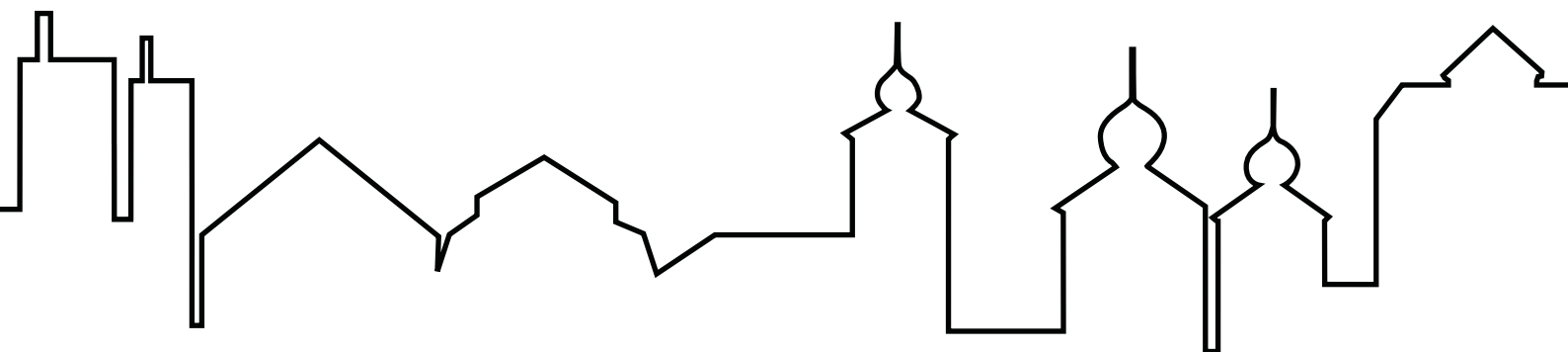


ALPINE TOWNS

Key to sustainable development in the Alpine region

Part 2: Five Pictures of the Future



AUTHORS OF PART 2

Helen Lückge (Climonomics), Susanne Schatzinger (VS Consulting Team)

CHAIR OF THE WORKING GROUP

Marc Pfister (Federal Office for Spatial Development ARE)

MEMBERS OF THE WORKING GROUP

Austria: Andreas Bartel (Umweltbundesamt Österreich) | Oliver Bender, Valerie Braun (Österreichische Akademie der Wissenschaften)

France: Benoît Fanjeau (Administration régionale de Provence Alpes Côte d'Azur) | Isabelle Paillet (Ministère de la Transition Écologique) | Sylvie Vigneron (Commissariat de massif des Alpes)

Germany: Andra Giehl (StMWi Bayern) | Lukas Kühne (Bundesministerium des Innern, für Bau und Heimat) | Florian Lintzmeyer (ifuplan)

Italy: Michele Munafò (ISPRA) | Andrea Omizzolo, Elisa Ravazzoli (EURAC research)

Liechtenstein: Stefan Hassler, Heike Summer (Liechtensteinische Landesverwaltung)

Monaco: Jessica Astier, Astrid Claudel-Rusin, Julie Davenet (Direction de l'Environnement)

Slovenia: Blanka Bartol, Jernej Červek, Lenča Humerca Šolar (Ministrstvo za okolje in prostor)

Switzerland: Karin Augsburg, Silvia Jost, Sébastien Rieben (Federal Office for Spatial Development ARE)

European Commission: Andrea Bianchini (DG ENV)

Observer organisations: Magdalena Holzer, Claire Simon (Alpine Town of the Year Association) | Elena Di Bella (Euromontana) | Katharina Gasteiger (Alliance in the Alps) | Wolfgang Pfefferkorn (CIPRA International) | Maarit Ströbele, Bernhard Tschofen (ISCAR)

REPORT COORDINATION

Živa Novljan, Aureliano Piva (Permanent Secretariat of the Alpine Convention)

Cover design: REVITAL Integrative Naturraumplanung GmbH, Austria

Illustrations: Creations by Nina, Nina Klotz, France

Printing: Oberdruck GmbH, Austria

Proofreading: Intralp, Italy

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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.¹

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

¹ 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 taken²:

- **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.³
- **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.

² 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.

