

NEXUS “ENERGY & TOURISM”

Exploring broader impacts of the energy transition in tourism regions: the shift to clean energy sources as door opener to broader transformation processes and the role of well-designed stakeholder involvement

DI Dr. Tanja Tötzer (AIT Austrian Institute of Technology GmbH)

Webinar of the Alpine Climate Board

*Accelerating the Transition to Climate-Neutral and
Climate-Resilient Alps through Cross-Sectoral Energy
Governance*

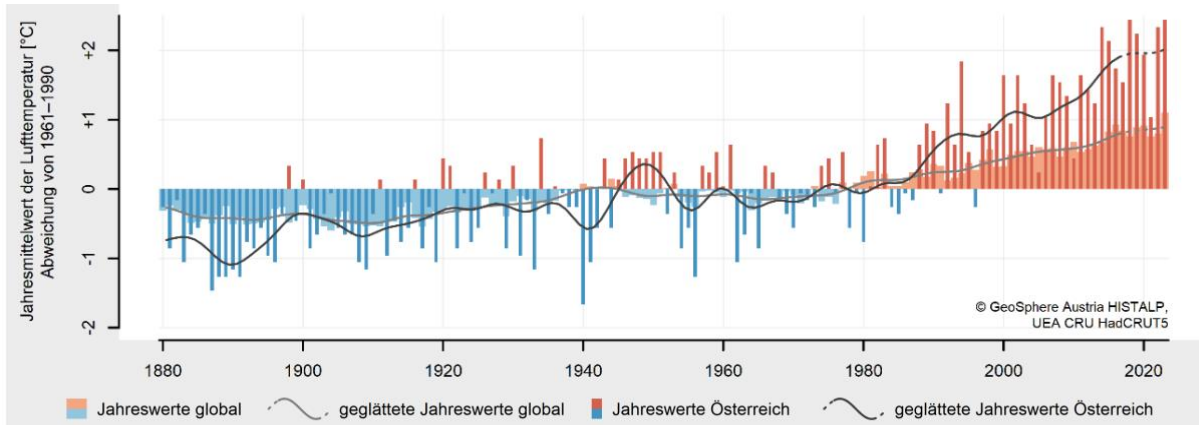
6 May 2025, 12:00 – 13:30, online (Zoom)



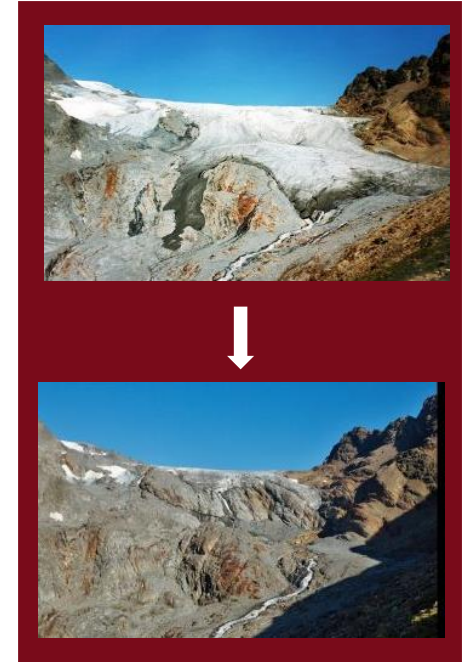
CLIMATE CHANGE IN THE ALPS

- Alpine regions are particularly affected by climate change
- The duration of snow cover has become shorter, esp. at medium altitudes
- Retreat of glaciers

Climate Status Report Austria 2023: Long-term development of annual air temperature values (globally, Austria) from 1880 – 2023 [Deviations from mean values of reference period 1961-1990].



09/05/2025



Kesselwandferner 1998 - 2012

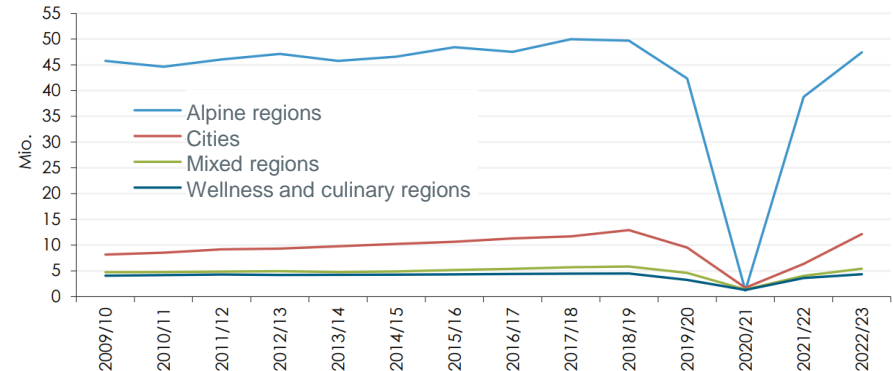
(Source: Norbert Span;
https://www.alpenverein.at/portal/news/aktuelle_news/2013_04_12_gletscherbericht.php)

