

**XII** European  
Mountain  
Convention

# SMART MOUNTAINS

How to make our territories attractive  
and future- oriented?

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**BROCHURE  
OF INITIATIVES**

Venue

**Camigliatello Silano, Italy**  
Sila National Park and Biosphere Reserve



Dear participant,

In the coming decades, mountain areas will need to be innovative and ambitious if they are to have a sustainable future. This challenge is in line with the European ambition to achieve carbon neutrality by 2050 through a transition that is both fair and economically viable, through initiatives such as the Green Deal, the Long-Term Vision for Rural Areas, the New European Bauhaus, and the Digital Decade, to name a few. By combining economic, social and environmental sustainability, we will be able to preserve the unique environment of the mountains of tomorrow, while developing new promising sectors and improving the quality of life of mountain people.

Therefore, we would like to share with you inspiring practices from all over Europe. From co-working spaces in Spain to Smart Villages in the Alps; from youth entrepreneurship in Norway to hydrogen mobility in the Pyrenees; from using technology to protect mountain rivers in Greece to the sustainable management of tourism in Slovenia, these good practices provide inspiration for the many challenges that mountains face.

These examples provide food for thought on how to provide smart solutions for our mountains by 2050. We hope they will attract your interest and trigger fruitful discussions about the potential for similar innovations in your own mountains.

We wish you a very enriching XII European Mountain Convention,

Juanan Gutierrez,  
President of Euromontana



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# SMART LIVING

How to improve quality of life and maintain access to qualitative services in mountain areas?



Whether it is a medical practice, public transport, quality housing or simply a post office, cash machine or social venue; access to goods and services is a prerequisite for retaining and increasing populations in mountain villages. The geographical and sometimes demographic constraints that exist in mountain areas affect the viability of these services and too often lead to their closure. Solutions exist to maintain or reinvent those services, for example through digital technologies, innovative business models or new organisational models, such as grouped services offered in so-called *maisons de services*.

The smart mountains of tomorrow can take advantage of these local experiences to improve the quality of life and contribute to making rural areas stronger, as called for in the Long-Term Vision for Rural Areas.

# Innovangsjon: innovating to revitalise mountain villages

Vang i Valdres, Innlandet county, Norway



## Creating the enabling conditions for newcomers to settle

More and more people are interested in moving to Vang i Valdres, both locals who return after studying or working elsewhere, and newcomers. Market research was conducted to identify the basic needs of potential new inhabitants. The main challenges were found to be the lack of attractive accommodation or a vibrant social life.



The study demonstrated that Vang needed more accommodation opportunities, for instance in housing estates, and more quality housing, since older houses offered low standards, especially their bathrooms. It was also pointed out that the village needed more social meeting points such as restaurants, co-working areas, pop-ups and cultural activities.

## Social innovation for more dynamic and attractive mountain villages

Innovangsjon is a cooperative working for the development of this mountain village of 1,600 inhabitants, with the vision that “Vang builds Vang”. A music festival in 2006, served as an initial social innovation multiplier. To make Vang more attractive, Innovangsjon works on several fronts: improving the housing offer, promoting the development of local and sustainable businesses, and creating socio-cultural meeting places.

Innovangsjon advertises vacant housing on its website. Recently, it has also developed an innovative real estate project, based on local people’s needs, and combining quality housing, work spaces and meeting places. Entitled “Our local area - place as starting point for future sustainable residential and business models”, the project won the DOGA – Design and Architecture – competition.



In addition, Innovangsjon assists existing companies and supports the creation of new businesses. To boost social life in Vang, Innovangsjon also launched the “cosy Fridays”, events that change location every Friday and allow locals to meet over drinks, food, quizzes, and music.

## The snowball effect of revitalisation

The aim is to boost the population to 1724 inhabitants in Vang; an ambition matching the height of the peak Grindafjellet, at 1724 metres above sea level. So far, this goal has not been reached, but the population has stabilised, and Vang is more vibrant.

Other private initiatives for housing are emerging and there is a growing interest in investment opportunities in Vang; for instance, development of activities related to guiding, food, housing, and holiday lodges.

Leader of the initiative:  
Innovangsjon

Key facts & figures:

- 50 housing projects
- Social innovation
- Rural revitalisation



## Contribution to making mountain areas more resilient and future oriented

Innovangsjon shows that social innovation is an asset for mountain development and can provide solutions to complex challenges such as housing, entrepreneurship, and social life. Above all, the initiative has facilitated a solution-oriented approach and dialogue between local actors, including landowners, reducing conflict and engendering a stronger positive attitude towards local development.