³ 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

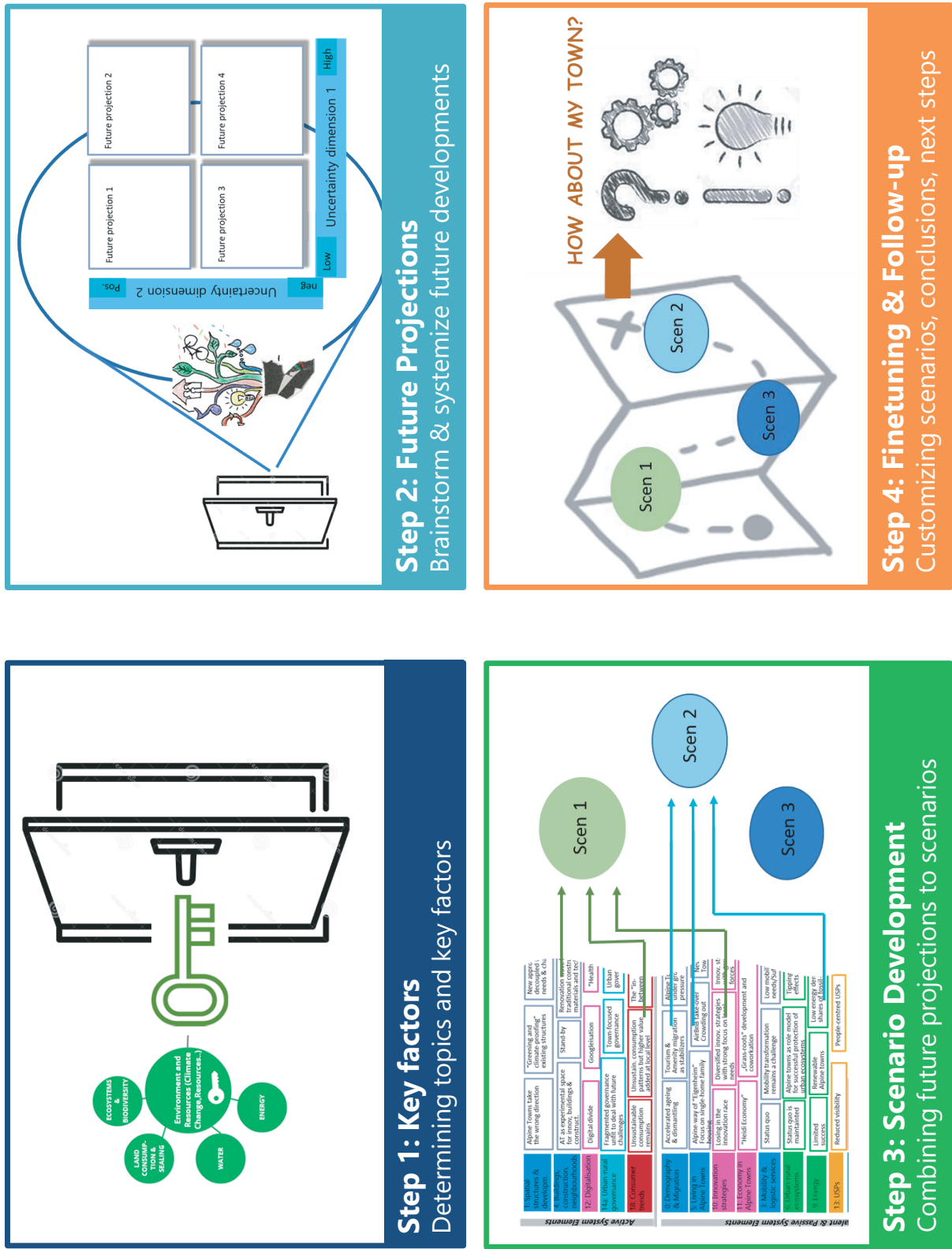


Figure 1: The scenario process for Alpine towns

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