ECONOMIC IMPORTANCE OF TOURISM IN AUSTRIA

- **5,7%** of all employees in Austria in the Tourism sector (Statistik Austria, 2023)
- **6,2%** share of the national GDP (Statistik Austria, 2023)
- Austria is in **15th place** worldwide according to the Global Travel & Tourism Development Index 2024
(Source: https://www3.weforum.org/docs/WEF_Travel_and_Tourism_Development_Index_2024.pdf)
- During the winter (November to April), the Alpine regions typically account for around **70%** of all overnight stays in Austria (Source: https://www.wifo.ac.at/wp-content/uploads/upload-1573/mb_2024_03_05_tourismus_.pdf)

Development of overnight stays in the winter season by region type

(Source: Burton, Fritz, Steiger: Herausforderungen des alpinen Wintertourismus in Österreich. WIFO Monatsberichte 3/2024)



VULNERABILITIES

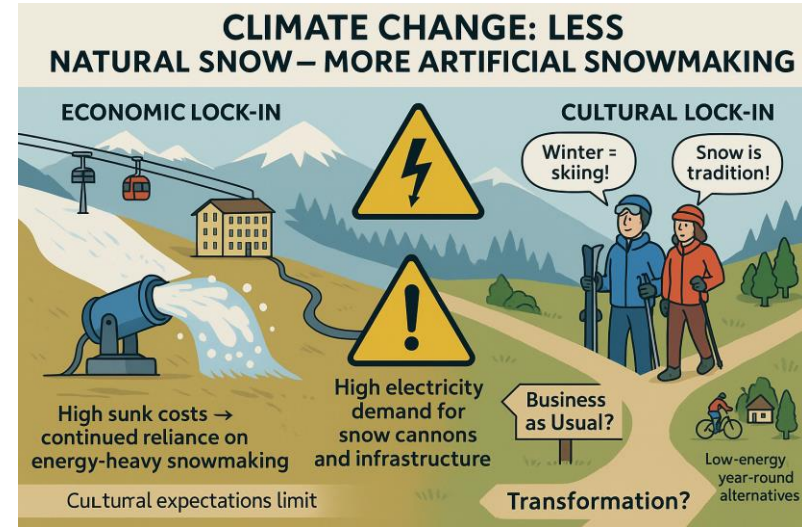
High vulnerability of "nature-based" tourism

- **Direct effects** of climate change: snow reliability, glaciers, permafrost soils
- **Indirect effects** through politics, reputation, social change

Growth and investments are based on **great path dependency** due to

- existing structures and networks (**cultural lock-ins**)
- **economic lock-ins** (large, long-term investments)
- **Narrative** „there is no alternative“

Ausserladscheider, V. (2024). Decoupling climate change: winter tourism and the maintenance of regional growth. *New Political Economy*, 29(5), 693–708. <https://doi.org/10.1080/13563467.2024.2330486>



ChatGPT image

MULTIPLE CHALLENGES



Alpine regions have to deal with issues like **climate change** and the **sustainable use of energy** and resources



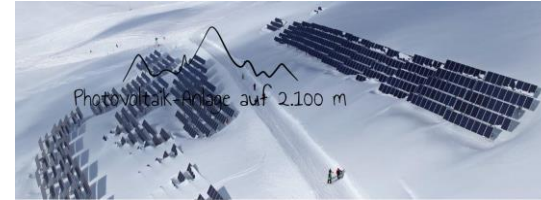
Leads to **challenges** for society, economy & environment



Need for adaptation -> **structural change**, new mind set and sustainable investments



Conflicts of interest between nature conservation, energy production, landscape, intensive tourism -> **rethinking necessary!**



Source: <https://www.wildkogel-arena.at/de/winterurlaub-skigebiet-wildkogel-arena-photovoltaik>