# Digitalisation of rural multiservice points

Montes Universales, region Aragon, Spain

## Grouping offers to maintain services in sparsely populated villages

Teruel is a large province, covering 15.000km<sup>2</sup> and 236 municipalities. It is sparsely populated, with a population density of 9,8 inhabitants per square km and half of the villages have fewer than 100 people. It is difficult to maintain viable businesses with such a low population density, therefore many shops and bars have closed.

As a solution, the province has granted subsidies to municipalities that lack a shop to create a rural multiservice point. The idea is to provide a space for the delivery of different services, such as a grocery shop or a bar with a restaurant. Rural multiservice points are the local meeting point for many inhabitants, especially for older adults.



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## Using digital technology to improve the provision of services

Multiservice points have been operational since 2003 but they require modernisation. Digital tools can support this modernisation process, especially for grocery shopping. Improvements include the installation of Wi-Fi and smart lockers. An app will also be created, offering a map of the network of rural multiservice points and a virtual showcase to facilitate the buying process and improve the user experience. In addition, managers of the multiservice points will receive training on the use of digital tools.



© Multiservicio Rural

The total budget for the modernisation and digitalisation is €691.262,77. The province of Teruel applied for a grant from the Recovery, Transformation and Resilience fund of Next Generation EU, managed by the Ministry of Industry. 70% of the costs are covered by the grant allocated by the Ministry (€404.586,53) and the province covers the remaining 30% (€173.394,23).

## Revitalising rural businesses

Approximately 76 municipalities of the province benefit from the initiative, under the coordination of the Chamber of Commerce. The modernisation process is running from April to December 2022.

The initiative will help maintain and revitalise the commercial activity of small towns in the territory. Rural multiservice points also contribute to maintaining jobs, promoting local businesses and encouraging local and responsible consumption. The digitalisation of these places will professionalise rural businesses, improve the offer of services and will contribute to increasing the digital skills of business managers.

Leader of the initiative:  
Provincial Government of Teruel

### Key facts & figures:

- €691.262,77 from the Next Generation EU fund
- Rural multiservice points from 76 municipalities



## Contribution to making mountain areas more resilient and future oriented

Rural multiservice points are a promising innovation for the future of depopulated mountain areas. They promote rural SMEs, improve the provision of services, encourage sustainable consumption, and provide opportunities for future generations. The creation of service points can have a snowball effect; in some cases, they offer meals for older adults and the jobs thus created attract young families and contribute to the maintenance of the school. Such digitalisation helps make mountain villages more innovative, utilising digital technology to deliver better services.

# SMART EMPLOYMENT

How to maintain jobs, including skilled jobs, all year round in the mountains?



The lack of qualified and diversified jobs in the mountains is the main factor pushing workers to seek professional opportunities elsewhere, as demonstrated by the 2022 [Euromontana mountain youth report](#). Many strategies are being trialled to create and maintain jobs in the mountains. For example, the clustering of companies from the tourism sector can help rationalise employment opportunities for seasonal workers by providing year-round regional opportunities, while entrepreneurship support programmes can help to create local jobs. In addition, new opportunities are emerging in the mountains: following the COVID-19 pandemic, teleworking and coworking spaces are considered possible solutions for attracting a new profile of workers in mountain areas, even in less economically dynamic areas. Promising development sectors such as renewable energies, the bioeconomy or transitions towards more circular economies could also become the source of sustainable jobs.

The smart mountains of tomorrow can combine these opportunities to shape a more dynamic mountain labour market, thus contributing to the Long-Term Vision for Rural Areas' objective for more prosperous rural areas.

# Demanda Coworking Rural

Sierra de la Demanda, Burgos Province, Spain



## Creating smarter jobs through coworking spaces

During the last decades, policies encouraged workers to move to seaside cities, where most of the factories are located. A lack of investment in rural development has pushed young people to leave their territory to find opportunities elsewhere.

The Demanda Coworking Rural initiative provides affordable coworking spaces in small villages, with a decent internet connection. The overall objective is to allow local people to work from their village and to offer training programmes for entrepreneurs. Moreover, these spaces can also enhance the attractiveness of the area among digital nomads and those who practice workation by offering them a space to work while allowing them to enjoy regional gastronomy and tourism activities in Sierra de la Demanda.

