EU Strategy on Adaptation to Climate Change

Forging a climate-resilient Europe

DG Climate Action, European Commission
Elena VISNAR MALINOVSKA, Head of Unit

Climate change

- Impact are already there …
- and even in a best case scenario (+ 1,5ºC) …
- Hazards will increase considerably …

© picture: WRI

© picture: WRI

© picture: NRC Handelsblad

European Commission

In mountains, climate change is now

ENVIRONMENT

Landslides and less snow. Climate change is altering the Bavarian Alps

Germany's Alps are already contending with climate change and locals are feeling the effects. Jennifer Collins reports from the country's highest peak on disappearing glaciers, less snowfall and increased landslides.

European Commission

IPCC report 1.5ºC

Already 1ºC global warming

“Specially affected”

- Small islands
- Megacities
- Coastal regions
- **High mountain ranges**

European Commission

Arctic region
Temperature rise much larger than global average
Decrease in Arctic sea ice coverage
Decrease in Greenland ice sheet
Decrease in permafrost areas
Increasing risk of biodiversity loss
Some new opportunities for the exploitation of natural resources and for sea transportation
Risks to the livelihoods of indigenous peoples

Atlantic region
Increase in heavy precipitation events
Increase in river flow
Increasing risk of river and coastal flooding
Increasing damage risk from winter storms
Decrease in energy demand for heating
Increase in multiple climatic hazards

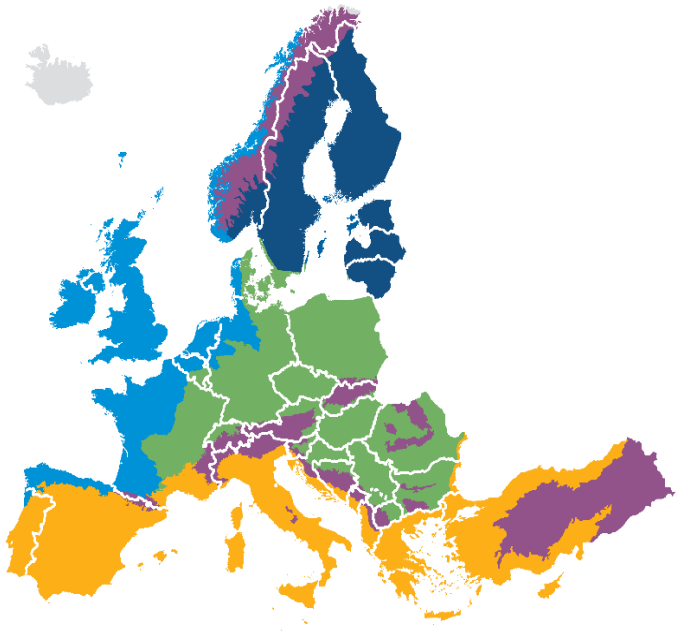
Mountain regions
Temperature rise larger than European average
Decrease in glacier extent and volume
Upward shift of plant and animal species
High risk of species extinctions
Increasing risk of forest pests
Increasing risk from rock falls and landslides
Changes in hydropower potential
Decrease in ski tourism

Coastal zones and regional seas
Sea level rise
Increase in sea surface temperatures
Increase in ocean acidity
Northward migration of marine species
Risks and some opportunities for fisheries
Changes in phytoplankton communities
Increasing number of marine dead zones
Increasing risk of water-borne diseases

Boreal region
Increase in heavy precipitation events
Decrease in snow, lake and river ice cover
Increase in precipitation and river flows
Increasing potential for forest growth and increasing risk of forest pests
Increasing damage risk from winter storms
Increase in crop yields
Decrease in energy demand for heating
Increase in hydropower potential
Increase in summer tourism

Continental region
Increase in heat extremes
Decrease in summer precipitation
Increasing risk of river floods
Increasing risk of forest fires
Decrease in economic value of forests
Increase in energy demand for cooling

Mediterranean region
Large increase in heat extremes
Decrease in precipitation and river flow
Increasing risk of droughts
Increasing risk of biodiversity loss
Increasing risk of forest fires
Increased competition between different water users
Increasing water demand for agriculture
Decrease in crop yields
Increasing risks for livestock production
Increase in mortality from heat waves
Expansion of habitats for southern disease vectors
Decreasing potential for energy production
Increase in energy demand for cooling
Decrease in summer tourism and potential increase in other seasons
Increase in multiple climatic hazards
Most economic sectors negatively affected
High vulnerability to spillover effects of climate change from outside Europe



European Commission

Policy context

- The **2030 Agenda for Sustainable Development**
- The **Paris Agreement**
- The **European Green Deal**:
  - European **Climate Law,**
  - **2030 Climate** Target Plan
  - European **Climate Pact**
  - EU **Biodiversity** strategy
  - **Farm to fork** strategy
  - **Forest** strategy
  - Renewed **sustainable finance** strategy
  - … and more!

European Commission

A new EU strategy on climate adaptation

“Forging a climate-resilient Europe - The new EU strategy on adaptation to climate change”

Adopted by European Commission on 24 February 2021

- 2020: Blueprint, open public consultation, and expert reviews
- 2018: Evaluation of the first EU Adaptation strategy (2013)

European Commission

Vision & Objectives

- Vision: by 2050 the EU will be a climate-resilient society, fully adapted to the unavoidable impacts of climate change
- Objectives:
  - **Smarter adaptation** – improving knowledge and managing uncertainty
  - **More systemic adaptation** – support policy development at all levels and sectors
  - **Faster adaptation** – speeding up adaptation across the board
  - **Stepping up international action** for climate resilience

European Commission

Smarter adaptation

improving knowledge and managing uncertainty, by

- Pushing the frontiers of **knowledge** on adaptation
- More and better climate-related **risk and losses data**
- Making **Climate-ADAPT** the authoritative European platform for adaptation knowledge

© picture: NOAA

Year	Area coastal erosion
2050	2000 - 2300 km^2
2100	3800 - 5000 km^2

European Commission

More systemic adaptation

support policy development at all levels and sectors, by:

- Improving **adaptation strategies and plans**
- Fostering **local, individual, and just resilience**
- Integrating climate resilience in **macro-fiscal policy**
- Promoting **nature-based solutions** for adaptation

European Commission

Faster adaptation

speeding up adaptation across the board, by:

- Accelerating **the rollout** of adaptation solutions
- Reducing **climate-related risk**
- Closing the **climate protection gap**
- Ensuring the **availability** and **sustainability** of **freshwater**

European Commission

Engagement with Member States

- Based on subsidiarity and local nature of adaptation
- Support MS, subnational authorities, business & individuals
- Financially, with knowledge & tools
- Invitation to work together

© picture: Peter Löffler

European Commission

Thank you

photos source: Adobe Stock, Peter Löffler

Systems innovation, climate adaptation and mountain areas

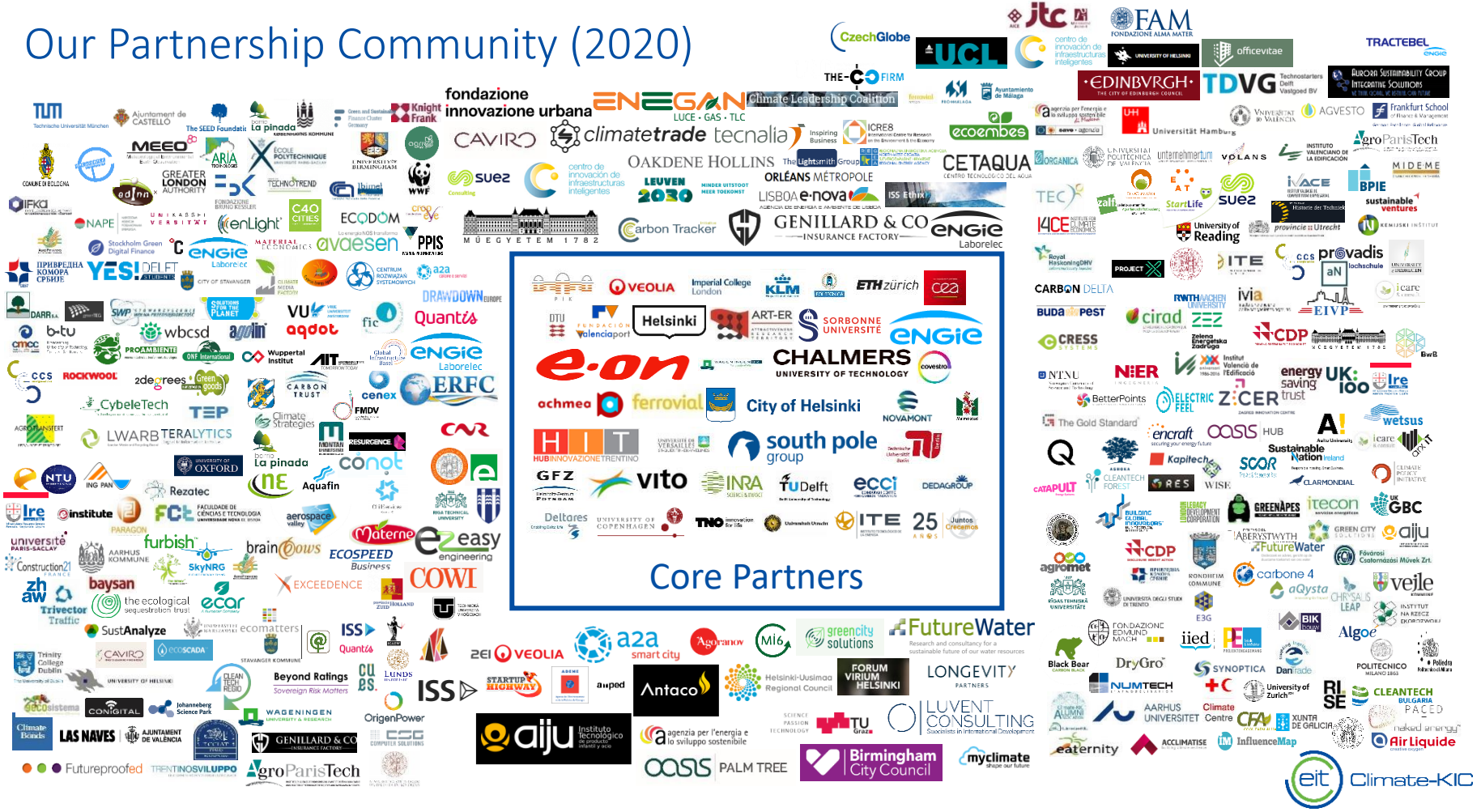
Dr. Salvatore Martire, EIT Climate-KIC

Smart Mountains - Climate Adaptation: what opportunities for mountain businesses?

Euromontana | 27 May 2021

Funded by the European Union

Our Partnership Community (2020)



> The lack of access to actionable solutions is one of the main barriers to adaptation. The EU Framework Programme and the Climate Knowledge and Innovation Community already support adaptation innovation, but recent analysis shows **the need to step it up**.

European Commission, EU Adaptation Strategy

2014 Västmanland wildfire

Climate-KIC

Connected innovation in climate risk information, resilience and adaptation

- open data platforms and standard-setting,
- inclusion of climate risk in financial ratings in credit and bonds,
- landscape-level climate risk studies and tailored information service design for public and private infrastructure,
- training and financial incentives for de-risking assets and emerging markets
- public and business understanding of risk through simple schemes and installations,
- data and risk literacy approaches (e.g. training academies for civil protection, meteorological offices),
- pro-resilience regulatory and policy recommendations.

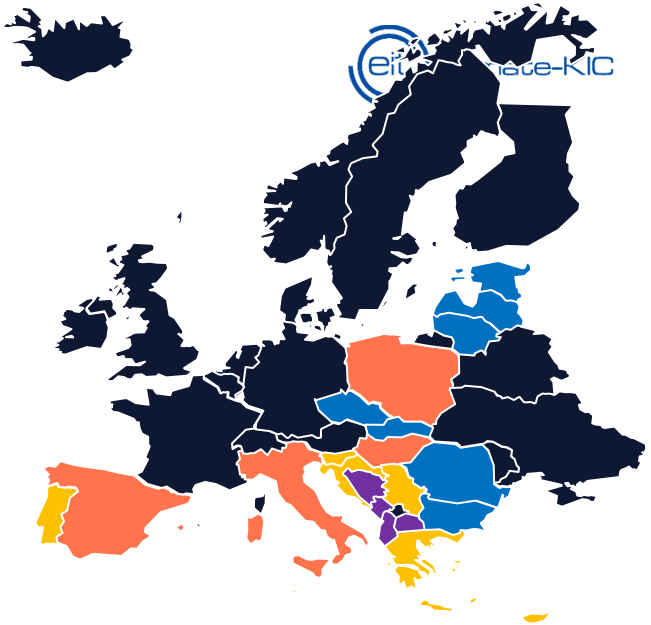
+ a snapshot of our 2020 Innovation portfolio: https://www.climate-kic.org/in-detail/2020-innovation-portfolio/

Source: https://www.climate-kic.org/news/eit-climate-kic-is-a-key-player-in-helping-europe-adapt-to-climate-change/

eit Climate-KIC

Regional Innovation Scheme (RIS)

- We work with some of the most innovative organisations to set up EIT Climate-KIC Hubs which serve as entry points for interacting with local players, mobilising and internationalising local networks.