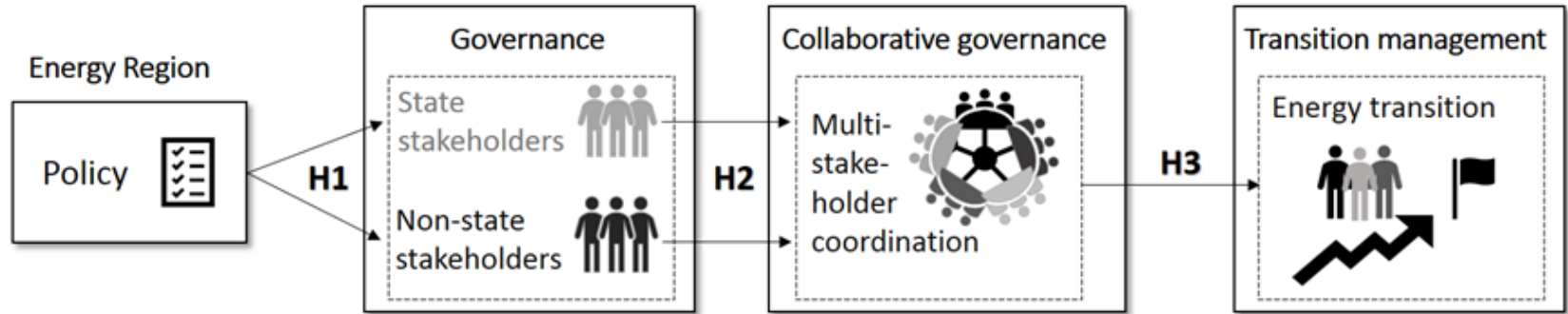


Source: <http://www.saalbach.at/de/>



Source: <http://www.nationalparkzentrum.at/>

ANALYTICAL FRAMEWORK



STAKEHOLDER ANALYSIS

- **Identification along three major stakeholder groups**

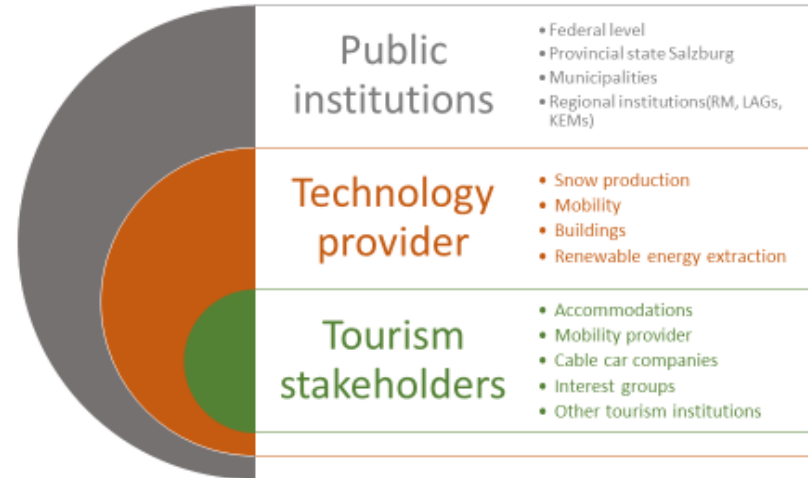
1. Tourism stakeholders
2. Technology providers
3. Public institutions