## Fully equipped and affordable coworking spaces to attract entrepreneurs and teleworkers

The first coworking space opened in May 2021 and Sierra de la Demanda today provides 4 coworking spaces. In Pradoluengo (1.400 inhabitants), for example, the coworking space offers 9 workstations and 2 meeting rooms for a €65 monthly rent. In the mountainous village of Pineda de la sierra (100 inhabitants), the coworking space was installed in a fully renovated multipurpose building, which also hosts the Council House and a doctor's practice. 8 individual workstations are available, as well as 2 meeting rooms, for a monthly rent of €50. Two other spaces are available in Atapuerca (160 inhabitants), at a cheap rate of €2 per day, and in Quintanalara (33 inhabitants).

Municipalities, the Provincial Government of Burgos and the regional government of Castilla y León supported the initiative, which has also received funding from the European LEADER fund.

## Direct socio-economic benefits for mountain villages

Local communities can access training programmes that are often only provided in cities. This has helped local people improve their digital skills, while courses on business creation and training in specific sectors such as bio-construction or rural tourism has boosted entrepreneurship. Long-term demographic trends will need to be monitored into the future, but there is evidence of benefits already being experienced. Coworking spaces attract specific profiles such as digital nomads, who tend to stay from 1 to 3 months and thus contribute to the local economy.

The initiative is so popular that six other Local Action Groups, together with AGALSA, jointly created a network of coworking spaces across the entire Castilla y León region (COWOCYL).



©Demanda Coworking Rural

Leader of the initiative:  
Local Action Group AGALSA Sierra de la Demanda

### Key facts & figures:

- 4 coworking spaces
- 26 workstations
- 2 training programmes



## Contribution to making mountain areas more resilient and future oriented

Increasing numbers of people are considering moving to rural areas, as evidenced by the many phone calls received by the managers of Demanda Coworking Rural. Providing mountain areas with well-equipped coworking spaces offers new services and training opportunities to local communities, but also encourages newcomers to settle in these villages. This contributes to a smarter employment, decentralised from cities, and to the revitalisation of the mountains.



# Youth Entrepreneurial Spirit Specialists (YESpecialists)

Alps (Trentino), Hardangervidda/Folgefonna (Vestland), Picos de Europa (Asturias)



YESpecialists logo designed by Eva Mª Gómez Castaño  
winner of the YESpecialists logo contest.

## Lack of attractive jobs drives young people out of the mountains

Many mountain areas suffer from a lack of attractiveness and depopulation. The shortage of attractive jobs in mountain areas often causes young people to leave their territory to find better opportunities elsewhere.

In this context of depopulation combined with a lack of promotion of existing opportunities in rural areas, entrepreneurship becomes a key element to build an adversity-safe future of Europe and a tool to find alternative ways to deal with labour market challenges. Yet, to further support entrepreneurship in mountain areas, support schemes must be developed, especially towards less experienced people such as youth.

## Bringing local actors together to improve entrepreneurship ecosystems

6 territories across Europe collaborate in the [YESpecialists](#) project to build local youth entrepreneurship ecosystems. All relevant stakeholders are involved, such as regional and local authorities, businesses, NGOs and Vocational Education and Training schools. The objective is to develop an innovative approach to entrepreneurship education, by bridging the formal and non-formal sectors, and involving young people in the development of their local community.



© YESpecialists

In schools, activities can, for example, include business simulation games with students or accounts of successful local entrepreneurs to create role models for the entrepreneurs of the future. YESpecialists build on partner knowledge and exchange of experiences to also explore how coaching and incubation programmes, co-working spaces, Smart Villages, promotion of entrepreneurship in high schools' programmes among others can help boost youth entrepreneurship in mountain regions. YESpecialists will run from 2020 to 2023 and is co-funded by the Erasmus+ Youth programme of the European Union.

## Boosting the entrepreneurial spirit of young mountain people

YESpecialists will boost youth entrepreneurship in mountain areas in 6 territories. It will help develop an entrepreneurial spirit among mountain youth and encourage them to envisage an entrepreneurial future.



© YESpecialists

Moreover, a repository of initiatives that actively involve youth in local ecosystems, guidelines for building up regional ecosystems to promote youth entrepreneurship, and training materials on entrepreneurial competences will be developed for the use of teachers and youth workers.

Leader of the initiative:  
Vestland County Council

### Key facts & figures:

- 6 mountain and rural regions involved
- Creation of at least 6 innovative entrepreneurship ecosystems



## Contribution to making mountain areas more resilient and future oriented

Young people are the future of mountain areas! Supporting entrepreneurship creates job opportunities for young people and encourages them to stay and live in mountain areas, thus also paving the way for a more positive future for mountain territories. Moreover, the bottom-up approach adopted contributes to building smarter mountains, where local communities play an active role in their local socio-economic development.

# SMART AND CLEAN MOBILITY

How to develop new, clean and alternative transport modes for people and goods?