Countries with active Hubs	
Bulgaria	Lithuania
Croatia	Malta
Cyprus	Portugal
Czech Republic	Romania
Estonia	Serbia
Latvia	Slovakia
Greece	Slovenia

Activity since 2020
North Macedonia
Bosnia and Herzegovina
Montenegro
Albania

RIS countries with CLCs
Poland
Hungary
Italy
Spain

EIT RIS Central East Europe Hubs

EIT RIS Southern Europe Hubs

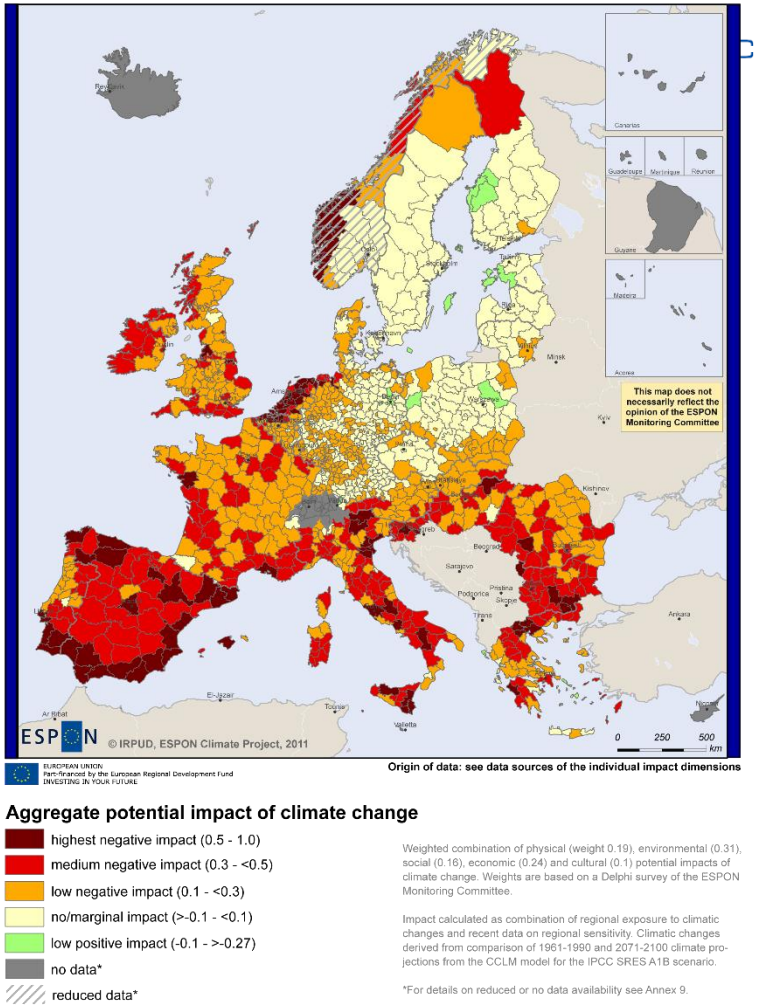
EIT Climate-KIC partners

Adaptation is a priority for RIS

EU Countries welfare loss due to adaptation is estimated to be €190 billion by the 2080s (EEA, JRC). Negative impacts:

- human health (€122 billion, 64%)
- coastal areas (€42 billion, 22%)
- agriculture (€18 billion, 9%).

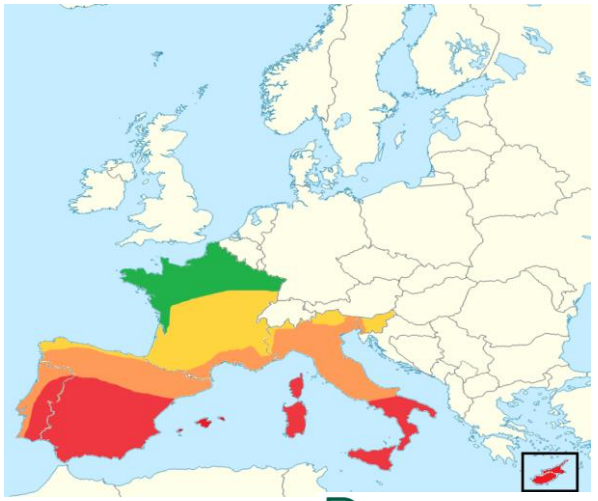
The geographical dimension of impacts, the most affected regions are Southern Europe (39%, mainly due to energy damages and human health).



Innovation Ecosystems on Wine and Vine in the Mediterranean

- Capacity building for national ecosystems in the Vine & Wine Value Chain
- Implementing participatory approaches to design, co-construct and share adaptation and mitigation pathways
- Developing national hubs with an interdisciplinary approach

Italy	Fondazione Edmund Mach (lead partner)
	Institute for the Bioeconomy – National Research Council (CNR – IBE)
Cyprus	Cyprus University of Technology (CUT)
France	l'Institut national de la recherché agronomique (INRAE)
	Centre International de Recherche Agronomique pour le Développement (CIRAD)
Portugal	Universidade NOVA de Lisboa, Faculty of Science and Technology (FCT-Nova)
Slovenia	National Institute of Chemistry (NIC)
Spain	Universitat Politècnica de València (UPV)



www.vineas.net

System and sustainable Approach to virTuous interaction of Urban and Rural LaNdscapes

- Reinforce horticulture in Sweden and connect with transformation/users
- Individuate, launch a support a programm of inclusive agriculture in United Kingdom
- Educate and activate farmers and citizens into a trasformative model (Trento, Italy)

Pathways of change	Developing New and More Sustainable Practices
	Mainstreaming New and More Sustainable Practices
	Opening Up and Unlocking Dominant Practices

https://eventi.fmach.it/saturn

https://www.tipconsortium.net/a-narrative-about-the-transformation-to-sustainable-land-use-management-saturns-portfolio-of-actions/

Cross-KIC cooperation on Water Scarcity

Why is water scarcity important?

According to FAO, the food production consumes 70% of the world's fresh water resources; not only in growing crops and raising animals, but also in processed food, where water is a major ingredient.

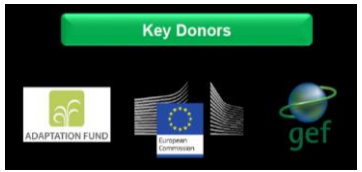
Why are we engaged?

Flooding and water scarcity in Europe will increase in the coming decades if the objectives of the Paris Agreement on climate change are not met. The European Commission, together with the KICs, is working with EU countries to overcome these challenges and encourage countries, companies and households to implement more water-efficient measures.

https://eit.europa.eu/news-events/news/water-scarcity

A new Innovation Adaptation Marketplace

The Adaptation Innovation Marketplace was developed in a partnership between UNDP, ICCCAD, the Adaptation Fund, the European Union, the Global Environmental Facility (GEF), the Global Resilience Partnership and EIT Climate-KIC.

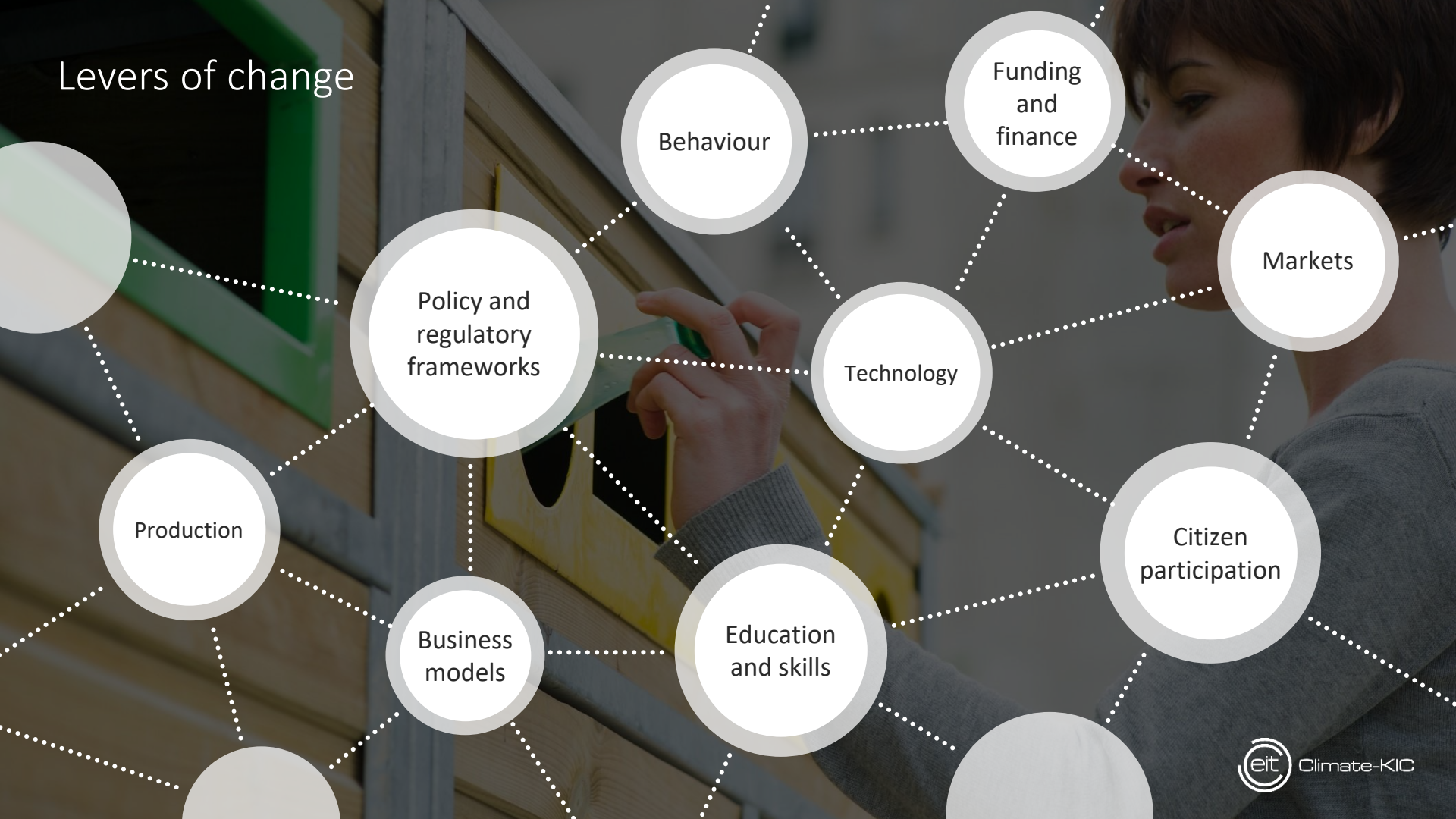


AF-EC-UNDP Innovation Small Grant Aggregator Window
Calls to build partnership with regional innovation centers, local technical assistance & business advisory partners.
https://www.adaptation-undp.org/smallgrantaggregator/

GEF - Resilience for Peace & Stability Window
Looking for partners that are working in least developed countries, fragile regions that are working on finance and building resilience.
https://www.globalresiliencepartnership.org/

https://www.adaptation-undp.org/UNDP-launches-the-adaptation-innovation-marketplace-at-the-Gobeshona-Global-Conference

Levers of change



Climate-KIC

In 2019 we launched eight ‘Deep Demonstrations’ as a test bed environment for the ‘1.5- consistent systems transitions’* called for by the IPCC, EC, UNFCCC and our own strategy and Theory of Change.

* Transition Super Labs’ were a recommendation of the Final Report of the High-Level Panel of the European Decarbonisation Pathways Initiative – this is the concept at the heart of our own ‘Deep Demonstrations’.

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10 years of experience has taught us that achieving the change we need requires a different approach to innovation

Incremental → **System innovation** → **Transformational**

Supply led		Demand led
Single projects and incremental change		Coordinated projects that build on each other
Isolated activities, often focused on technological improvements		Connected activities that access core areas of a system

Climate-KIC

A Deep Demonstration of…

Resilient Regions

EIT Climate-KIC will take a systems innovation approach to forging resilience, working with regions that are:

- Ambitious to be European and global leaders;
- Committed to placing climate resilience at the heart of their socio-economic agendas;
- Have a high level of vulnerability and exposure; and
- Demonstrate a commitment to using innovation as a tool to catalyse transformation.

Deep Demonstration Forging Resilient Regions – Sensemaking workshop, 1-3 July 2020
Cartoonists: Rebeka Ryvola

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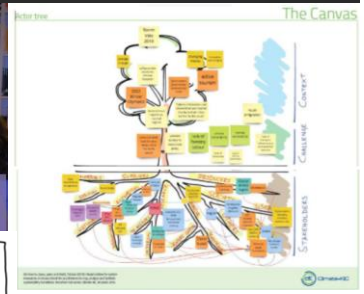
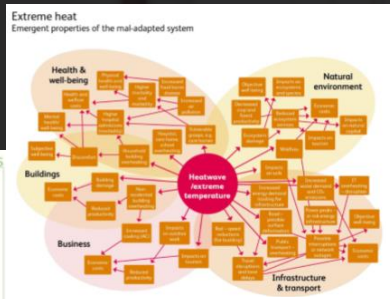
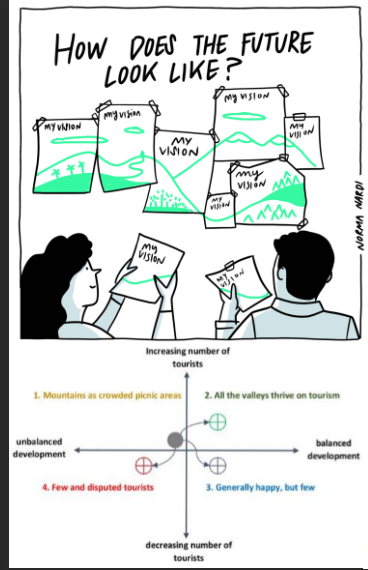
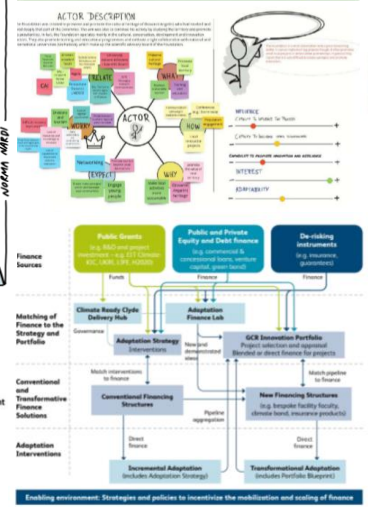
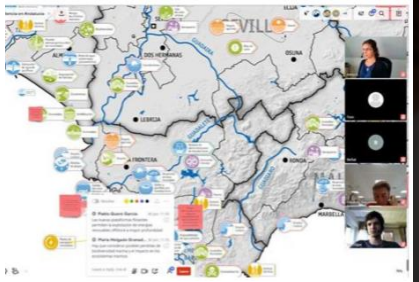
Visualising this…