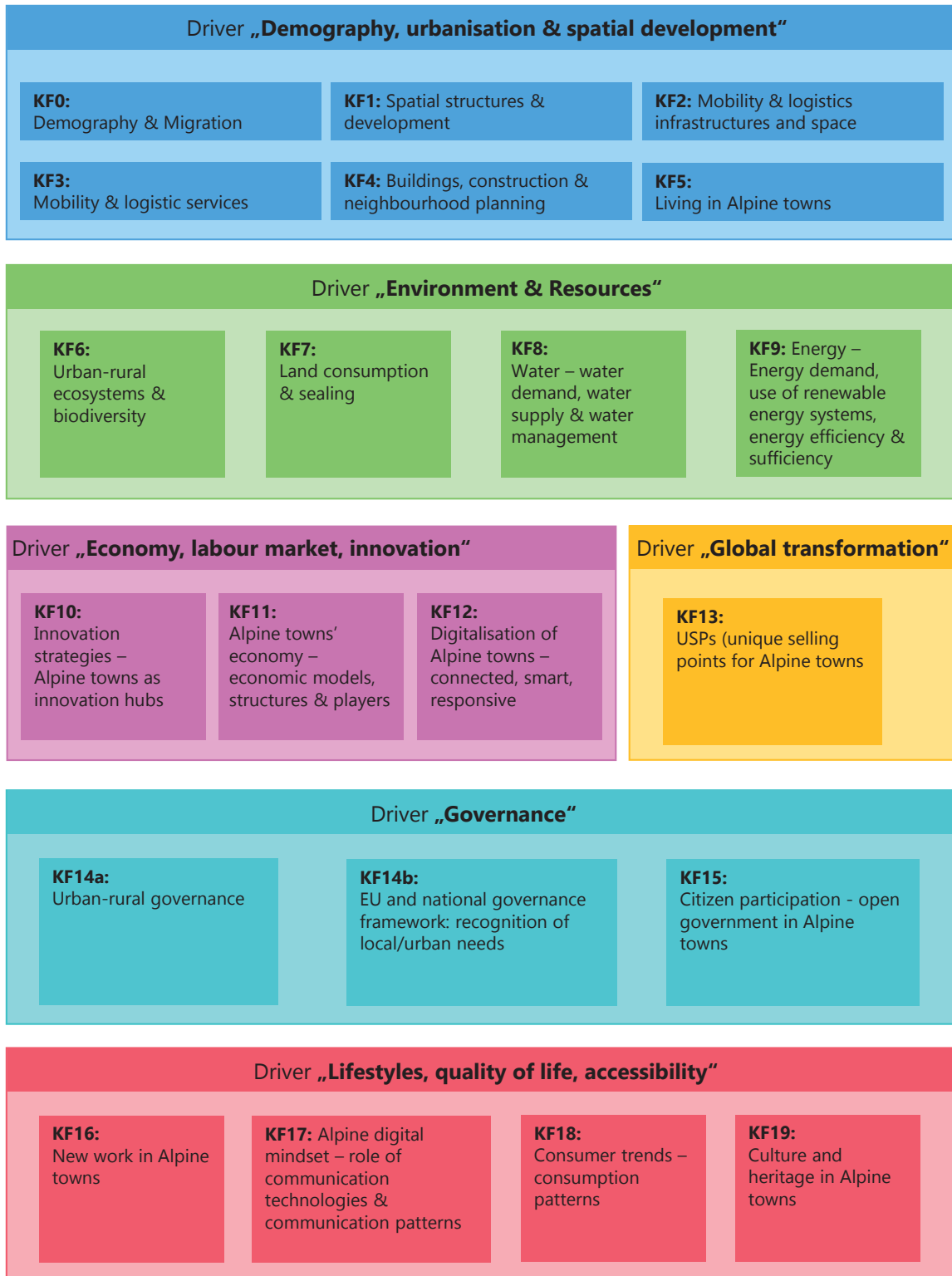


Figure 2: Key factors for the scenario process on Alpine towns

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