Adequate transport solutions are essential to the quality of life in the mountains. However, mobility remains a major challenge in regions where natural constraints make infrastructure more costly and journeys longer. However, solutions exist to overcome such challenges and provide quality mobility services on a daily basis, such as on-demand transport or shared mobility. In addition, the need to protect the climate and the environment also calls for cleaner transport, and mountains must not be left behind in this transition. Mountain areas are already experimenting with electric and hydrogen mobility, and some have started to reinvest in small railway lines and combined rail transport solutions.

Smart mountains must innovate to combine access to transport with environmental sustainability, therefore delivering on the Long-Term Vision for Rural Areas' objective for more connected rural areas.

# Overcoming Barriers (to Transcarpathian mobility)

Carpathian mountains in Romania, Hungary and Ukraine



## Mobility challenges in cross-border massifs



Mobility is a key challenge for accessibility and attractiveness in mountain areas, even more so when national borders compound the natural constraints. Good public transport is essential to facilitate the mobility of cross-border workers but also to improve the travel experience of tourists visiting the Carpathians. Yet, the Carpathian mountains remain challenged by poor connectivity and a lack of more environmentally-friendly transport infrastructure.

## Modern technologies for better transport services

These challenges were addressed through the modernisation of transport infrastructures, in particular in the border areas of Vynohradiv (Ukraine), Barabás (Hungary) and the Maramures County (Romania).

In the Maramures County, 10 public transport lines were upgraded with 50 new buses equipped with GPS systems. Moreover, 4 pilot bus stations were set up, featuring energy independent Geographic Information Systems panels. This allowed improved user experience, thanks to a new ticketing and transport monitoring app, making it easier for local communities to purchase their tickets and allowing real-time tracking.



These developments were made between 2019 and 2021 in the frame of the “Overcoming barriers” project. The project was funded by the 2014-2020 Hungary - Slovakia - Romania - Ukraine Cross-border Cooperation Programme, with an overall budget of €1.4 million, of which €350.000 was allocated for the actions implemented in the Maramures County.

## Modern and green transport in the Carpathians

Such modernisations improve the attractiveness and reliability of public transport. Online ticketing platforms and apps help make the Carpathians a more connected territory, while citizens are given the opportunity to access real-time information about distances, timetable and costs.

Modern and reliable public transport is essential to improve accessibility in the Carpathians, including for people who are unable to drive, and to encourage greener mobility in the future.

Leader of the initiative:  
Vynohradiv City Council

### Key facts & figures:

- 10 public transport lines upgraded
- 50 new buses
- 4 connected pilot bus stations



## Contribution to making mountain areas more resilient and future oriented

Maramures is engaged in a digital makeover of its public services. Digital technologies applied to the public transport sector can help mountain areas become more connected. In the face of climate challenges, the development of reliable public transport can be a solution to make greener alternatives to the private car more attractive in the mountains.

# Cooperation for hydrogen innovation in the Pyrenean mountains

Pyrenees: Spain, France and Andorra



## Opportunities offered by hydrogen



Hydrogen currently accounts for less than 2% of the energy consumption at European level. The [EU Hydrogen Strategy](#) explores the potential of hydrogen to help decarbonise the European Union. In the [Pyrenees Strategy \(2018-2024\)](#), reference is made to the high potential for the development of renewable energies, as well as to the creation of a scientific group dealing with the energy field.

The development of the hydrogen value chain in the Pyrenees, from production, storage, distribution, application and use, presents a wide range of business opportunities, cooperation and also challenges for both the private and public sectors.

## Cooperating to develop the hydrogen value chain in the Pyrenees

In the Pyrenees, there are 6 regional strategies to promote green hydrogen as well as the Andorran energy and climate change strategy. In addition, the French and Spanish states both adopted national strategies for the development of the hydrogen energy.

The current Basque presidency of the Working Community of the Pyrenees (CTP) intends to boost the trans-Pyrenean hydrogen Working Group to build on these different policy frameworks and boost the hydrogen potential of the Pyrenees by enhancing territorial cooperation. The CTP, together with the Basque Energy Agency, have launched a Steering Committee with 40 experts from all its 7 territories. In 2022, three working subgroups have been established:



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- A subgroup on capacities mapping to produce a global map of the Pyrenean value chain
- A subgroup on collaboration spaces to register activities, results and conclusions
- A subgroup on cooperation to propose a trans Pyrenean agreement.

## Environmental and business opportunities

The Working Group follows a comprehensive approach that takes into account the entire value chain of the hydrogen economy, including production, storage, distribution and hydrogen applications, as well as cross-cutting aspects such as training or safety regulations. In the future, this could help decarbonise transport in the region, especially road freight and passenger rail.