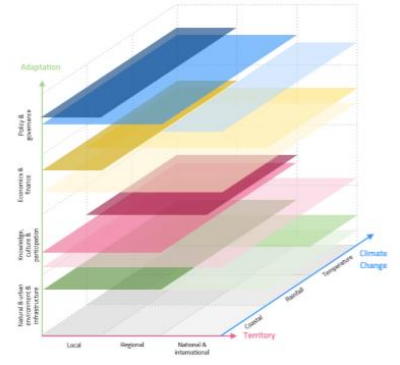












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Resilient Regions

Project areas

- Systemic resilience experiments and measures
- Clusters of active and connected networks working towards regional resilience
- Resilience policies, regulations and action plans that incorporate slow-onset changes, extreme events and systemic risks
- Community engagement and empowerment for a fair transition
- Rebooted regional growth through long-term investments and new resilience sector job creation
- Territorial renewal by creating liveable places and stewarding natural capital

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Resilient Regions – Dolomites (2020)

A proposed portfolio logic

- Dimensions to learn from and define innovation actions
  - Resilience (stability, adaptive capacity, readiness)
  - Systems (tourism, communities, forestry & wood)
  - Response (adapt, mitigate, prevent)
- Emerging needs
  - Innovation capacity
  - Finance and insurance schemes
  - Engagement and cooperation in risk management

UNIVERSITY OF TRENTO
HIT HUB INNOVAZIONE TRENTINO
FONDAZIONE EDMUND MACH
eit Climate-KIC
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What's next

Deep Demonstration Forging Resilient Regions – Sensemaking workshop, 1-3 July 2020
Cartoonists: Rebeka Ryvola

- Working with the most vulnerable communities to adopt solutions and implement resilience plans
- Connecting locally-led business creation efforts with investors
- Using climate innovation for a more systemic approach to adaptation

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CLIMATE ADAPTATION: WHAT OPPORTUNITIES FOR MOUNTAIN BUSINESSES?

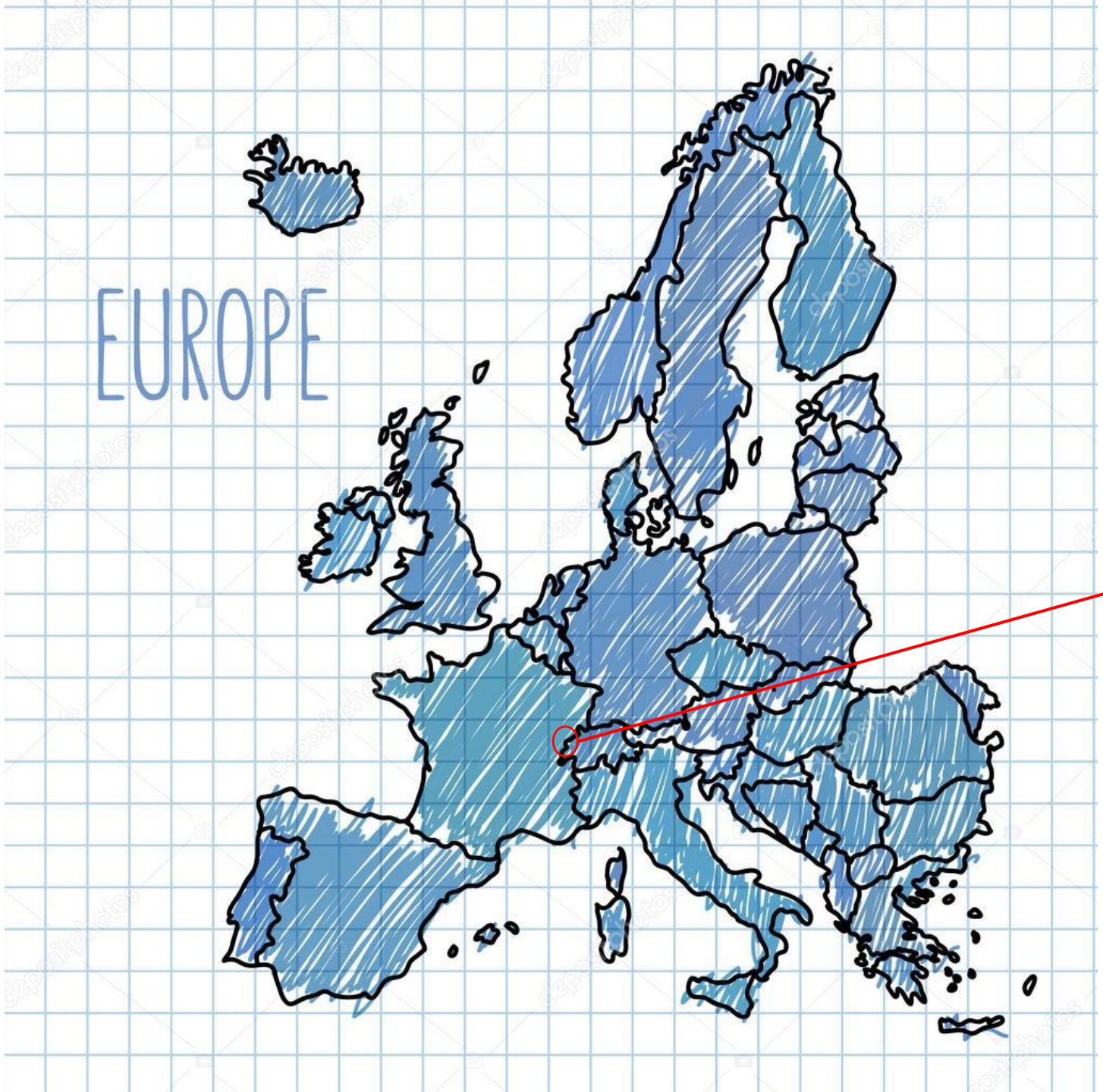
EUROMONTANA

Webinar • 27 May 2021 • 14:00 – 15:45

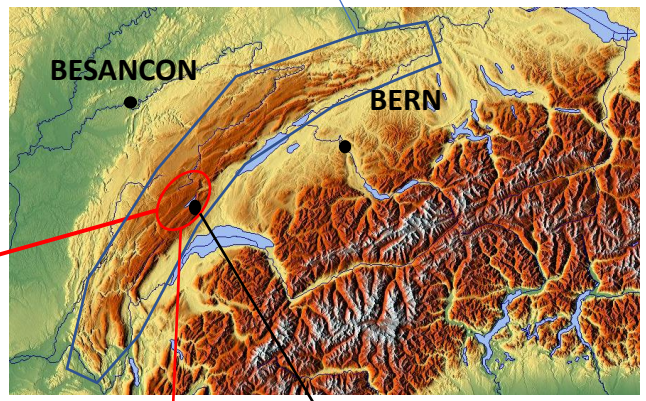
ADAPTING TOURISM MODEL OF METABIEF RESORT TO CLIMATE CHANGE

Olivier ERARD

EUROMONTANA



JURA MOUNTAINS



METABIEF

HAUT-DOUBS AREA

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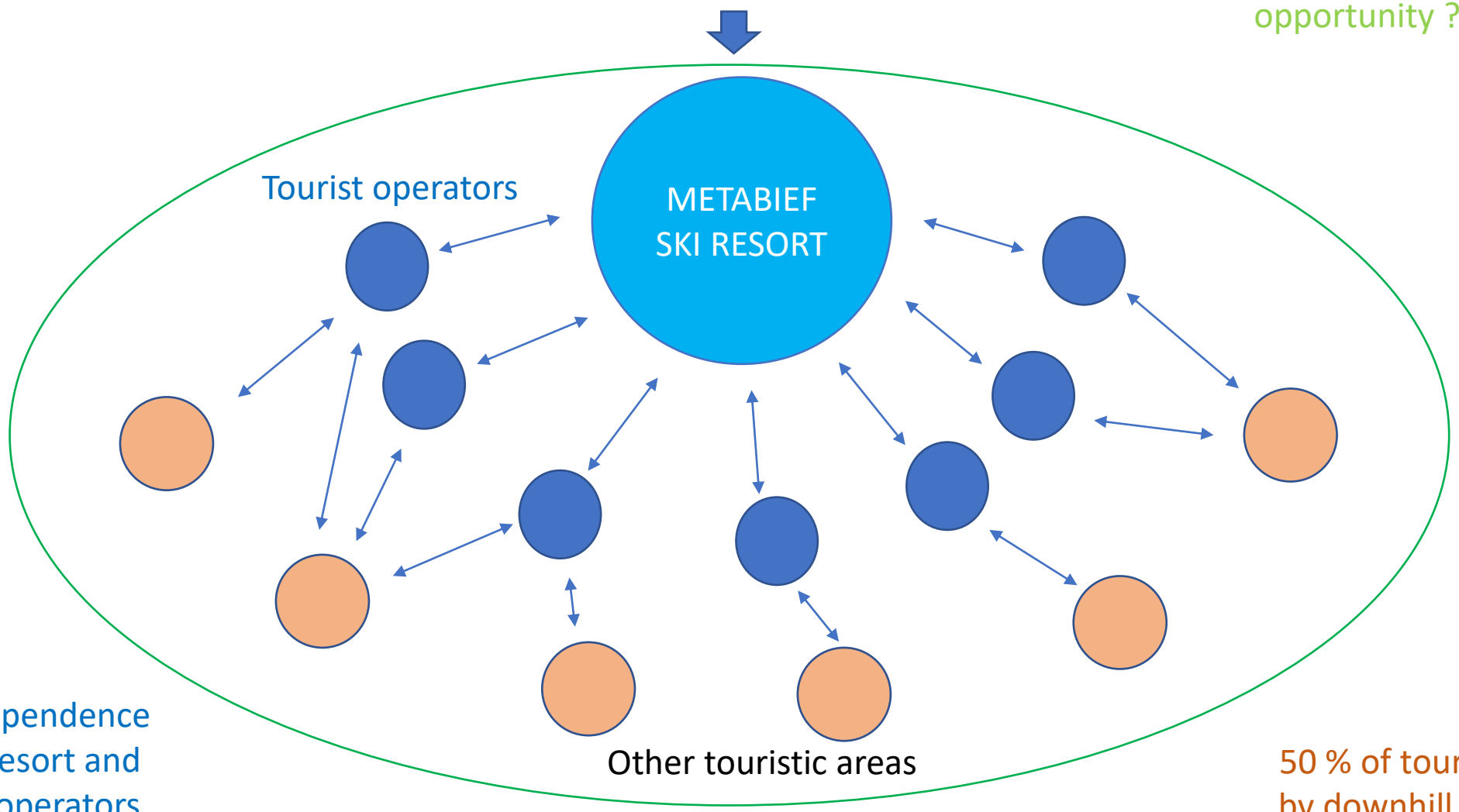
mêtabief
montagnes du Jura

Altitude : from 900 m to 1 400 m
40 km of ski slopes (all levels)
Snowmaking = 40 % of ski area

Downhill Mountain Bike : 25 km of trails (all levels)
Alpine coaster
Mountain hiking (all levels)

Present business tourism model of Haut-Doubs area

Climate change = THREAT on the present model → How to make it an opportunity ?



Strong interdependence between ski resort and other tourist operators

50 % of tourism revenues by downhill skiing activity

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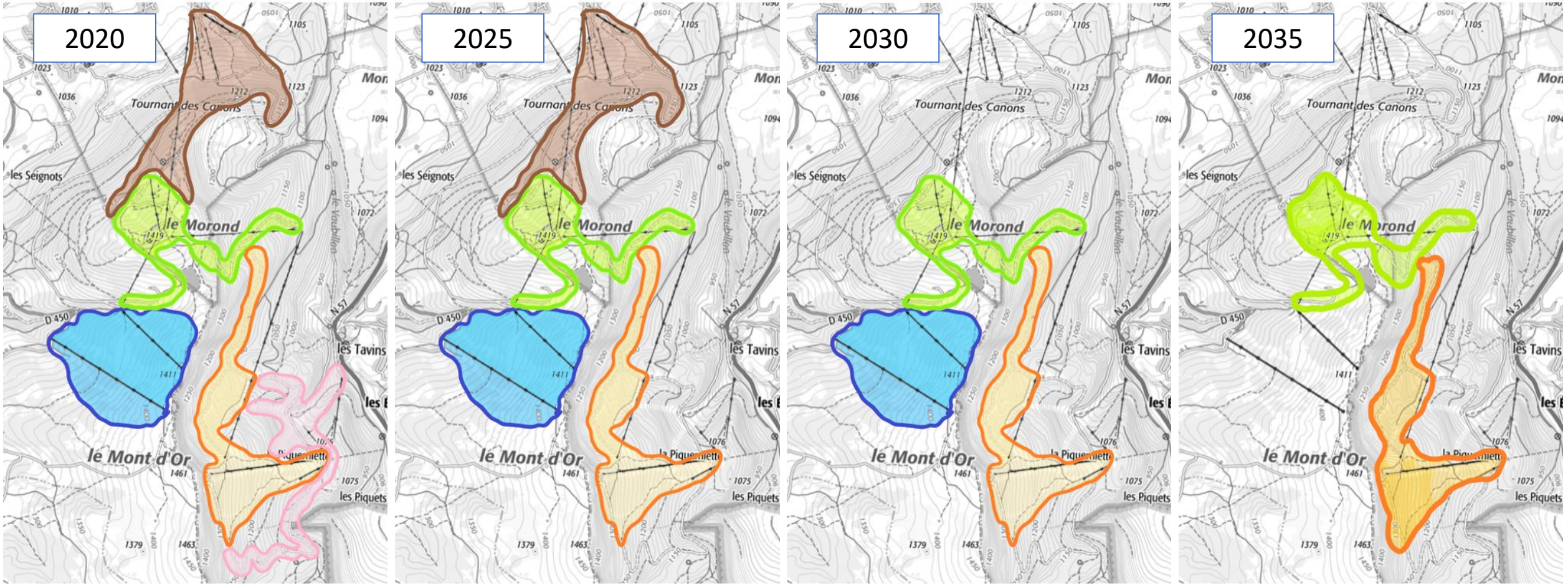
Internal approach of climate change effects on downhill skiing