- **Defining the stakeholder characteristics**

- Interests
- Alliances
- Resources
- Power
- Leadership

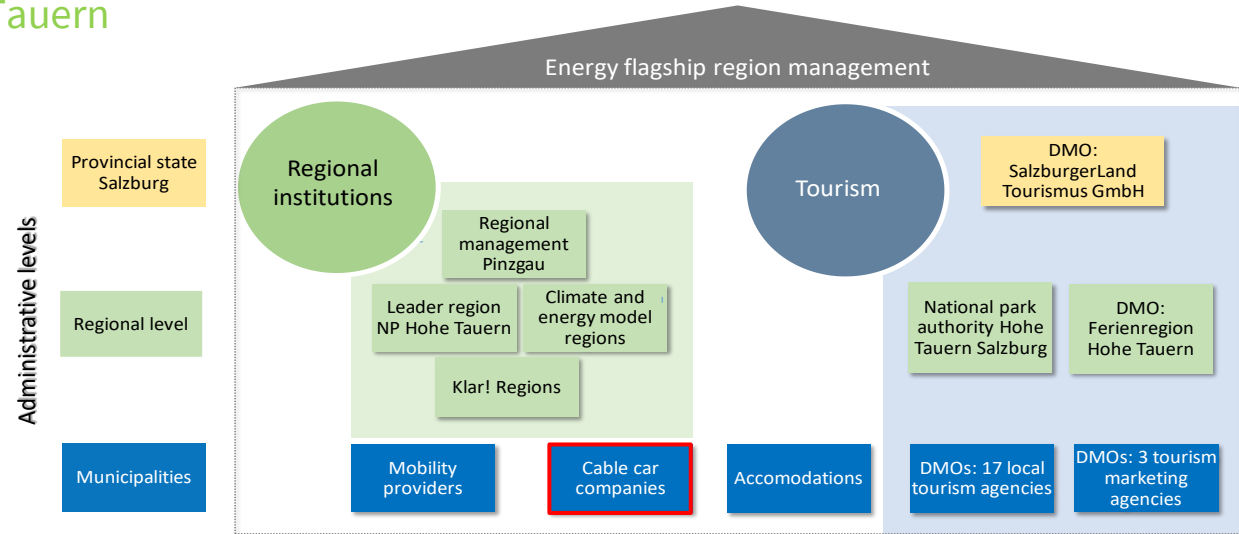
- **Spectrum of stakeholder positions**

- Supporter or moderate supporter
- Neutral
- Moderate opponent or opponent



DISPERSE GOVERNANCE STRUCTURES

- Strong influence at state level (Land Salzburg GmbH)
- Leader Region NP Hohe Tauern
- KEM Regios
- KLAR! Regions
- Municipalities
- Private actors:
 - Hoteliers
 - Cable car companies
- Public and private:
 - Mobility providers
- Tourism associations



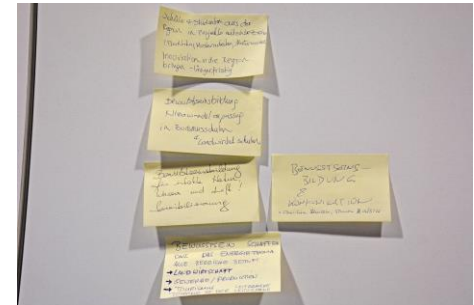
Source: S. Sedlacek, T. Tötzer, D. Lund-Durlacher: "Collaborative governance in energy regions - Experiences from an Austrian region"; Journal of Cleaner Production, 256 (2020), S. 1 - 13.

VISION

Responsible further development of **tourism** in the **Pinzgau region** with **innovative** and **resource-saving technologies**



JGY



CABLE CAR OPERATORS AS KEY STAKEHOLDERS

- **Central players** in the ski regions: driving force, well networked
- **Investment** power available
- **Technology-affinity** (safety, modern equipment, transport capacities)
- **Energy-intensive** → Energy therefore a cost and image factor
- Relevance: **Snow** is basis of the economy → therefore measures to counteract climate change "essential for survival" in the long term

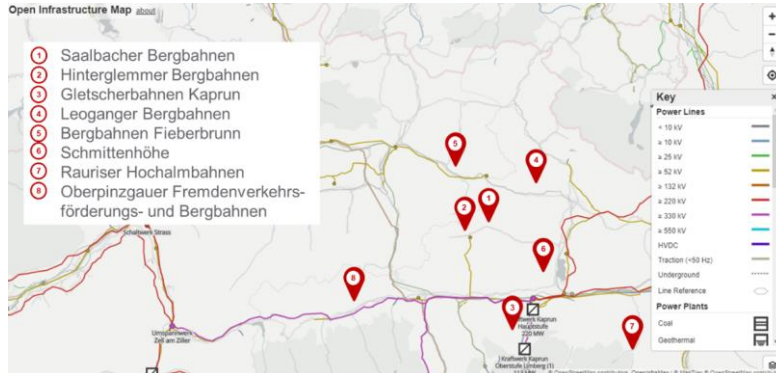
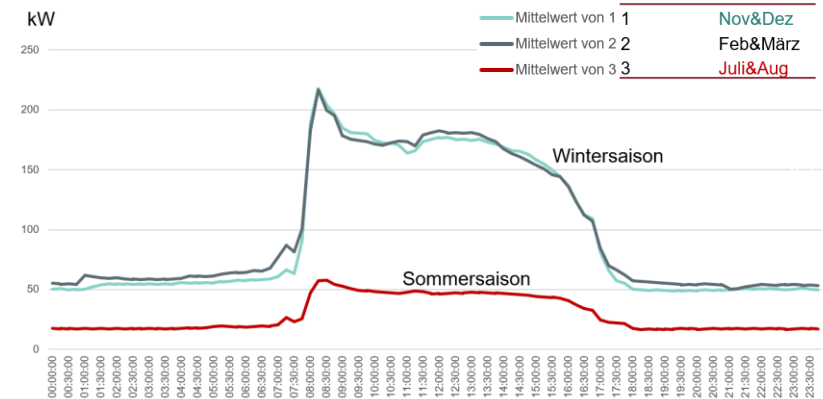