The cooperation efforts of the CTP will also create synergies with other initiatives conducted in the Pyrenees, such as projects funded by Interreg POCTEFA that aim to develop hydrogen mobility.

**Leader of the initiative:**  
Working Community of the Pyrenees (CTP)

### Key facts & figures:

- [1 workshop](#) during the European Green Week 2022 on Hydrogen and Climate Change
- 40 experts from 30 public and private organisations
- 3 subgroups



## Contribution to making mountain areas more resilient and future oriented

Hydrogen will play a central role in the energy transition as it boosts the energy potential of territories and supports the decarbonisation of energy uses, for instance for mobility but also industry and residential heating. There is a unique opportunity to develop a hydrogen strategy in the Pyrenees, and in other mountain regions with a cross-border approach to deliver on the EU's climate neutrality objectives for 2050.

# SMART ECONOMY

How can the mountain economy contribute to the Green Deal objectives?



The mountain economy is usually characterised by the dominance of agriculture, forestry, product processing and tourism. In the mountains, all sectors - primary, secondary, or tertiary - are concerned by the transition towards a more sustainable economy. Mountains have an important role to play in achieving the ambitions of the Green Deal. Mountain agriculture, especially pastoralism, offers great potential for carbon storage in grasslands. Other sectors, such as tourism, are aiming to lower CO<sub>2</sub> emissions, adapt to climate change and develop new economic models. The resources available in the mountains also offer huge opportunities to develop a sustainable economy, building on the potential of nature-based solutions.

Tomorrow's mountains can help reconcile economic activity with environmental sustainability, thus delivering on the Green Deal and on the Long-Term Vision for Rural Areas' objective for more resilient rural areas.

# Partnership for tourism in Pohorje

Pohorje massif, Slovenia



POHORJE  
free your mind

## Lack of coordination on common challenges

Mountain tourism in the Pohorje mountains faces many challenges. Unspoilt nature is the main attraction for tourists, yet nature protection is often seen as an obstacle for the development of touristic infrastructure or services. Climate change also calls for adaptation, for instance through investment in cable cars for year-round tourism. The lack of shared and sustainable mobility and the high usage of private vehicles are further challenges for the sector. Such challenges require better governance, but despite several attempts, cooperation between tourism actors has had limited success.



© Pohorje Slovenija

## A cooperation partnership to coordinate objectives and funding towards sustainable tourism

The cooperation partnership was created to jointly address the obstacles that the tourism sector is facing. The partnership adopted the “Pohorje Development Strategy”, which identifies the key objectives for the future of tourism, with the support of 30 partners across the entire Pohorje area, including municipalities, tourism operators and regional development agencies.



© Pohorje Slovenija

The main goal is to develop the tourism sector and make the Pohorje mountains a green destination. Members of the partnership commit to “*preserve the natural and cultural features and encourage coherent economic and touristic development with an emphasis on the sustainable use of natural resources*”.

The strategy outlines opportunities, for example improving mountain bike trails, developing public transport and raising awareness of the damaging effects of the over-use of cars. One of the flagship measures of the strategy is also the creation of the Pohorje Regional Natural Park.

Based on the strategy, various projects will be implemented between now and 2028, with an estimated budget of €134M, financed by various projects and the State.

## Towards a greener destination

Since its initiation in 2021, the Partnership for Pohorje has improved cooperation between stakeholders. The shared objectives should help develop sustainable tourism in the area; with a specific aim to obtain a Green Destination certificate.

In addition, investment to improve housing, roads and transport provision will also benefit local communities.

Leader of the initiative:  
Regional Development Agency for  
Podravje - Maribor

Key facts & figures:

- €134M of investment (2021-2028)
- 19 municipalities



## Contribution to making mountain areas more resilient and future oriented

The alliance of stakeholders within the Partnership for Pohorje has improved the governance of the tourism sector to develop a shared vision for the future of tourism based on consensus. Coordinated investment will help to overcome challenges and develop a sustainable destination, which will contribute to protecting natural areas while promoting heritage and creating jobs.

# Boosting the sharing economy in the visitor industry

The Scandes, Inlandet county, Norway



## The sharing economy as a tool for sustainable development

Tourism is a key sector in the mountains, and is also concerned by many sustainability challenges. The sharing economy can offer more sustainable options than more traditional economic models as it is largely based on the use of existing and underutilised resources. In the case of tourism, the sharing economy can apply to accommodation, mobility but also to sport equipment for example.