- Limit rain / snow => increase of 100 meters for 10 years (hypothesis from regional climate model)
- Time available to make snow => loss of 6 hours per year (alpine thesis and analysis of local data)



FINANCIAL BALANCE → ECONOMICALLY NON VIABLE

CLIMSNOW Model applied to Metabief resort

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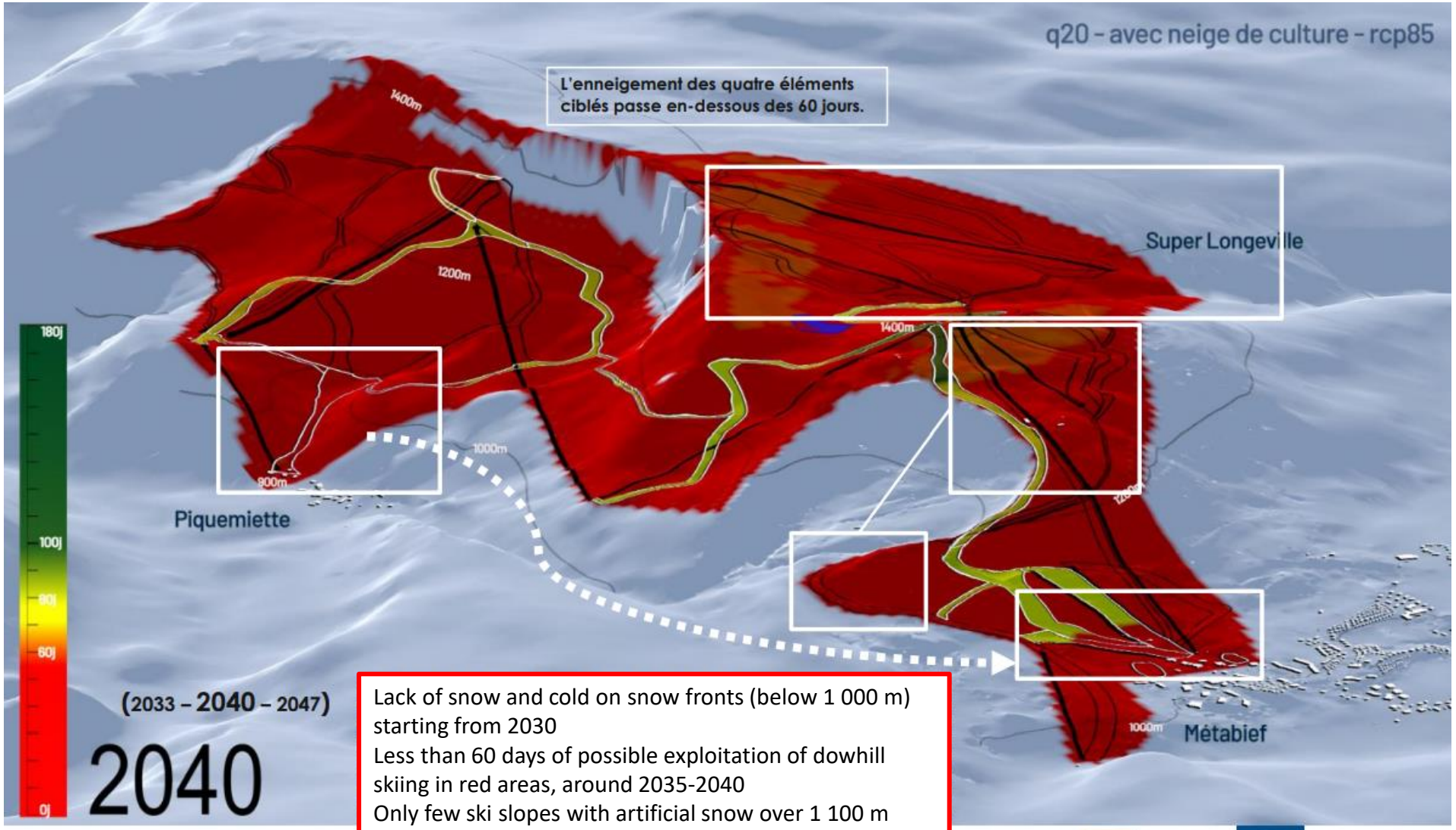
2030 : very bad conditions ok ski product on snow fronts
2035 : less than 60 days of possible exploitation without snowmaking => economically non viable
2040 : only 30 % of possible exploitation => less than 50 % of sale revenues

Great loss of tourist attractiveness starting from 2030 and critical situation in 2035



Lack of snow and cold on snow fronts (below 1 000 m) starting from 2030
Less than 60 days of possible exploitation of dowhill skiing in red areas, around 2035-2040
Only few ski slopes with artificial snow over 1 100 m until 2040 = only 30 % of possible exploitation

DIANEIGE
METEO FRANCE
INRAE

EUROMONTANA

2016

2017

2018

2019

2020

2021

Internal approach

Strong commitment made by elected officials and involving employees in climate change topic

Local data
Snowmakers analysis

Technical innovation to maintain ski lifts without big investment

Dialogue
Pedagogy
Storytelling

CHANGE ACCEPTANCE

DYNAMIC PROCESS OF CHANGE

Engineering for climate change transition

CLIMATE CHANGE TRANSITION STRATEGY

CLIMSNOW Model

Climate change strategy transition for ski resort



Maintaining downhill ski with limited investments and decreasing the snow dependent debt

Today

2030- 2035



Limited development of sustainable OUTDOOR activities on the mountain massif in order to increase the environmental wealth of the area and preserve pastoralism and forestry




Risk = loss of 50 % of the tourism revenues

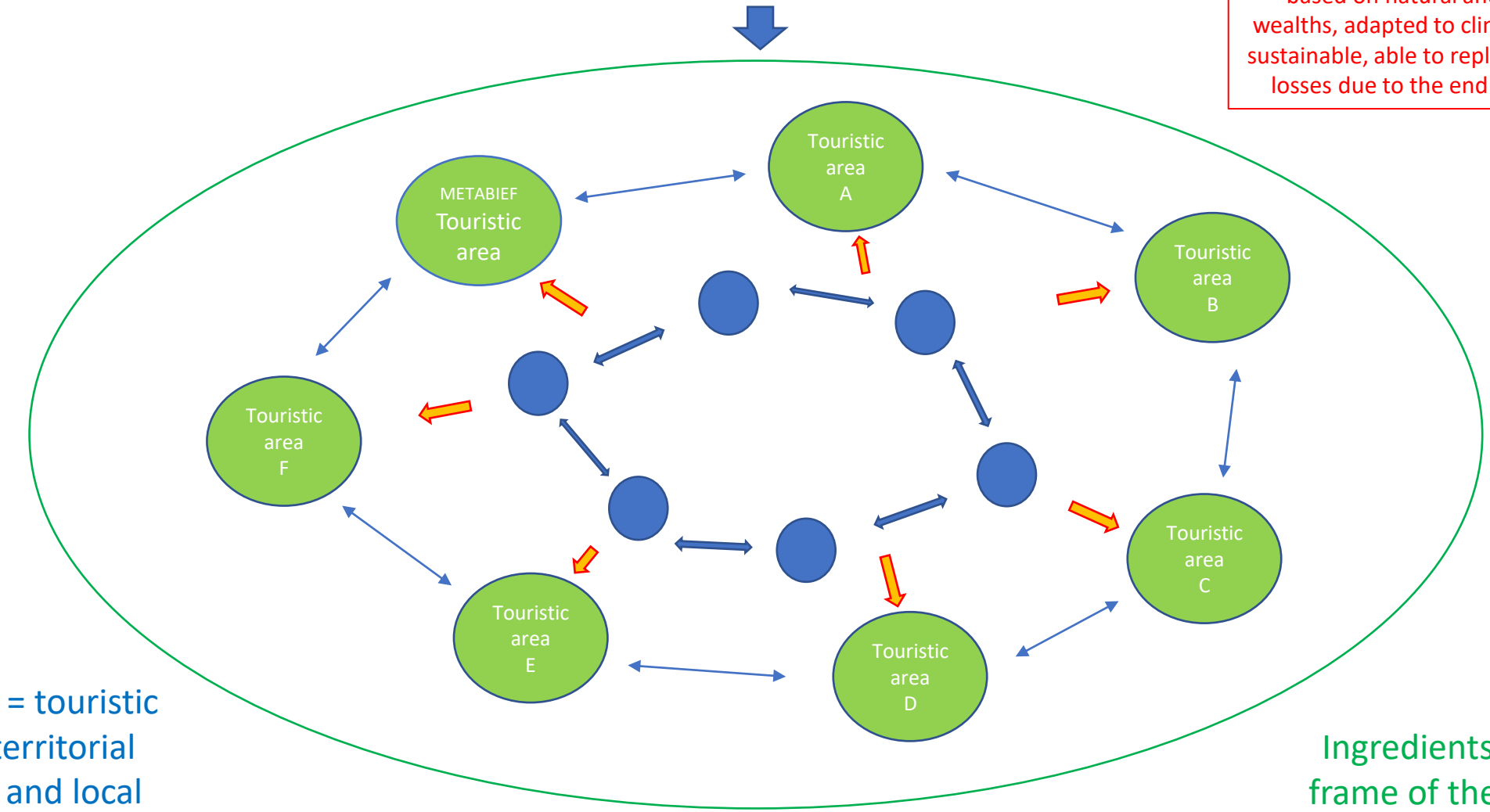
↓

End of tourism or opportunity to build a new Model ?

New business tourism model for Haut-Doubs area

Climate change = OPPORTUNITY to build a new model

Goal = to reach new community activities based on natural and patrimonial wealths, adapted to climate change and sustainable, able to replace the revenues losses due to the end of downhill ski



System's core = touristic operators , territorial collectivities and local inhabitants

Ingredients = values and frame of the new model + cooperation

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Values and frame for a new tourism model on Haut-Doubs area

Creation of a brand to mark the turning point in tourism strategy

by Montagnes du Jura

Frame for the action

DOUBS

OUTDOOR, NATURE AND HEALTH FOR OVERYONE

Branding with sustainable values

SUSTAINABLE TOURISM

Developing tourist products that are accessible to the general public, accepted by local inhabitants and adapted to climate change

HUMANISM

Human as the system's core to promote human values : health, well-being, social inclusion and cohesion, personal development

CIRCULAR ECONOMY

Developing local products between local operators, creating local marketing networks and enhancing professional skills

INNOVATION

Developing the sense of change and skills to boost the spirit of creativity, in order to be flexible and agile

ENVIRONMENT

Putting biodiversity at the centre of activities and professional skills, empower people, making environment loved by people in ordre to protect it

Cooperation for a new tourism model on Haut-Doubs area

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Levy on ski pass from METABIEF ski resort

Finance

Engineering for climate change transition

Project management for ski resort transition

Change management

Territorial collectivities

Tourist operators

TOURISM OFFICE

Haut-Doubs by Montagnes du Jura

LAB'O

THINK TANK FOR A SMART MOUNTAIN
Innovation / Collective intelligence

Local inhabitants Clubs

Product

INVESTMENT

COSTUMER SERVICES

Contribute

LINK TOURISM/ TERRITORY

TOURISM PROMOTION

ANIMATION

Evolving costumer practices
New trends

Progressif construction of a new tourisme model on Haut-Doubs area

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First ACHIEVEMENTS

JURASSIC VÉLO TOURS by Montagnes du Jura

e-bike network with digital tools for touristic discovery

Ultra Trail des Montagnes du Jura®

Ultra Trail on Jura Mountain

SPORTS CLUBS OUTD'OR

Federation of OUTDOOR clubs

Mountain Bike / Trail running / Nordic walking Project

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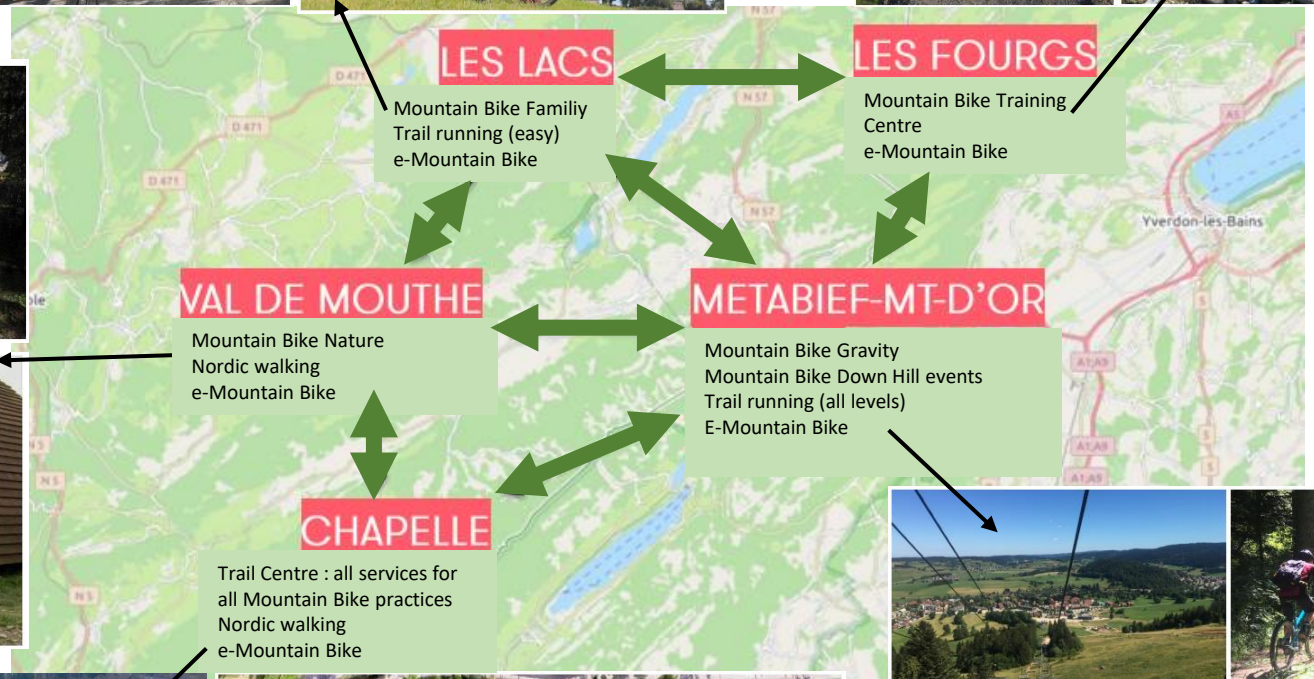