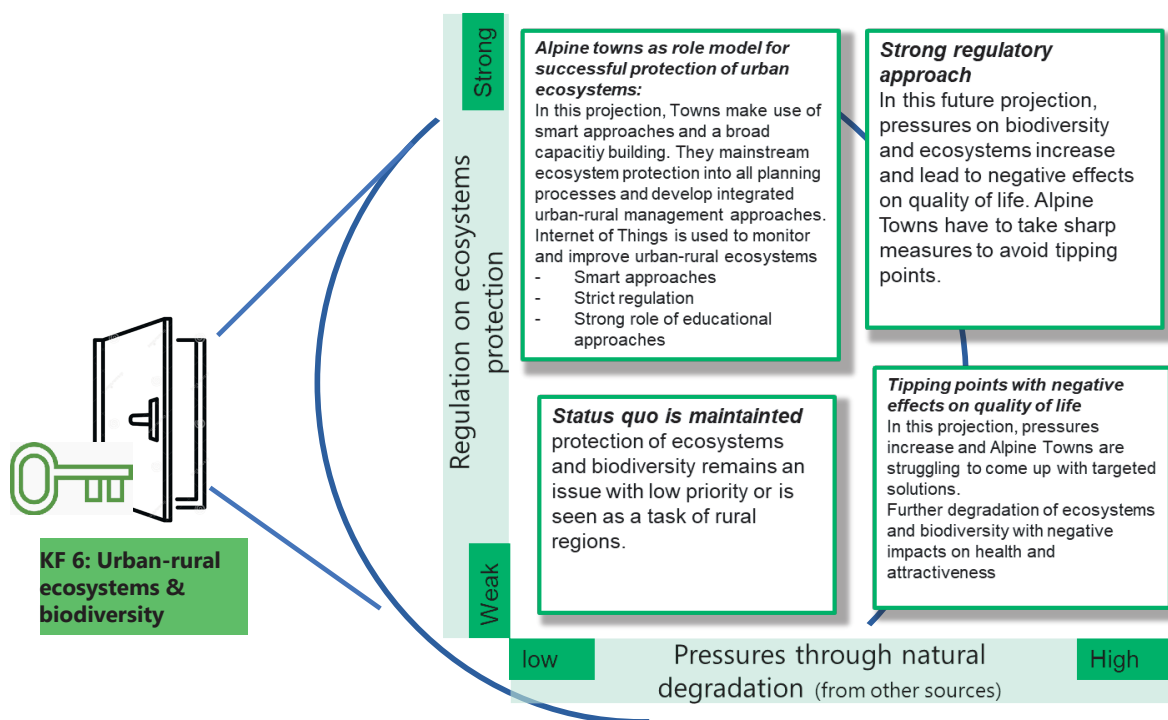
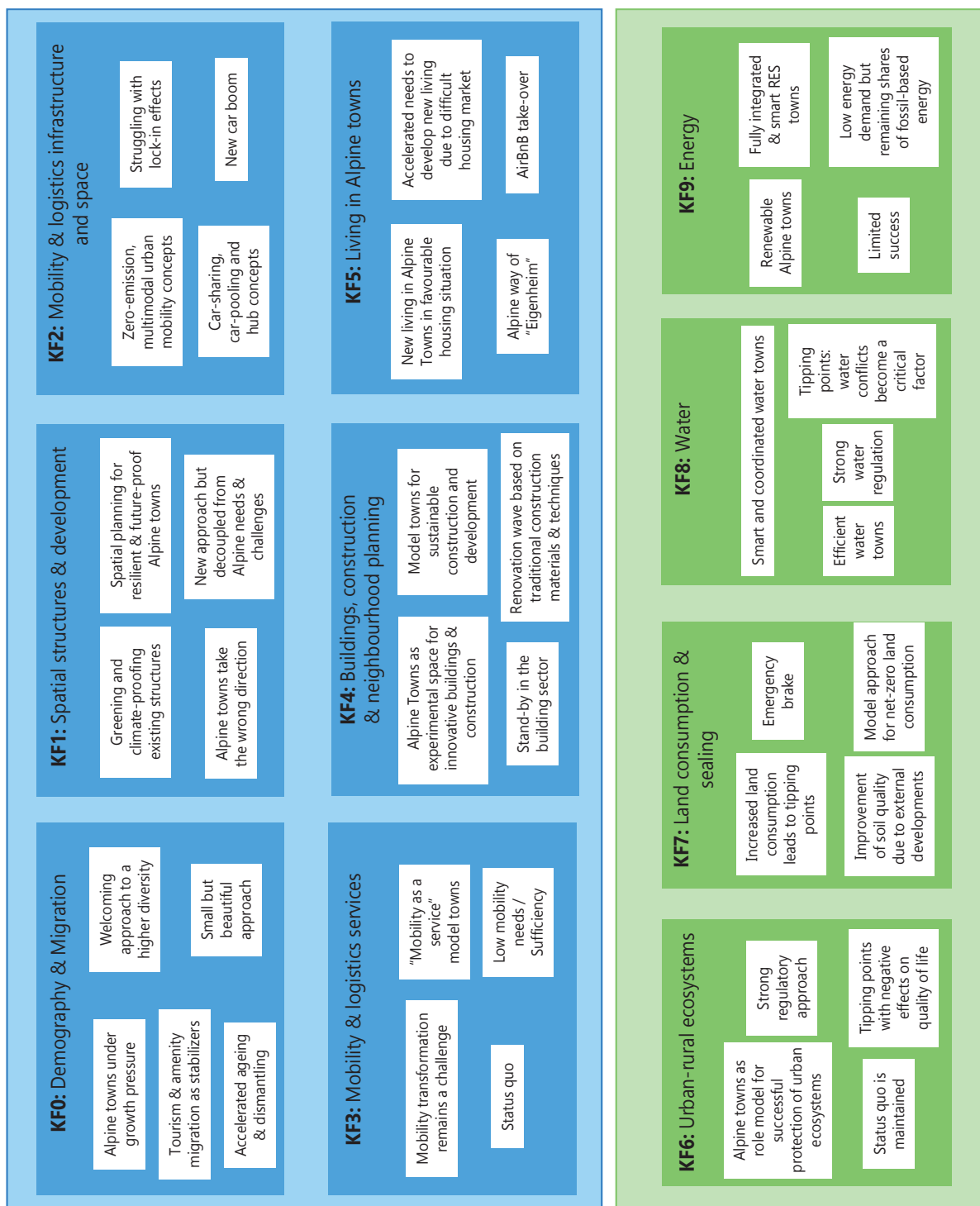


Figure 3: Example of future projections

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)