The [CreaTur project](#) explores the potential of the sharing economy for businesses operating within the tourism industry in the Inlandet county. The sharing economy has largely been studied in relation to urban areas and the project hence sought to explore its potential in a more rural context.

## Inform and explore the interest of tourism stakeholders in the sharing economy

To explore the potential of the sharing economy, CreaTur focused both on the user and supplier perspective. A survey was carried out among both rural and urban potential users. In-depth interviews with users and potential users were also produced, as well as a meta-analysis of international studies on the drivers of sharing economy. In addition, innovation camps with local students were organised to grasp their potential interest and collect their ideas for the development of the sharing economy.

On the side of suppliers, the project also carried out interviews with a focus group of local tourism providers as well as interviews with local, regional, and national level stakeholders from the sharing economy. Moreover, a workshop was organised to present the future of the sharing economy in the Inlandet county, followed by two interactive forecasting sessions.



## Providing recommendations for the development of the sharing economy

The project produced several publications that provide with insights into the drivers of the use of the sharing economy.

Surveys for instance demonstrated that young people are more eager to share equipment, such as hiking gear. It also shows that the insurance system remains a concern for potential users.

Based on these findings, concrete recommendations were elaborated to support local governments in facilitating the development of sharing economy. CreaTur for instance recommends developing access to broadband - as the sharing economy often involves online applications -, developing tourism operators' digital skills, and adopting "sharing economy friendly" legislations.

Leader of the initiative:  
Eastern Norway Research Institute,  
Inland Norway University of Applied  
Sciences.

### Key facts & figures:

- 3 local business partners
- 534 survey respondents
- 83 people interviewed
- 7 workshops



## Contribution to making mountain areas more resilient and future oriented

The sharing economy can contribute to bringing more visitors to a destination, which can be particularly relevant in some mountainous areas where the supply of traditional tourism accommodation is insufficient for example. The sharing economy can contribute to a better use of resources by reducing the need for consumption of raw materials through optimising the use of existing and underutilised goods.

# ENABLING TOOLS

How can digitalisation benefit mountain areas?



Digital technologies are a pillar of territorial development; it has become a service of general interest for residents, offers new business opportunities for local companies and facilitates access to new services such as telemedicine. However, many mountain villages are still located in so-called “white areas” without Internet access. Various initiatives exist to improve internet coverage and foster the deployment of digital infrastructures, from direct European funding and WI-FI vouchers schemes to citizen cooperatives who build community networks. Over the past few years, the multiplication of Smart Village projects in mountain areas has helped demonstrate the various benefits of using digital technology for local communities.

With improved broadband access, smart mountains will be able to harness the potential of digital technologies for the benefit of environment, governance, economy, and mobility. They will also contribute to making rural areas more connected, as envisioned by the Long-Term Vision for Rural Areas.



# Smart Villages in mountain areas

Alps: Austria, France, Germany, Italy, Slovenia, Switzerland

## The Smart Village approach to boost territorial development

Alpine rural communities are often deprived of employment opportunity and service provision. The climate for entrepreneurship and social innovation, is often not favourable which results in brain drain. Digitalisation is a promising approach to improve the situation and has become an even greater societal priority during and following the COVID-19 pandemic.



Despite the greater focus on digitalisation, the digital divide between rural and urban areas, especially in terms of service provision, seems to have widened in recent years. A Smart Village approach for mountain areas has therefore been considered an effective way to realise the potential of local actors to make their region a more attractive place to live and work.

## 11 pilot sites to assess and improve the smartness of Alpine villages

The SmartVillages project addressed the lack of definition and the lack of a procedure to quantify the level of smartness of mountain villages. The smartness assessment allowed territories to set priorities and initiate specific transition actions co-designed by local stakeholder groups. Actions were responsive to a range of priorities, such as mobility as a service or shared and electric mobility, e-commerce, smarter governance methods, digital infrastructure in mountain areas or stakeholder involvement for a better provision of digital services.



A Digital Exchange Platform was also created to facilitate fruitful exchange between the 11 test areas. Lessons learnt during the interregional exchange also allowed for the creation of policy recommendations for decision makers who aim to start a smartness transition in mountain areas.

SmartVillages is an Interreg Alpine Space project (2017-2021) with a budget of €2.7M.

## A wide range of possible benefits for local communities

Regional stakeholder groups codesigned the actions carried out in the 11 Alpine test areas. Given the variety of fields of application, Smart Villages have numerous benefits for local communities.