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Ongoing studies and experimental project

OUTDOOR for disabled persons

MASTERPLAN for investments adapted to climate change

SUSTAINABLE OUTDOOR

Parc naturel régional du Haut-Jura

Quiétude attitude

Les bons réflexes nature

RANDONNÉE

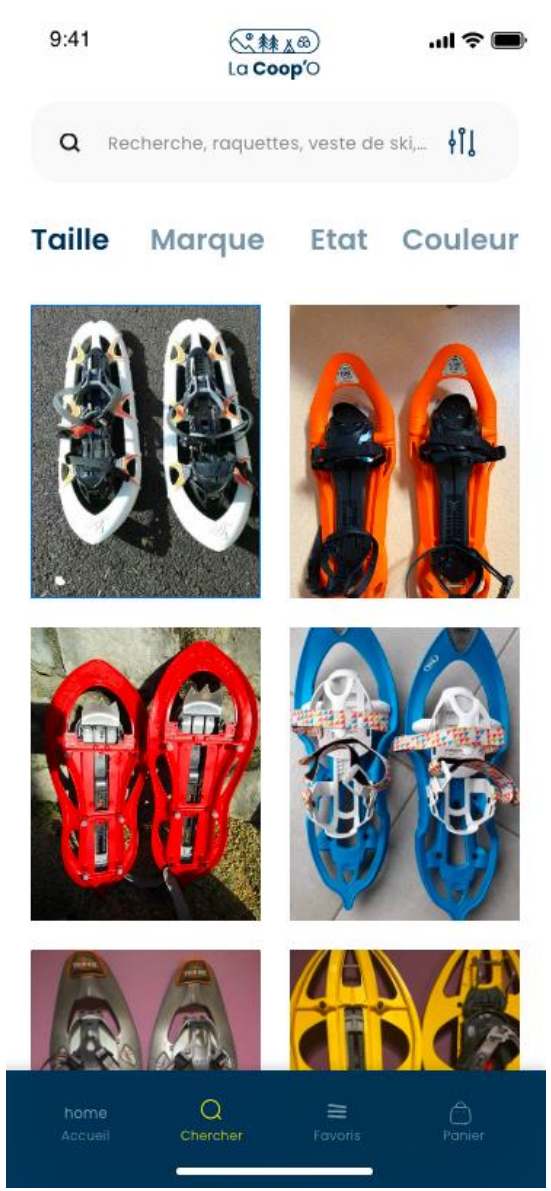
VTT

ESCALADE & ALPINISME

TRAIL

EUROMONTANA

First ideas from THINK TANK from design fiction work sessions



Federation of tourist operators for buying, lending, repairing and reselling OUTDOOR tools

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First ideas from THINK TANK from design fiction work sessions

New touristic activities

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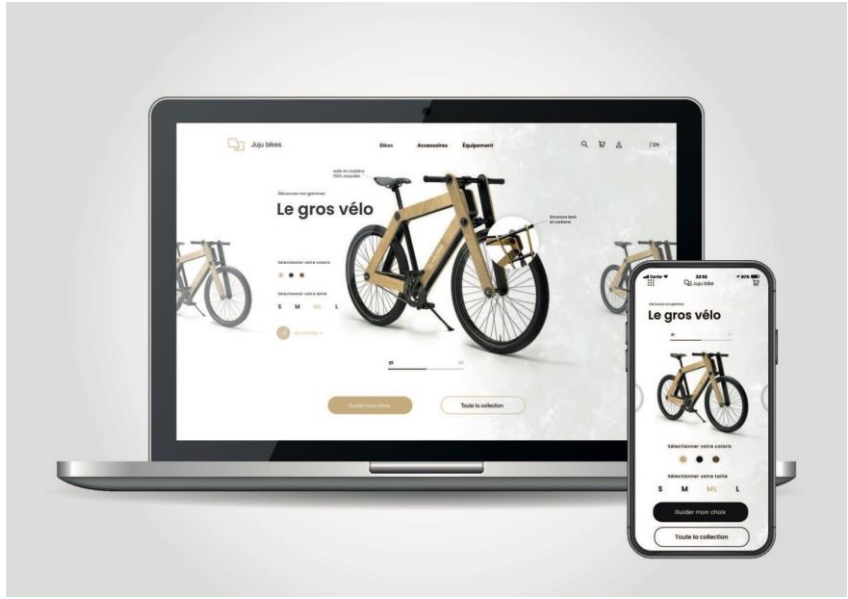
First ideas from THINK TANK from design fiction work sessions



Mountain bikes made in Jura

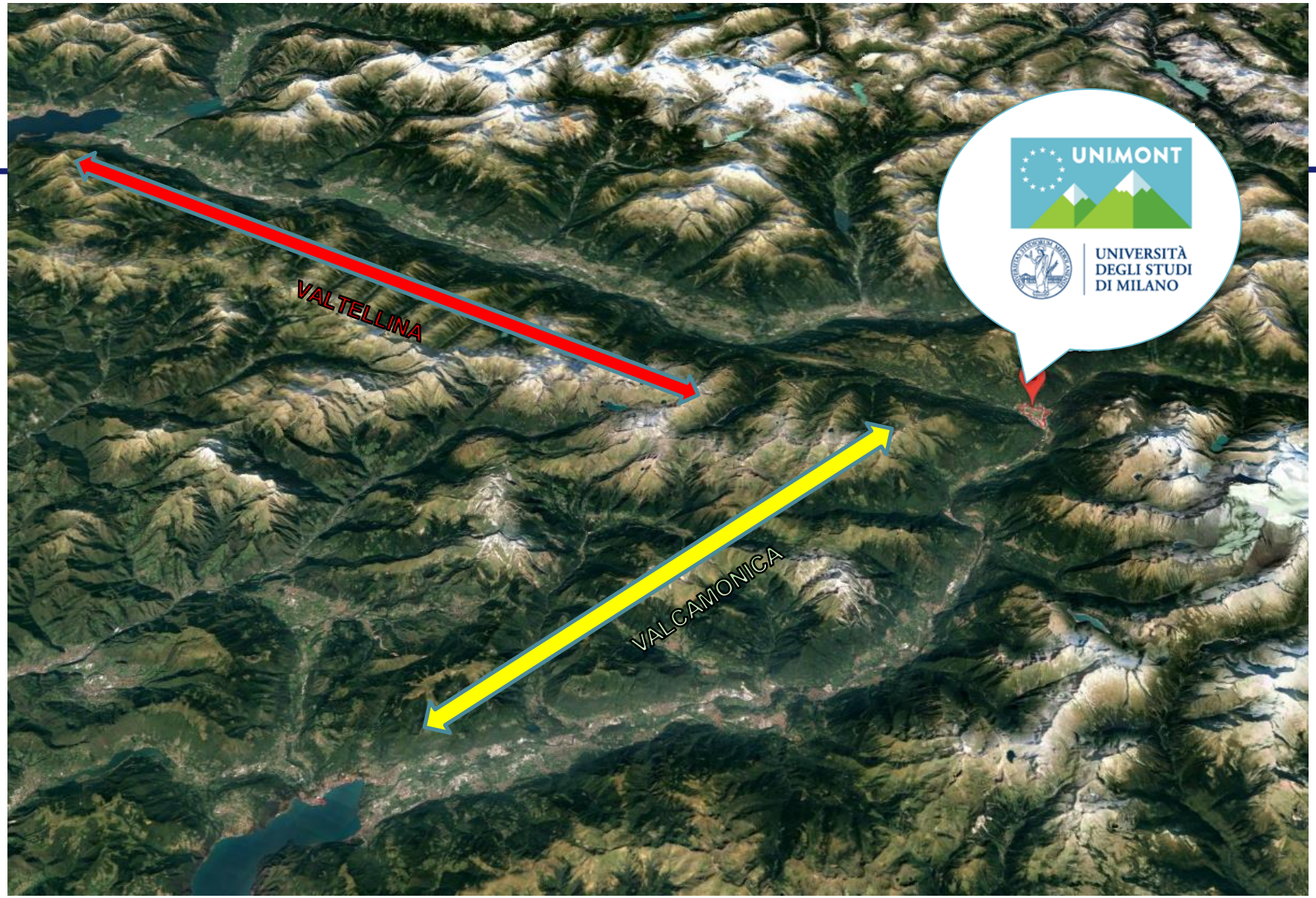
UNIMONT

UNIVERSITÀ DELLA MONTAGNA

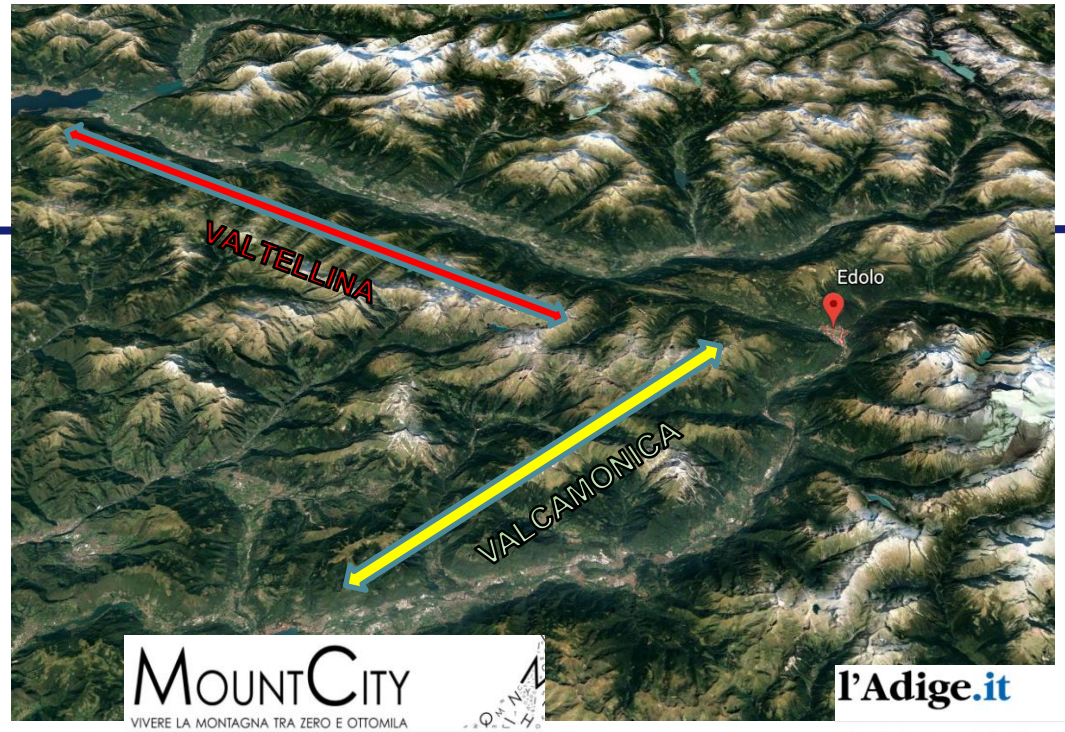
Italian Alps – the new frontier of olive oil production

Valeria Leoni, Research Fellow,
University Centre UNIMONT –
University of Milan

UNIVERSITÀ DEGLI STUDI DI MILANO
DIPARTIMENTO DI SCIENZE AGRARIE
E AMBIENTALI - PRODUZIONE,
TERRITORIO, AGROENERGIA



UNIMONT is an innovative training and research centre of the University of Milan made up of the three-year degree course in “Conservation and Sustainable Development of Mountain areas” and “Center of Applied Studies for the Sustainable Management and Protection of Mountain Areas (GeSDiMont)”



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LAPROVINCIADISONDRIO.IT

L'ulivo avanza a Nord. Con il clima che cambia è sempre più diffuso

"The olive tree advances North. With the changing climate it is more and more widespread"

MOUNTCITY

VIVERE LA MONTAGNA TRA ZERO E OTTOMILA

Ambiente | Montagna | Quassù | Società

RACCOLTA AL VIA NEGLI ULIVETI DI MONTAGNA

02/11/2016

"Harvest starts in mountain olive groves"

l'Adige.it

Comuni: Trento Rovereto Pergine Riva - Arco Territori

Cronaca | Attualità | Economia | Cultura e Spettacoli | Salute e Benessere | Monta

Hot Topics: Il Trentino riapre bar e ristoranti | Il punto sui vaccini | Covid: i dati di oggi

Sei in: Montagna » Vigneti e ulivi cercano il fresco »

Vigneti e ulivi cercano il fresco

#Clima #Vigneti #Ulivi #Montagna

07 luglio 2019

«Vineyards and olive trees are looking for 'cool'»

B Territori

/// BRESCIA /// HINTERLAND /// BASSA /// VALTROMPIA /// VALSABBIA /// GARDA

Valcamonica

L'olivicoltura camuna? L'Apav invita gli attori ad alzare l'asticella

02 marzo 2020

"Olive growing in Vallecamonica? APAV fosters farmers to raise the bar"

Conquest or return?