<https://www.nefi.at/de/projekt/ce4t>

LIVING LABORATORY PRINZGAUER CABLE CARS

- Intensive **exchange** with cable car companies
- Technological developments **in line with the needs** and routines of the practice partners
- **Monitoring** of cable car facilities
- **Simulations** for ski resort operation
- Applications in **daily operation**

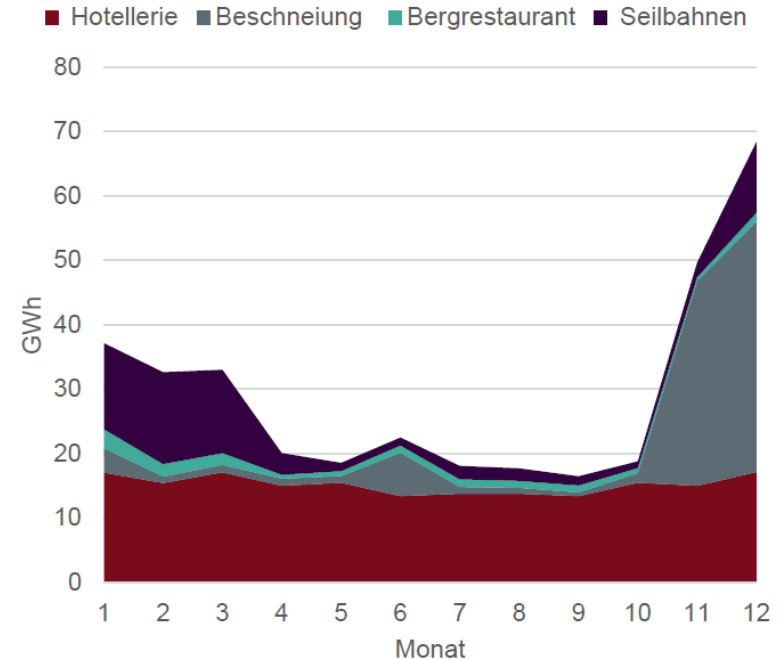
Example of seasonal differences in the energy consumption of a cable car system