Blockchain technology, for example, is used in the Pomurje Region (Slovenia) to limit food fraud in short food supply chains by enhancing traceability, while in the Fontanabuona Valley (Italy), a new on-demand transport service improves mobility for residents and visitors, and helps to overcome the remoteness of some hamlets.

Leader of the initiative:  
Swiss Association for Mountain Regions  
(SAB)

### Key facts & figures:

- [A smartness assessment process](#)
- [A Toolbox for participation methods](#)
- [A Digital Exchange Platform](#)
- [11 pilot areas](#)



## Contribution to making mountain areas more resilient and future oriented

The SmartVillages project enabled Alpine territories to become beacons of smartness in the Alps. The policy recommendations developed were incorporated into the EU Strategy for the Alpine Region. With applications in many areas, the Smart Villages concept can support the sustainable development of mountain territories and economies. The SmartVillages project provides recommendations and many inspiring examples that may be replicated locally.

# The European Broadband Competence Offices Network (BCO Network)

All EU Member States, Western Balkans and Norway

**BCO**  
Network



## Lack of investment in digital infrastructure by telecommunications companies

The EU's connectivity targets intend for all citizens, no matter where they live, to have access to gigabit-speed connectivity by 2030, for social and economic inclusion, resilience, innovation, and growth.



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In rural and remote areas, however, low population density and challenging terrain strongly disincentivise telecommunications companies from investing in costly infrastructure deployment. As a result, local governments and citizen cooperatives take on the complexities of planning, building, and operating their own broadband infrastructure. This is not straightforward and can be very expensive. Planning, regulations, technology choice and funding are some of the key considerations, and most common pitfalls, for broadband projects.

## Support adapted to each territory and locally-led initiatives

The [BCO Network](#) brings EU countries and the European Commission together to address this challenge through targeted support, capacity building and knowledge exchange.

Broadband Competence Offices (BCOs) are the national and regional public authorities responsible for broadband deployment in the EU. They are also the key points of contact for advice for citizens, project promoters and policy makers. In under-served areas, where the market will not invest, BCOs can work with local governments and citizens to plan successful projects, choose the best technologies, obtain public funding, connect with useful partners and learn from similar projects.



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Locally-led projects, such as [Guifi.net](#) (Catalunya, Spain), [RuNe](#) (Slovenia and Croatia) and [conectAragón](#) (Aragon, Spain), can have huge impact, but different areas require different approaches, and BCOs can provide essential support in understanding and driving the solutions.

## Broadband creates opportunities for territorial development

Broadband connectivity can be a game changer for rural and remote communities, opening the door to a world of online opportunities and digital innovation.

Remote healthcare, distance learning, and online business are powerful tools in reversing depopulation. Innovative applications in the areas of culture, tourism and agriculture can bring new life to rural areas, boosting their economic and environmental sustainability.

**Leader of the initiative:**  
European Commission and the BCO Network Support Facility

**Key facts & figures:**  
Reaching the EU connectivity targets by 2025:

- 100 Mbps download speed, upgradable to 1 Gbps for 100% of households
- 1 Gbps connectivity for all main socio-economic drivers (e.g. schools, transport hubs, hospitals)



## Contribution to making mountain areas more resilient and future oriented

Digitalisation provides countless ways to improve lives and livelihoods in mountain areas, through opportunities to profit from the present and build resilience to future challenges. Combining digital with social and business innovation can bring a community closer together, with lasting benefits for all, as seen with [Albergo Diffuso](#), a project in Sauris, a small enclave in the Carnia mountain area (Friuli Venezia Giulia, Italy).

# SMART MANAGEMENT OF NATURAL RESOURCES

How can innovation support sustainable management of resources?



Mountains are rich in unique natural heritage sites. They are home to specific and fragile ecosystems, which provide many services to both local and lowland populations. Yet, rivers, grasslands, forests, and the species of these ecosystems, face a variety of threats, from climate change to under grazing or pressure from the tourism sector. Integrated governance, digital tools and novel preventive actions are examples of solutions to better manage and protect the unique mountain resources.

With the increasing pressure on ecosystems, smart mountains will have to innovate to ensure a balance between exploitation and preservation of their resources, thus making rural areas more resilient as envisaged by the Long-Term Vision for Rural Areas.

# Oreka Mendian - Conservation and Management of Mountain Pastures

Basque Country, Spain and France



## Changes in the use of mountain grasslands weaken habitats

Grasslands in the Basque mountains are facing changes in the traditional management of livestock and / or in land use, one example being the decline in pastoral and grazing practices. These changes have resulted in a major imbalance: scrubbing of pastures in large areas, exponential increase in the risk of fire, and overgrazing in the most accessible pastures.