In the Thirteenth Century, with the climatic optimum, there were many areas of the Alps where there was a microclimate suitable for hosting Mediterranean crops, encouraged by the Christian religion and the use of oil for liturgical purposes

Historical evidences

Natural evidences

↓

centuries-old stumps

FIRST STUDY CASE:
IVANO FOIANINI - Fojanini foundation of Superior Studies
SONDRIO (VALTELLINA)

Nineties: first experimental fields to help some “pioneers”
Propose **ideas** to recover abandoned traditional terraced vineyards

Olive trees grew well in the following years, with qualitative and productive characteristics comparable to those of the Lariana area (lake Como), which is the closest traditional olive growing area

Trend of the last decade: **increase of about 1000 olive trees per year**. In the last 10 years or so, the cultivation of olive trees on the sunniest ridges of the **Valtellina mountains** has reached about **20 thousand plants** (data confirmed by COLDIRETTI farmer association).

FIRST STUDY CASE:
IVANO FOIANINI - Fojanini foundation of Superior Studies SONDRIO (VALTELLINA)

Climate change

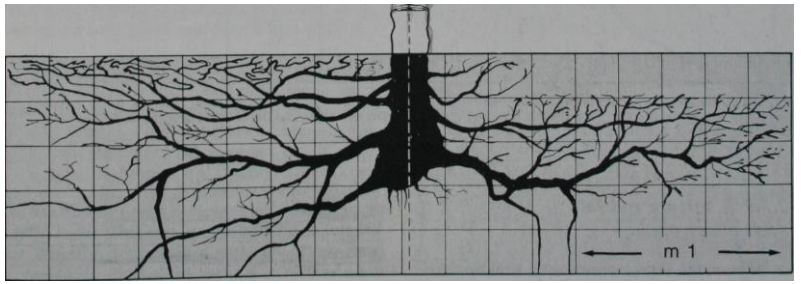
- For several years, **the olive trees have come winter out unscathed and are in good condition in spring**
- **Paradoxically**, in the periods of intense frost, **in the areas of Valtellina there was less damage from frost** because the plants wintered better than in warmer areas
- the olive tree has shown greater **adaptability to periods of drought** in which the areas of the terraces lacked water
- **Winters are perceived as milder by the local farmers** and the good quality of the oil encouraged many producers to start family micro-productions and recover abandoned areas with olive groves

Cultural and social trends

- Willingness to **recover the territory** (**new generations**)
- Olive tree is rustic plant, and it is **suitable for low input crops coherent with the new perceptions of agriculture**
- Fascinating plant and **linked to an idea of a healthy diet** comparing to animal fats (butter), traditional of the Valtellina area

FIRST STUDY CASE:
IVANO FOIANINI - Fojanini foundation of Superior Studies SONDRIO (VALTELLINA)

Olive cultivation is leading to positive interventions in the area (restoration of arable land, recovery of traditional structures) and **undoubted advantages from a landscape and hydrogeological point of view**



The olive tree represents **a good transitional cultivation** for the recovery of terraced areas abandoned for decades, where there are stumps that must be degraded **before preparing the planting of the vineyard**

Valtellina olive growing will never be a substitute for other traditional crops as vineyards but will probably remain relegated to some areas of the Rhaetian side and conceived as **a good recovery of uncultivated areas**, maintenance of the most disadvantaged areas and a substitute for vines and a valid alternative to reforestation of abandoned farmland

FIRST STUDY CASE:
IVANO FOIANINI - Fojanini foundation of Superior Studies SONDRIO (VALTELLINA)

Future trends

- In the wine-growing areas (DOCG) **the vineyard is** obviously **preferred by young farmers** (viticulture is traditional in the valley and is more valid at profitable)
- In areas outside the DOCG or close to the towns there is a further spread of olive growing, also for **hobby and self-production purposes**
- Other non-traditional plants: we have observed for example **saffron**, mainly for hobby purposes and with a minor impact on the landscape

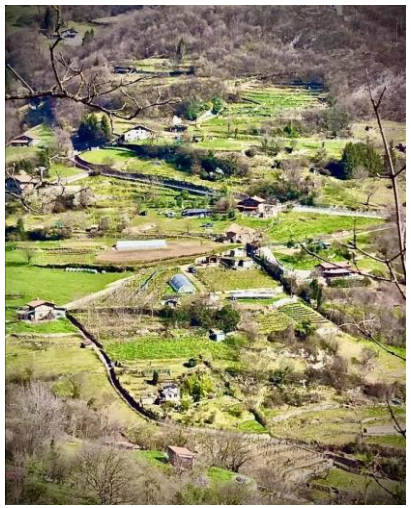
R&I to be done

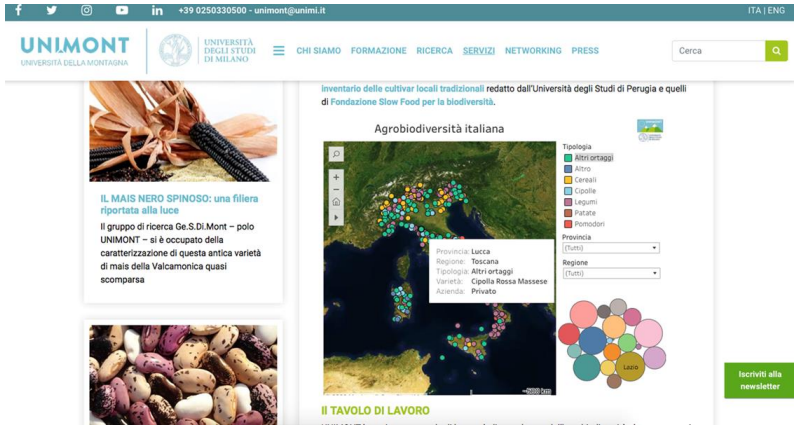
- The most suitable **varieties** (the traditional and more used varieties do not fit the terraced mountain environment)
- Improve the economic sustainability of the activity in the mountains (**mechanization and smart solutions**)

SECOND STUDY CASE: Organic farm Alena Malegno (Valcamonica)

"Alena - Made in Italy from 2017 - Val Camonica - ethic, natural, sustainable"

- **Young entrepreuners**
- Promote **traditional resources** of the territory (**landraces**)
- **Multifunctional** (mountain berries, fruit, vegetables)
- **Recover the land**
- Looking for a **short supply chain**: willingness to bring production closer to the final consumer through transformation (first through third-party laboratories and then directly in the farm)
- "**Smart farm**": recently, **e-commerce** has also been launched in addition to direct sale in the farm, markets, local resales etc. currently the farm can supply a line of about 40 processed products (jams and baked goods)





SECOND STUDY CASE: Organic farm Alena Malegno (Valcamonica)

Most recent Alena farm strategy: olive oil

???

- **Other farms are successfully growing olive trees** in the Valley
- To **increase the farm's offer** with a product of the highest quality and value, sought after by consumers.
- **Climate change has its role in the choice, as olive growing in the Valley has always been present but appears more feasible in recent years due to the perception of less cold winters**

Now **the olive tree is a test**, 4000 square meters have been planted with about 500 trees, which is about 15% of the farm area.
The test is also related to **agronomic and harvesting practices** as it is **located on a terraced land inaccessible to agricultural vehicles.**
The farm needed rustic and resistant varieties, suitable for low input cultivation in the mountains and organic agriculture

If the test is successful, the farm is certainly aiming for an increase in the olive grove area

Landscape improvement / prevention of hydrogeological risks and recover of traditional structures

Much of the farmland is restored from abandoned land and in this case **4000 square meters have been recovered** which have **a visible impact on the landscape on the mountain side.**
Inherited "dust" particles lands that couldn't be used individually were **gathered** in the commonality
The lands are **terraced** and inaccessible to vehicles. Surely there is therefore an advantage at the territorial level, as **the farm restored the road system on the plot**

Terraced lands were recovered with unquestionable advantages on the land, the restraint of hydrogeological risk and recover of farmlands

THANK YOU FOR YOUR ATTENTION

Valeria Leoni – valeria.leoni@unimi.it

Interreg Alpine Space ALPTREES
European Regional Development Fund

EUROPEAN UNION

A Transnational Cooperation for Sustainable Use Management of Non-Native Trees in Urban, Peri-Urban and Forest Ecosystems in the Alpine Region

ALPTREES

Economic Opportunities & Risks of Non-native Tree Species In The Forest Value Chain

EUROMONTANA Webinar, 27th of May 2021
Pädagogische Hochschule Steiermark

MESTNA OBČINA MARIBOR
LAMORO AGENZIA DI SVILUPPO
FVA Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg
KLAGENFURT AM WÖRTHERSEE
Cerema
IIASA International Institute for Applied Systems Analysis www.iiasa.ac.at
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RAZVOJNA AGENCIJA SORA d.o.o.
irstea LA SCIENCE AU CŒUR DE L'ENVIRONNEMENT
GOZDARSKI INŠTITUT SLOVENIJE SLOVENIAN FORESTRY INSTITUTE
BFW.

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Native trees refer to tree species of natural, post-glacial forest development in the Alpine Space region.






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Non-native trees (NNT) also known as “non-indigenous”, “alien”, “introduced”, “allochthonous” or “exotic” trees, refer to tree species, breeds or hybrids in the Alpine Space region, whose presence there is as a result of human activity, due to intentional or accidental introduction.

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Non-invasive trees refer to NNT that do not show or suggest any negative impact so far, or their effects are unknown.

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Cedrus libani A. Rich (Lebanon cedar)

Safe NNT that currently pose no risks

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Cedrus libani A. Rich (Lebanon cedar)

Safe NNT that currently pose no risks

Pseudotsuga menziesii (Mirb.) Franco (Douglas-fir)

NNT that can pose risks in some environmental contexts, but are safe in other environments

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Safe NNT that currently pose no risks

Pseudotsuga menziesii (Mirb.) Franco (Douglas-fir)

NNT that can pose risks in some environmental contexts, but are safe in other environments

Prunus serotina Ehrh. (black cherry)

NNT expected to pose high risks and that cannot be controlled by specific management measures

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Non-native trees in the Alpine Space

- In total **526 NNT** are currently growing in **forests and urban** areas in the Alpine Space

- **67%** are currently being cultivated exclusively in cities

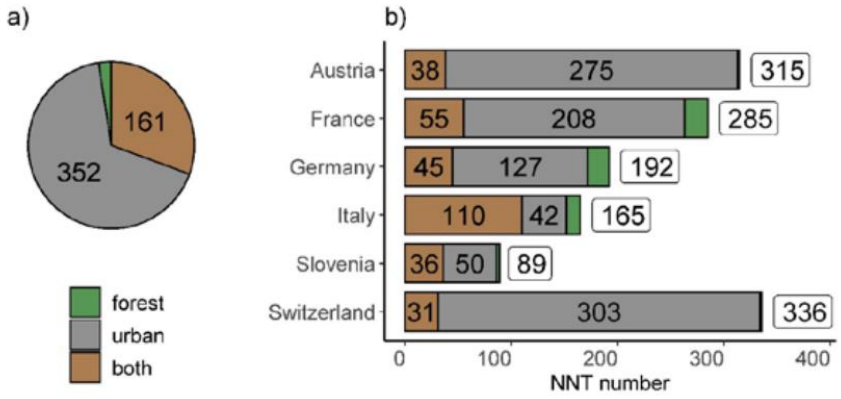
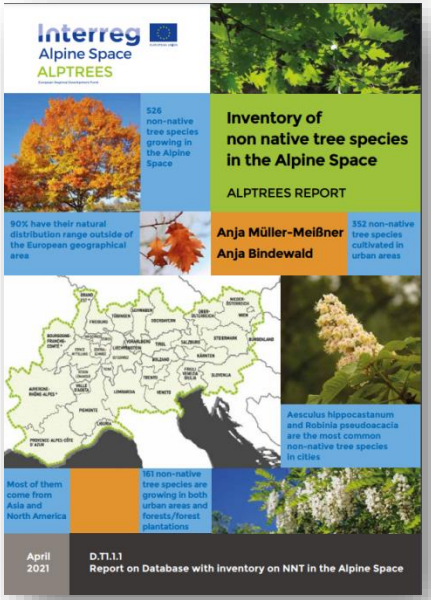


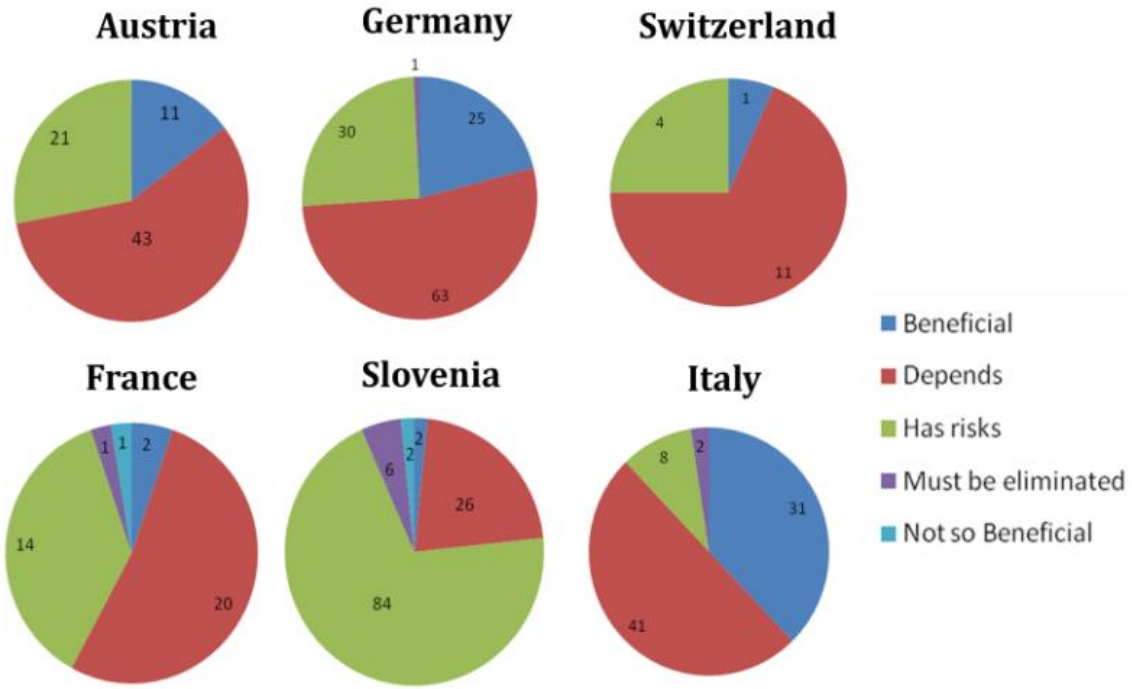
Figure 6 NNT growing in forests, cities or both forests and cities a) across the entire Alpine Space region, b) for the individual countries in the Alpine Space. The box contains the total number of NNT in each case.