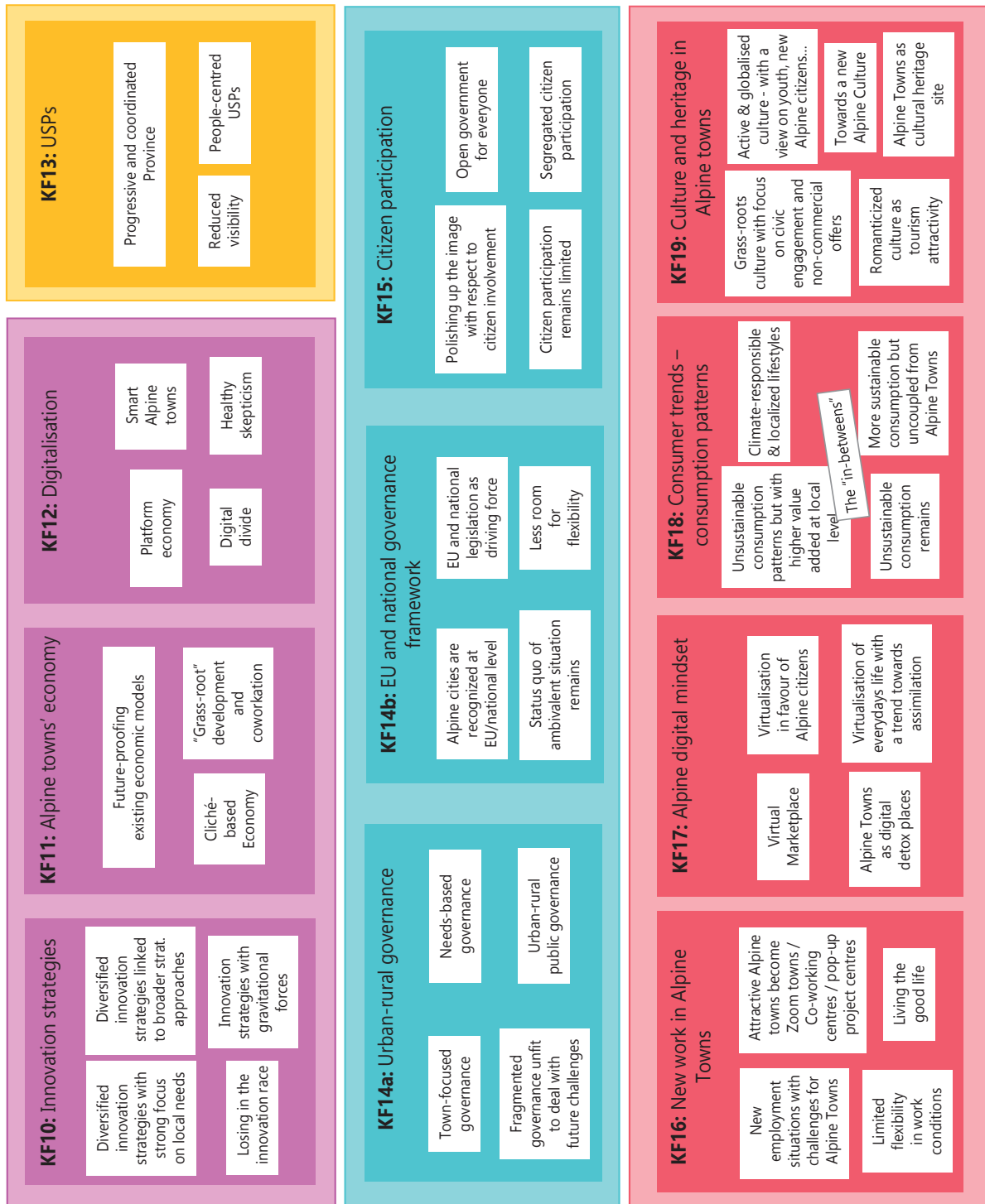


Figure 4: Future map for Alpine towns (Part 1 & 2)

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.⁴

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.

⁴ 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.

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.