The management of conservation-oriented livestock grazing is a complex exercise. An appropriate density of livestock must be defined according to the capacity of each habitat; at the same time meeting the needs of the grazing livestock while maintaining habitat quality. Collaboration between Natura 2000 managers and shepherds is crucial for the conservation of mountain pastures; yet such collaboration is not always well developed and local stakeholders need more support.



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## Combining grasslands restoration and livestock farmers' needs in Natura 2000 sites



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To improve the sustainable management of Basque mountain grasslands, Conservation Plans for Grazing Habitats were drafted for each of the 15 Spanish Natura 2000 sites. Based on these plans, actions are being implemented to improve the management of grasslands: clearing actions are carried out to reverse scrubbing, livestock stocking rates are adjusted with special attention given to under-utilised pasture lands, invasive species are controlled, and wetlands restored. Specific monitoring actions were carried out in a total of 23 Natura 2000 sites in Spain and France.

Moreover, workshops were held to ensure the involvement of livestock farmers and landowners, while collecting information on their needs for maintaining their activity and data on land use. Finally, communication activities were carried out to raise awareness among the general public on the importance of livestock farming for the conservation of mountain grasslands.

## 1500 ha of mountain grassland restored

Thanks to the [project](#), more than 1500 ha of mountain grasslands habitat have been restored across the Basque mountains. But the work does not stop there: livestock farmers, landowners, technicians, and researchers regularly meet in working groups to discuss and agree on the future actions to be carried out, always keeping in mind the needs of shepherds and the conservation priorities. A [booklet of good practices for the conservation of mountain grasslands](#) is also available to inspire new insights.

Leader of the initiative:  
HAZI Fundazioa

### Key facts & figures:

- 1500 ha of mountain grasslands habitat restored.
- LIFE project 2016-2022
- Total budget: €3.5 M



## Contribution to making mountain areas more resilient and future oriented

The project initiated an efficient collaboration between the different actors involved in the use and management of mountain grasslands, which will be beneficial in the long term for the conservation of habitats. In addition, Oreka Mendian was inspired by other countries' practices to promote the use of digital technologies, such as GPS collars, for monitoring livestock and grazing in the mountains. Such innovations can help to improve land use planning in the future.

# Technology and environmental monitoring of the Arcadian mountains

Menalon mountains, region Arcadia, Greece



## Lack of data on the use of the Menalon trail

The Menalon trail is a network of old routes that have been restored for visitors to enjoy the picturesque landscapes and traditional villages and to participate in outdoor activities, mainly hiking.



The Arcadian mountains are recognised for their unique natural heritage value. Yet since the creation of the trail in 2015, there has been no monitoring system in place to track the conservation of the surrounding environment. As a result, local municipalities have not had enough data to analyse peak season for hikers, peak hours of trail use during the day or the impact of human activities along the trail.

## Using remote sensors and the Internet of Things in natural areas

Research was carried out to identify the optimal locations and specifications for automatic sensors to collect data along the trail. Three automatic sensors were then installed underground to record footfall along the Menalon trail. No construction work was needed for their installation, which prevented any damage to the landscape. Moreover, 4 water monitoring stations were installed in the river Lousios, under the supervision of the Hellenic Centre for Marine Research, to monitor water levels and provide early warning of natural hazards.



In addition to the sensors, an online platform with an integrated database was developed for the storage, processing and visualization of the data collected by the 3 terrestrial sensors, allowing results to be published on a monthly basis.

These actions were carried out as part of the project "Environmental monitoring actions in water bodies and hiking trails of mountainous Arcadia with the use of innovative technologies", funded by the Green Fund with a budget of €50,000 over an 18-month period.

## Reducing risks for landscapes and active tourists

The system can automatically send alert messages when critical limits are exceeded in the parameters recorded. The system therefore contributes to the safety of visitors when hiking, river trekking or rafting by avoiding accidents due to natural disasters, such as floods.

Moreover, obtaining data on hiking routes traffic will help better manage the local landscape and promote the Menalon trail as a contributor to the sustainable development of the area.

Leader of the initiative:  
Social Cooperative Enterprise for the Protection of Menalon

### Key facts & figures:

- Actions to protect sensitive ecosystems
- 2020-2021 project
- 7 sensors installed



## Contribution to making mountain areas more resilient and future oriented

Measuring the volume of visitors of hiking routes with innovative technologies is a cheap and reliable method to better manage popular natural mountain areas and can also inform tourism management more generally. For example, such systems can help improve visitor management plans, refine the distribution of visitor reception points and service infrastructure, as well as help optimise the emergency response infrastructure.



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