ENERGY DEMAND OF A TYPICAL TOURIST REGION

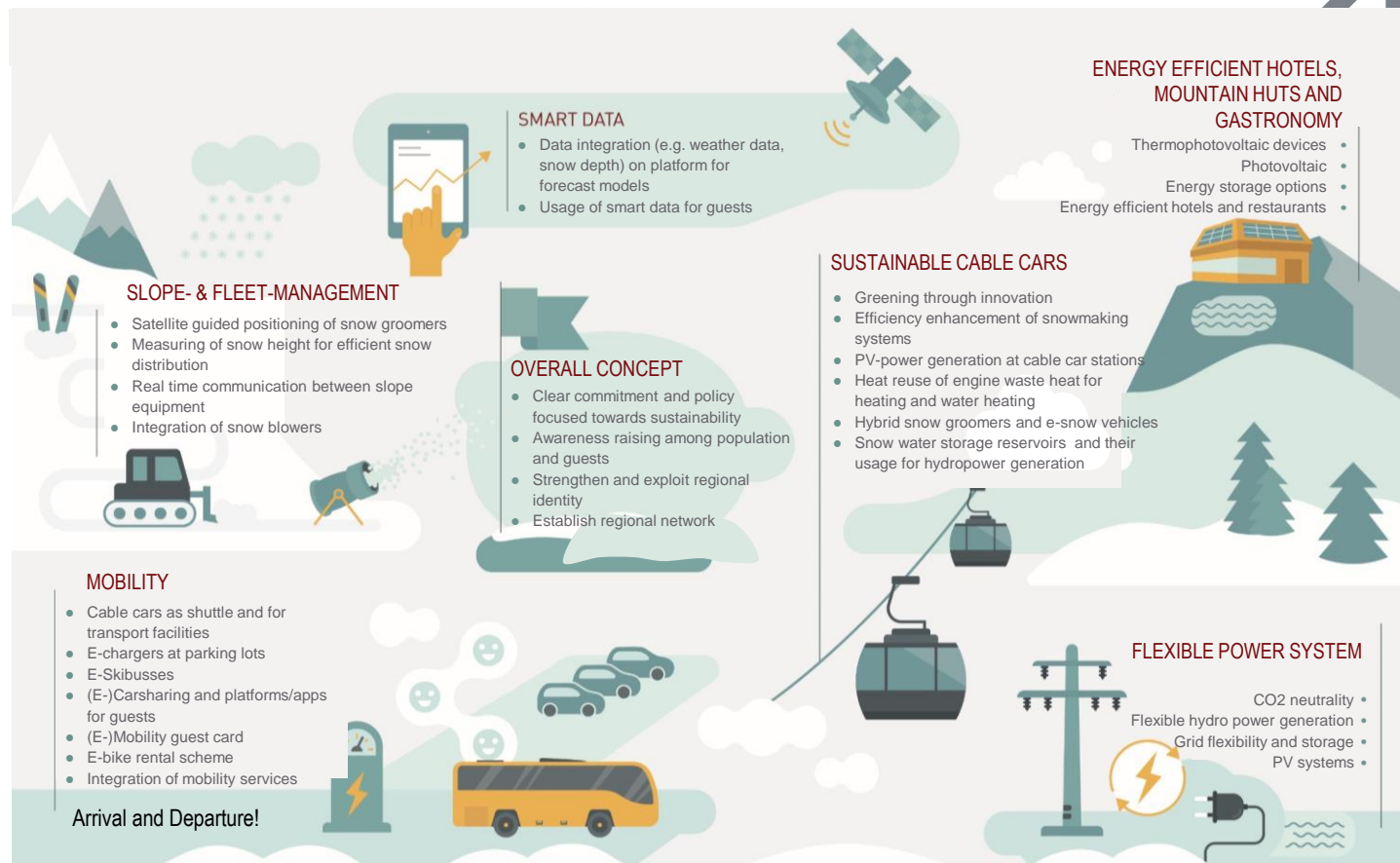
- Hotel industry (electricity & heat)
- Mountain railways:
 - Mountain railway operations (electricity)
 - Snowmaking (electricity & water)
 - Snow preparation (fossil)
- Mobility on site (fossil/electricity)
- Arrival/departure (car, aeroplane)

Electricity demand of alpine leisure facilities, Salzburg region



Source: Projekt TANZ; <https://projekte.ffg.at/projekt/4227279>

KEY COMPONENTS OF A SUSTAINABLE TOURISM REGION



Source: Tötzer T. (2020): Vorzeigeregion Tourismus. Schlüsselemente einer nachhaltigen Tourismusregion.
Eingeladener Vortrag beim 3. Mobility Forum/IONICA

TOURISM AS A CHANCE



Holistic approaches: Energy, mobility, water, biodiversity, land use conflicts, etc.



Regional anchoring & identity



Vision: see tourism as an opportunity



Initiatives: Alpine Convention, strategies and initiatives of the federal government, the provinces, KEMs, KLAR!s, LEADER, e5, klima:aktiv



LESSONS LEARNED

- **Framework conditions:** often lack of suitable management structures → impulses through research programmes, subsidies, new regulations, need for change
- **Moderated stakeholder process:** local partners often trapped in their own institutional environment → stakeholder mapping, identify blind spots, build trust, create networks, participation, identify willing/innovative/strong partners → needs time and resources
- Important to **build resilient structures:** need for long-term changes of existing practices, policies and mind-sets → local care taker, local commitment/engagement
- **Vision & concept:** common agreement and perspective are essential
- **Solutions:** Technologies and solutions that meet the needs and can be applied in the daily business → Co-creation and Living Lab
- **Continuity** through an accompanying process: good management is needed to enable experimentation and increase flexibility

PROJECTS WITH THE PINZGAU REGION

- **PATCH:ES** PATCH:ES | Klimawandelanpassung
- **VorTEIL** VorTEIL
- **CE4T** CE4T
- **100% erneuerbarer Pinzgau**
- **TANZ** TANZ - Sondierung Reallabor: Tourismus als Chance für die Energiewende im Pinzgau - Stadt der Zukunft
- **ICARIA** ICARIA project - Improving climate resilience of critical assets : ICARIA project

THANK YOU!

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