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

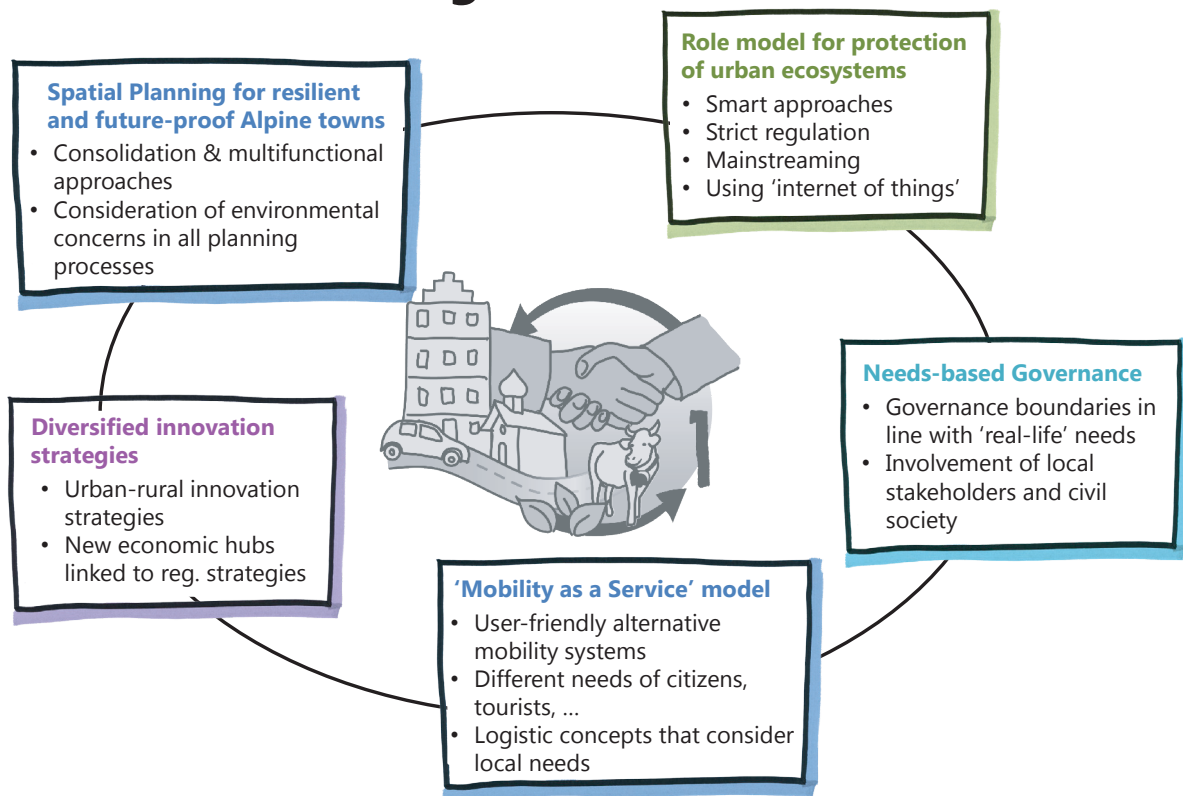


Figure 5: Scenario 1 – Joining forces



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 multilocational 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

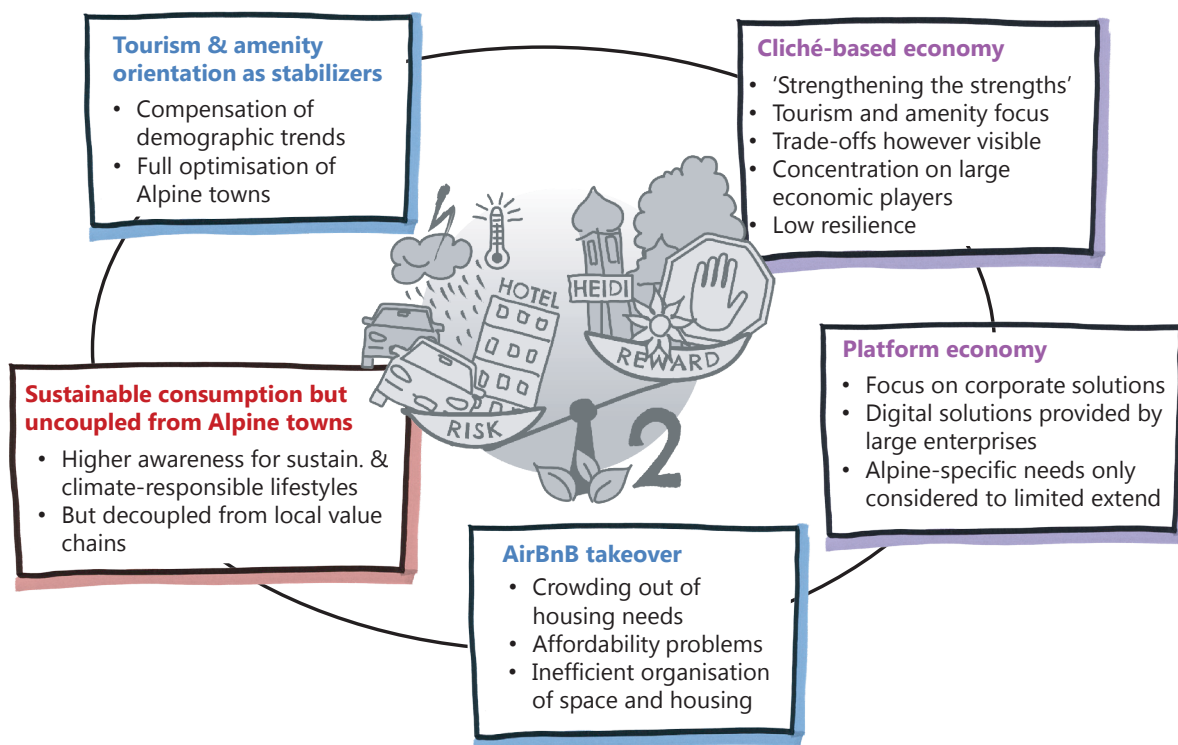


Figure 6: Scenario 2 – High-risk/high-reward



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 Hintermatt 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