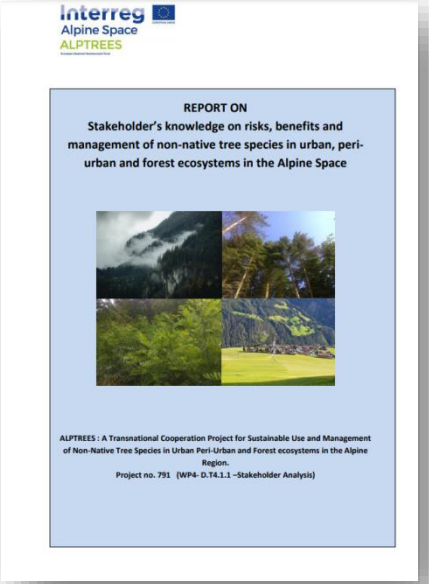
- Most NNT from **Asia** (248, i.e. 53%), **North America** (180, i.e. 39%)



https://alpine-space.eu/projects/alptrees/deliverables/d.t1.1.1-alptrees_report-on-database-with-inventory.pdf

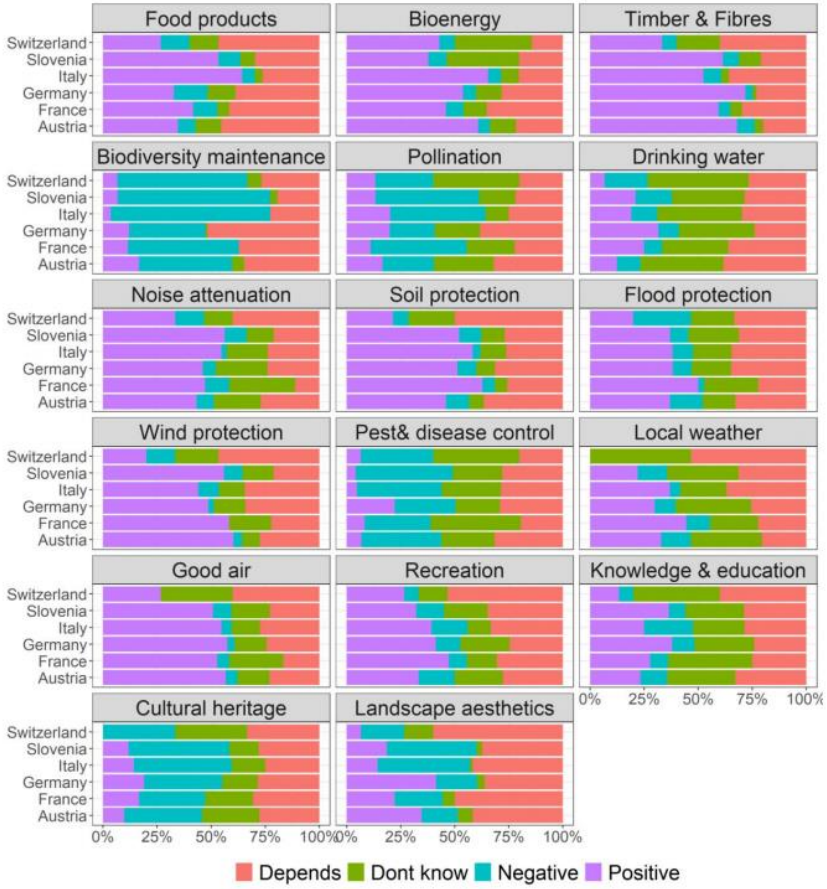
Stakeholder survey / Perception on NNTs

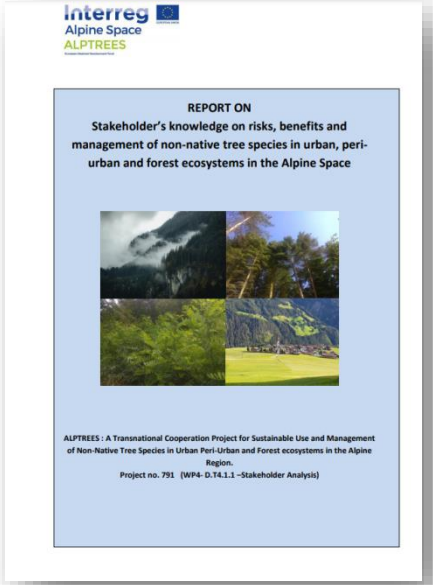




https://alpine-space.eu/projects/alptrees/deliverables/d.t.4.1.1-stakeholder-analysis-report.pdf

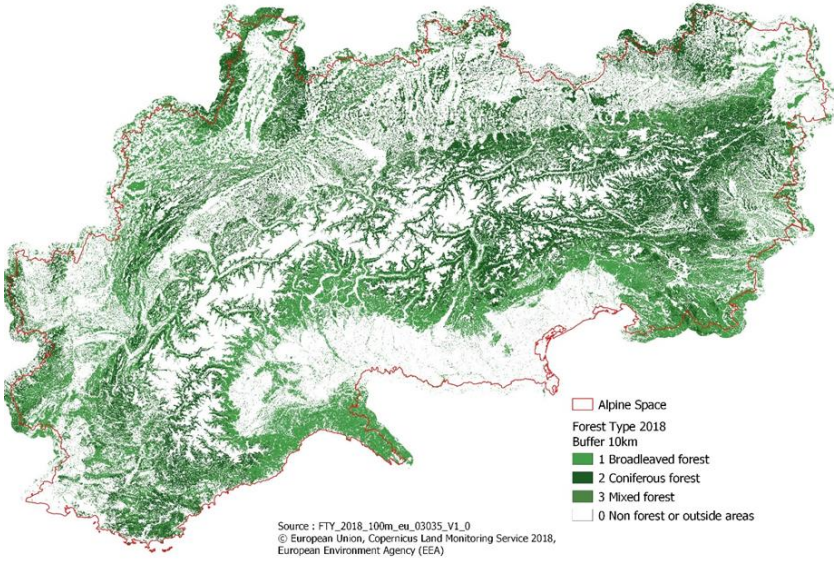
Stakeholder survey / Ecosystem services



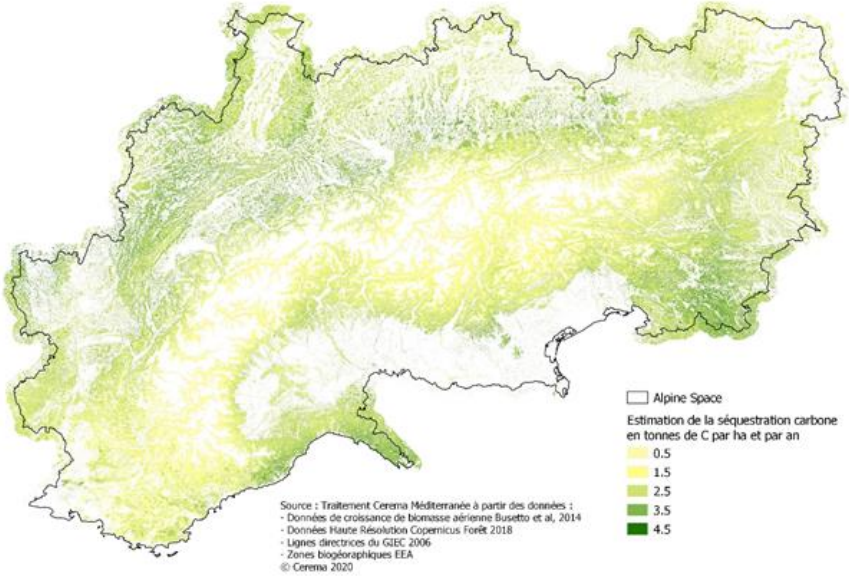


https://alpine-space.eu/projects/alptrees/deliverables/d.t.4.1.1-stakeholder-analysis-report.pdf

Ecosystem services assessment



Seq_carbone_buffer10km = 0,47 x Croiss_biomass_tot_buffer10km

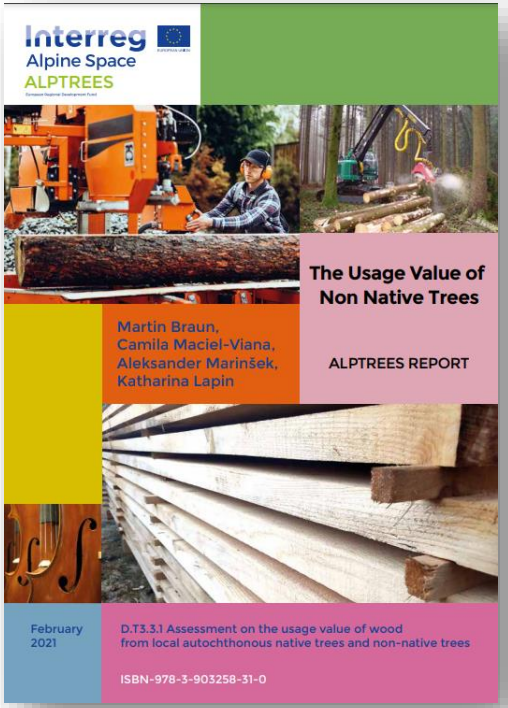


Forest_2018 et ***Forest_2018_buffer_10km*** rasters are obtained by reclassifying ***Forest_type_2018*** and ***Forest_Type_2018_buffer_10km*** in 2 classes : 0 : Non forest or outside areas ; 1 :Forest.

The Usage Value of Non Native Trees

photo: Eric Meier, www.wood-database.com

Figure 3:
left - Red oak (Quercus rubra) in the forest stand,
right - veneer sample of its wood



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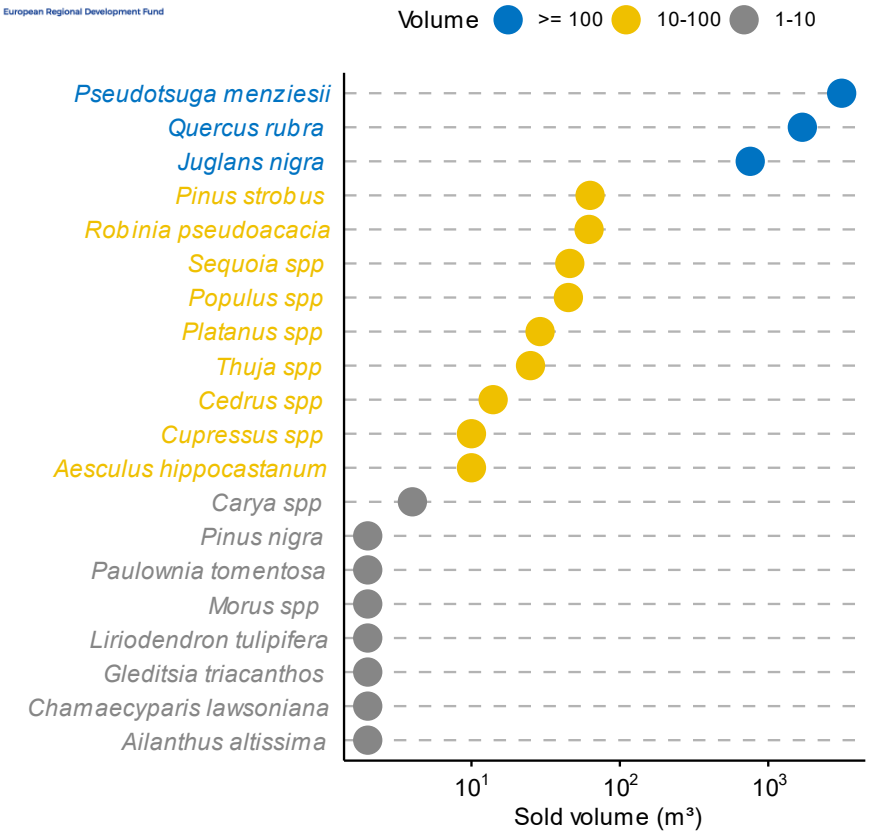


Figure 2:
left - Douglas fir (Pseudotsuga menziesii) in the forest stand and its needles and cone
right - veneer sample of Douglas fir

