on players outside the Alps and accelerate regional digital divides. Similar outcomes can be observed for high-intensity tourism. However, if managed properly, both can create stabilising effects in combination with other development strategies.

#### 4. Alpine towns: towards networking hubs

Many trends and patterns of the settlement system seem to be attributed mainly to national affiliation. It has a bigger influence on the development path of towns than altitude, distance to metropolises, or appeal as tourist destinations. On the one hand, this situation can sometimes lead to a positive competition of ideas and approaches, referring to the European territorial diversity. On the other hand, the different systems meet in the Alpine region with its many borders, where numerous towns come under pressure by increasing commuter, leisure and retail flows. Currently, the cross-border dimension of Alpine towns is rather neglected and lacks action in a consequent manner. There are very few inner-Alpine networks and links beyond the Alps are skewed towards the metropolises on the Alpine fringe. How can Alpine towns create new opportunities from such a 'collision of ideas' where the different systems develop friction points?

- **Cooperate to redefine spaces.** Alpine towns are part of a complex governance system that spans multiple institutional levels and national systems. On the pan-Alpine level, 'soft' cooperation and communication tools are much more present than binding or 'hard' tools. This is especially true for the numerous cross-border areas where the diverse systems meet. 'Soft' cooperation in functional areas, particularly in combination with public participation approaches, can deliver place-based responses with a high legitimacy and a strong stakeholder backing. Multi-level governance can further support policy-making in such settings.
- **Forge new alliances.** Many of the future challenges and solutions identified are best addressed by yet-to-be-created collaboration networks and alliances. In light of global transformation, strong networks of Alpine towns would offer huge potential to gain recognition as well as political and economic status. Small and medium-sized towns rarely have the same resources and capacities at their disposal as metropolises but, organised in networks, they could enhance their position in politics and for funding at regional and national level and in international networks.

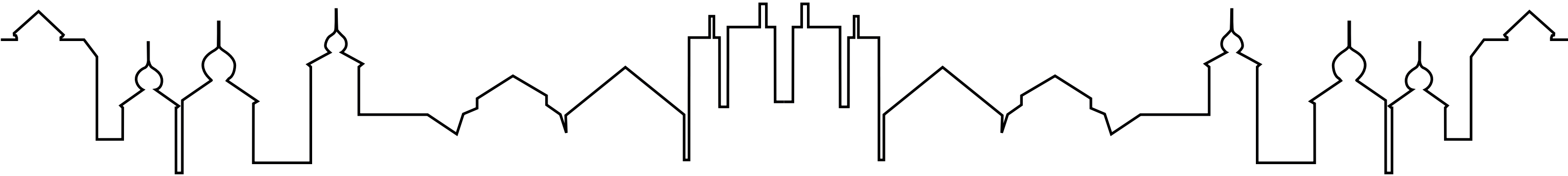
#### Where to go in the future?

Alpine towns seem to have a similar relevance within their mountainous context as bigger metropolises have for other European territories. The magnitude and implications of this is yet to be explored in further research. The lessons learned will also benefit the spatial understanding of other mountainous or less densely populated areas. Supporting the roles of Alpine towns is a precondition for sustainable development in the Alpine Convention area. It is thus important that policies concerning the Alps look beyond just the size of these settlements and instead take account of their impact. The Alpine Convention should further investigate how to develop these roles in synergy with its sustainable development agenda. The key role of small settlements in the ecological and economic wellbeing of rural territories as well as for a good quality of life should equally be underlined within national and EU policies.

In addition, Alpine towns can be a key to translate economic, ecological and social innovations into larger territories more effectively. This will succeed if towns are embedded in regional networks which collaborate well, include diverse needs and are able to deliver fair solutions to all the stakeholders concerned (urban-rural, cross-border, intra-Alpine town networks). The Alpine Convention might thus consider advancing its work on issues such as biodiversity and climate by involving towns. Alpine towns could strive to be forerunners to pioneer new urban development strategies. Part 2 of the report presents five scenarios with numerous ideas to future-proof urban strategies, improve quality of life and implement urban and regional development projects anywhere in the Alps.

Lastly, improving the transnational cooperation of Alpine towns will strengthen their position in policymaking at all levels, facilitate more efficient links to the urbanised Alpine fringe with its metropolises and improve responses to global transformations. In the future, Alpine towns could further develop their potential through international networks – by using all frameworks available to them (e.g. Alpine Convention, INTERREG Alpine Space Programme, EUSALP, Territorial Agenda 2030, Urban Agenda for the European Union) and by creating new ones.





9<sup>TH</sup> REPORT ON THE  
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