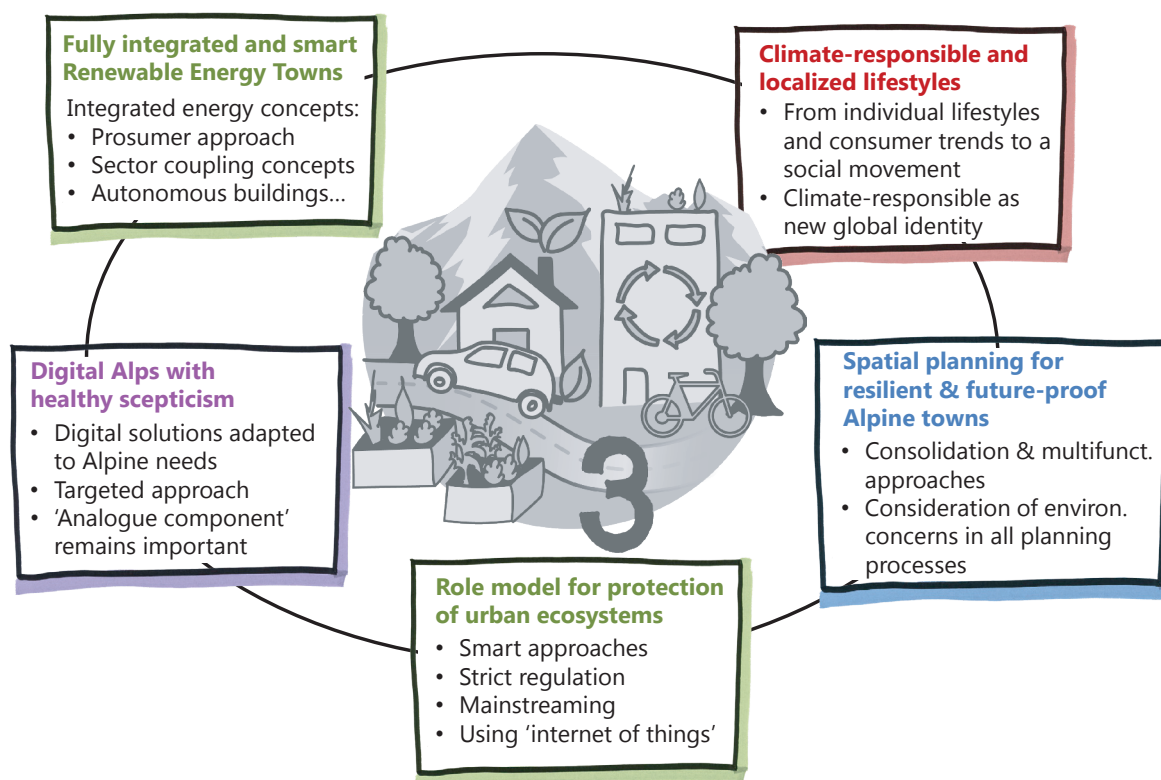


Figure 7: Scenario 3 – Eco-model town



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

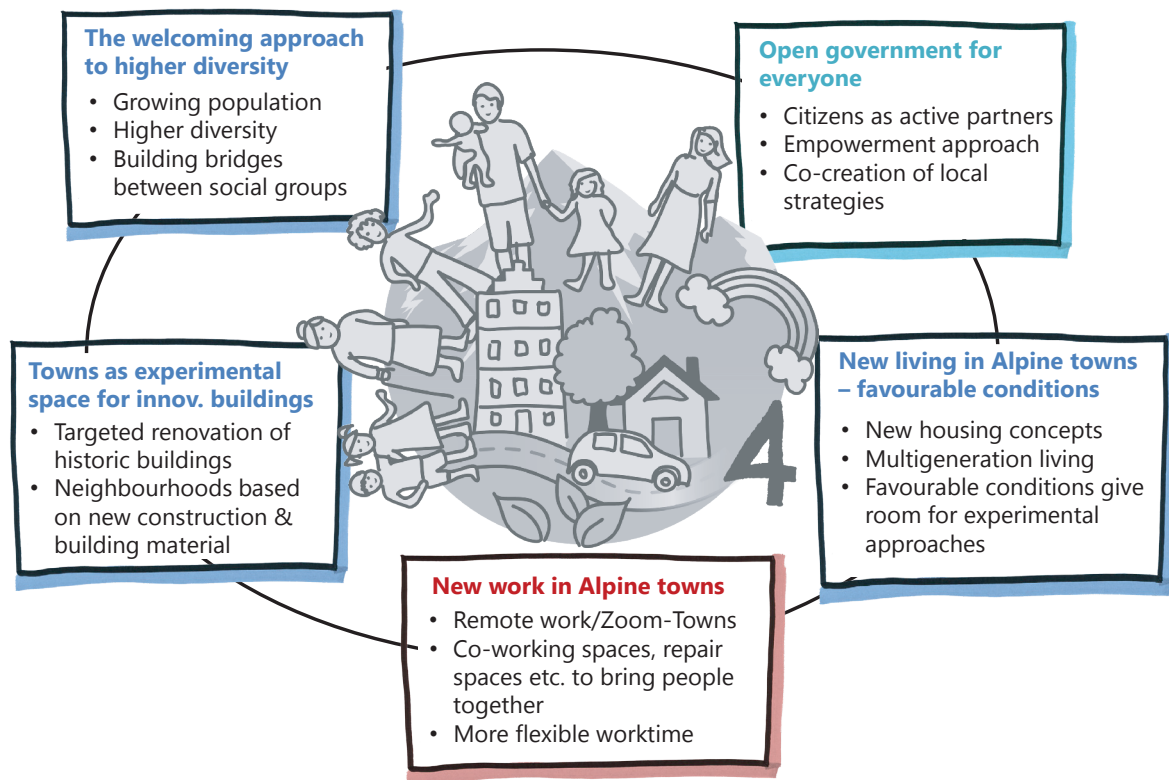
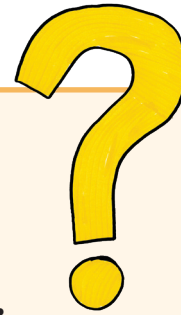


Figure 8: Scenario 4 – Citizen-based approach