The Usage Value of Non Native Trees

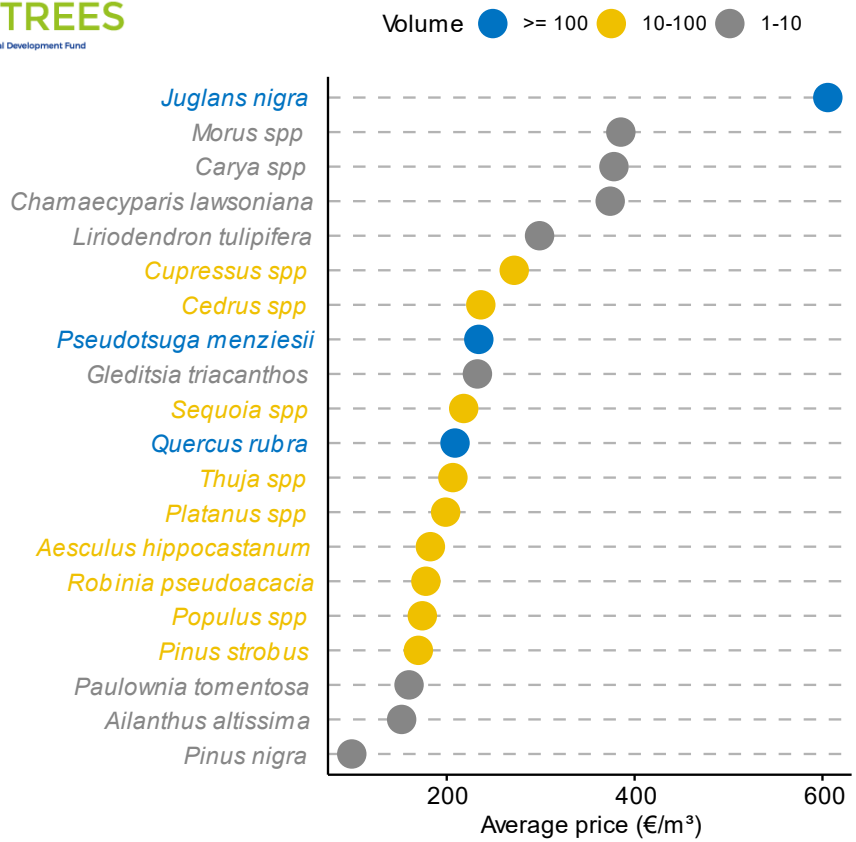


Figure 5: Left - Black walnut (Juglans nigra) in the forest stand, right - veneer sample of its wood

The Usage Value of Non Native Trees

Figure 36: Paulownia beehive, Tomasoni, Italy

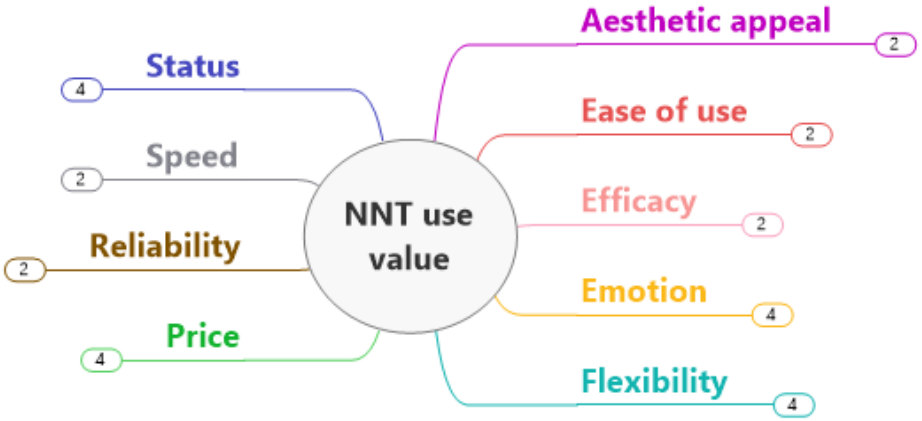
Figure 37: Paulownia smartphone speaker amplifiers, Tomasoni, Italy

Figure 35: Robinia parquet flooring. Advertised with children's toys to illustrate its durability, Weitzer, Austria

The Usage Value of Non Native Trees

- **Economic benefits** have been collected by some active actors.
- There is interest in **keeping or increasing economic benefits** yielding.
- Some of the NNT wood values have been wasted. There is space for value adding **(quality, marketing, research).**

- Costumers' requests have **indirect impact on the utilization** of NNT wood.



- There are **gaps in the supply chain**.
- NNT wood availability, acquisition and manufacturing are **scattered**.
- Volumes of NNT wood applied in the production are **minimal**.
- NNT wood species occupy **production´s niches.**

Risks

PHASE	introduction	establishment and reproduction	spreading and causing damage
NAME	alien species	naturalized alien species	invasive alien species

Alien species are all living being, which are transported by humans (on purpose or not on purpose) outside their native range, which could not be reached without the help of humans.

Invasive alien species: …threaten biodiversity, ecosystems or the way we live

Risks

PHASE	introduction	establishment and reproduction	spreading and causing damage
NAME	alien species	naturalized alien species	invasive alien species

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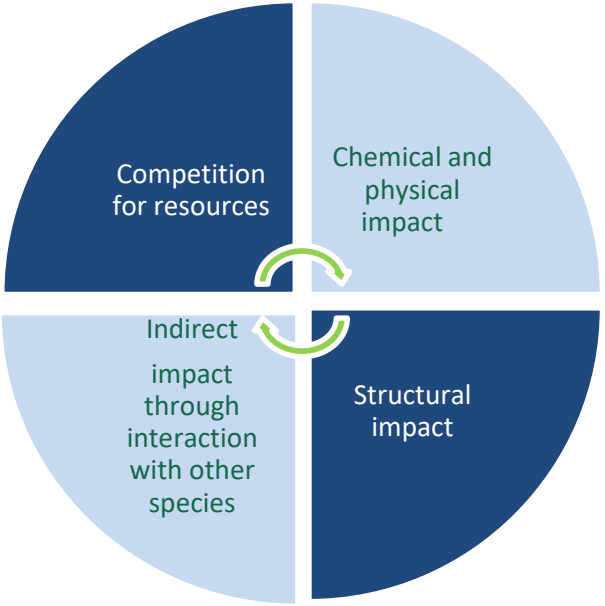
Risks



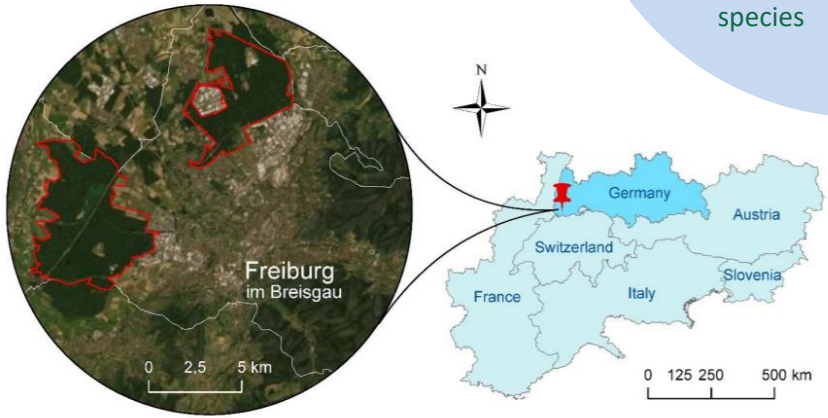


Figure 1 *Location of the studied forest area in the lowlands of the Alpine Space near the city of Freiburg in south-west Germany.*

Figure 6 *Red oak occurrence in semi-natural oak-hornbeam forest stands (habitat type 9160) near the city of Freiburg, south-west German: a) high cover of red oak saplings and b) seedlings, c) natural regeneration of red oak, and d) adult red oak.*

Semi-natural oak-hornbeam forests (European Union habitat type 9160)

https://alpine-space.eu/projects/alptrees/deliverables/alptrees_d.t1.2.1-report-on-field-survey_fva_31-03-2021_final.pdf

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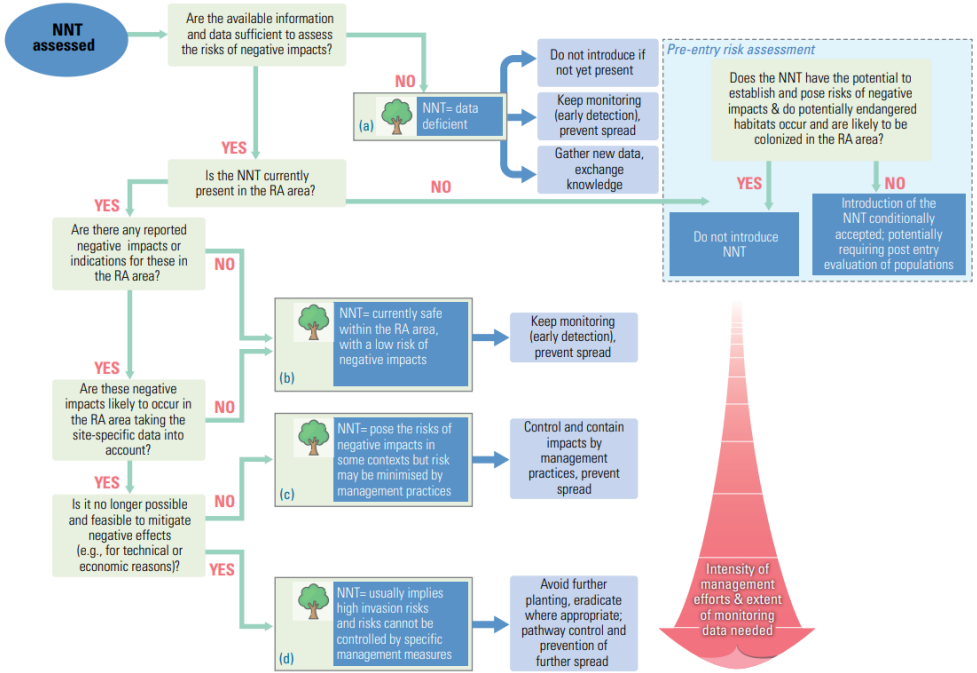
Risk assessments



Step	Aim
Pre-risk assessment	Identify the needs, motivations and goals of the SSRA.
1 STEP Definition of the risk assessment (RA) area	Provide a geo-referenced and spatially explicit map of the RA area.
2 STEP Identification of the current and potential occurrence of NNT	Identify the presence of currently or potentially occurring NNT in the RA area.
3 STEP Collation of relevant and available knowledge on NNT	Collate relevant knowledge on ecology, extent and distribution, management and impact.
4 STEP Inventory of site-specific habitat features important for nature conservation value	Identify the relevant site-specific habitat features important for the nature conservation value of the RA area that might be affected by NNT.
5 STEP Generation of site-specific knowledge on the risks posed by NNT in the RA area	Generate new evidence concerning the spatial extent and impact of the NNT on the habitat features.
6 STEP Assessment of the current and potential impact of NNT in the RA area	Assess the negative impact of NNT on the RA area based on the knowledge collected in the previous steps.
7 STEP Development of management recommendations	Develop a plan for management measures regarding NNT under consideration of legislation and management goals
8 STEP Conclusion of the SSRA	Summarize the results of the SSRA for further communication, including justification, full applied methodology, reference list, and limitations of the results.

Economic Opportunities

Economic Opportunities

RISKS ← Non-Native Trees → BENEFIT

Economic Opportunities

Forest Management

Public Communication

Timber trade & import

Environmental Education

Carpeter, wood worker

Conservation Management

Tree nurseries

Plant health experts

Renewable energy

IT Development (Monitoring)

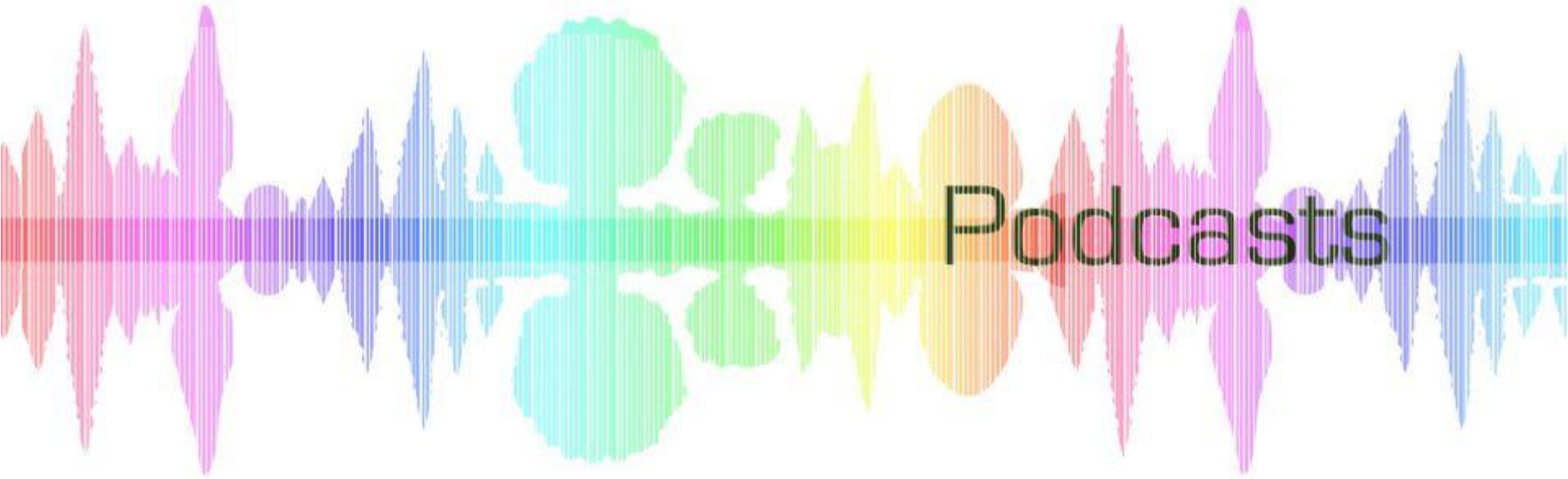
Art & Crafts

Environmental Consultant

Timber Industry (niche products)

RISKS ← **Non-Native Trees** → **BENEFIT**

ALPTREES podcast series



Link to the ALPTREES Podcasts:
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THANK YOU!






Thank you! Grazie! Merci! Hvala! Danke!

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