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

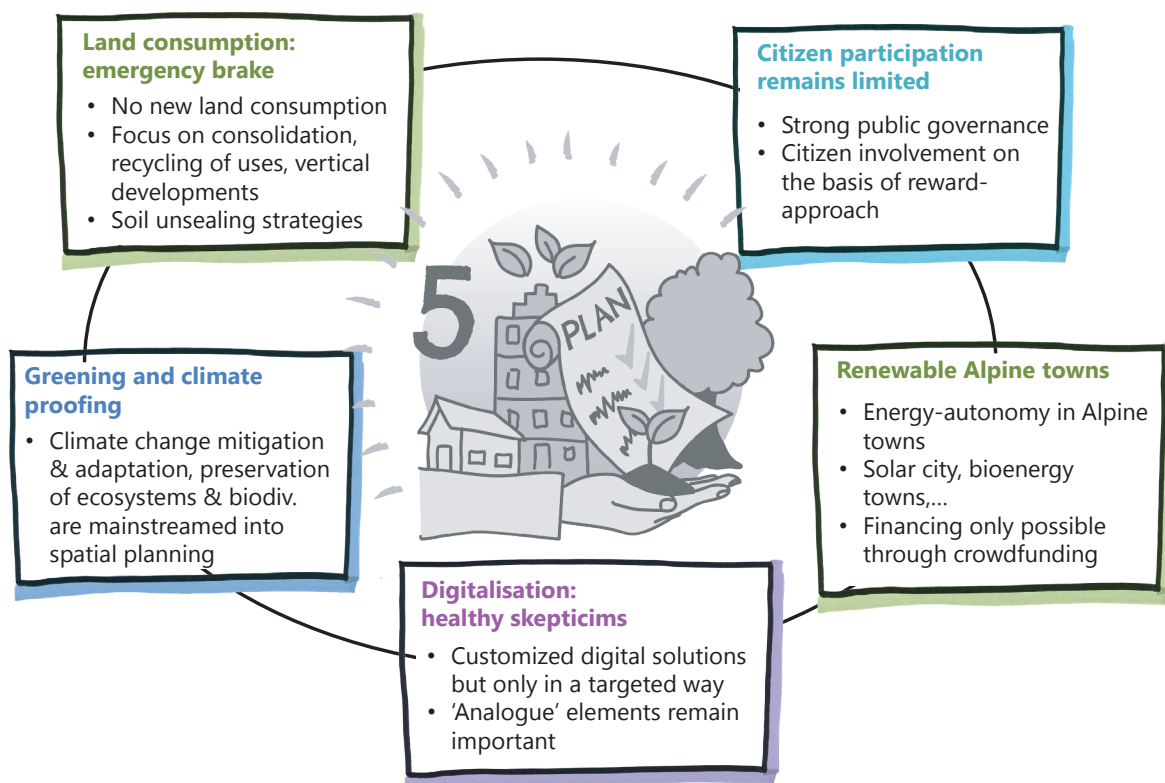


Figure 9: Scenario 5 – Emergency brake



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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