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Infrastructure networks for the digital and ecological transition: The demands and opportunities of a spatial approach in the Eusalp strategy

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Research framework and questions

- In the EUSALP strategy, the topic “Research and Innovation” of the Action Group 1 is very generic
- The research project “Spatial regeneration for the digital and ecological transition in the Alpine regions” (Politecnico di Milano, DASTU) tries to interpret this topic **through the place-based approach of spatial analysis, planning, and design**, by focusing on the following questions:
 - *What are the **territorial implications** of current processes of economic transformations – production and energy reorganization, tourism diversification – in the Alpine areas?*
 - *What kinds of **research and innovation** can contribute to drive these processes towards goals of digital and ecological transition?*
 - *What **spatial planning mechanisms and spatial regeneration projects** can support the integration of these processes with mountain areas characterized by strong polarizations?*



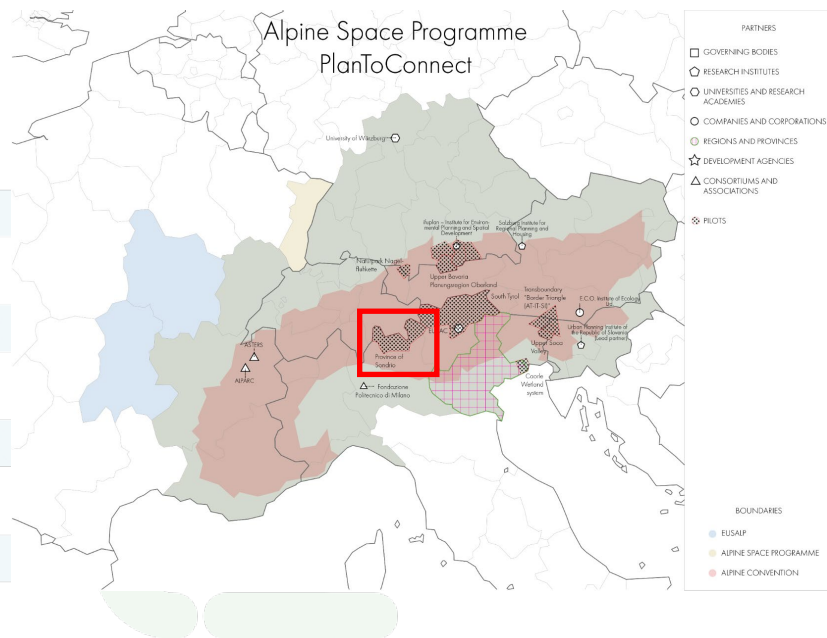
Did you apply a specific method?

Within a **site-specific research by planning and design**, characterized by a **trans-scalar and anti-fragility approach**:

- **Survey** of processes and projects of economic transformations in the Alpine macro-region, considering places and actors
- **Mapping** of spatial impacts and effects of such processes and projects, from the broader scale of the Alpine macro-region to the smaller scale of local communities
- **Empirical field research** in a specific case study, in order to better understand ongoing transformations, and demands by local actors and stakeholders => through site visits, targeted interviews, and collective focus groups (with representatives of public institutions, of cultural, economic, and professional associations, and of firms)



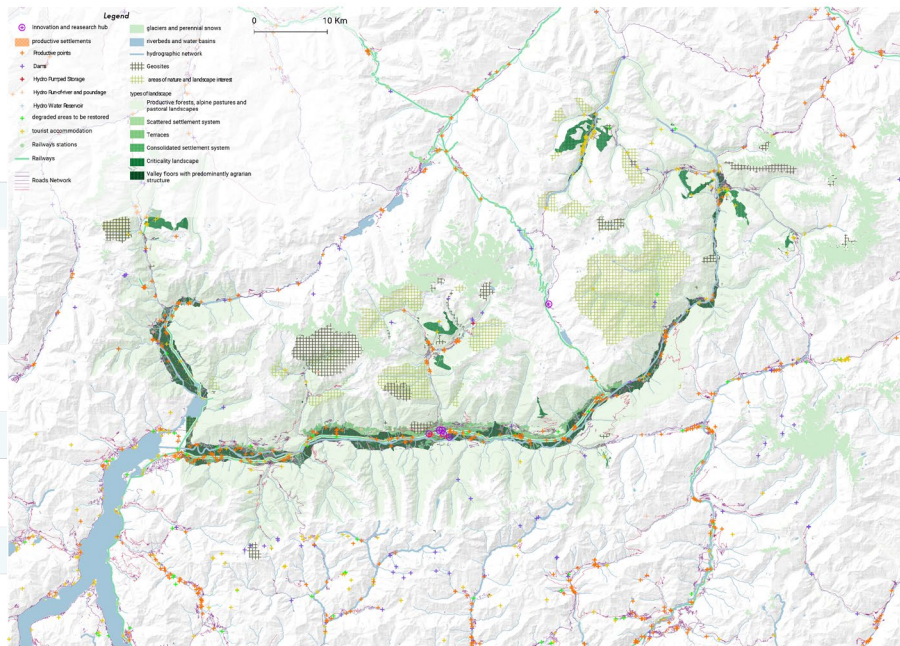
Challenges addressed / problem statement



- On the background of these analyses, we are starting the pilot project “The Valtellina in the EUSALP strategy: a spatial approach to transition”, that aims to develop **a trans-scalar and cross-border spatial vision**:
 - to coordinate EU policies and guidelines with local phenomena and demands
 - to deal with socio-economic processes and climate trends which overcome obsolete administrative borders
 - to integrate the development of research and innovation ecosystems with the decrease of disparities between attractive and remote areas **in the prospect of antifragility**



Challenges addressed / problem statement



- *In the following phase, the pilot project aims to articulate this spatial vision into **regeneration scenarios**:*

- *to contain risks of conflicts and contradictions of the digital and ecological transition*
- *to spatialize opportunities and potentials of the digital and ecological transition in relation to the targeted decrease of territorial disparities*

on the basis of the analyses summed up by this map



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Challenges addressed / problem statement

- *In the final phase, the pilot project aims to develop **hubs of research and innovation ecosystems** able to integrate:*

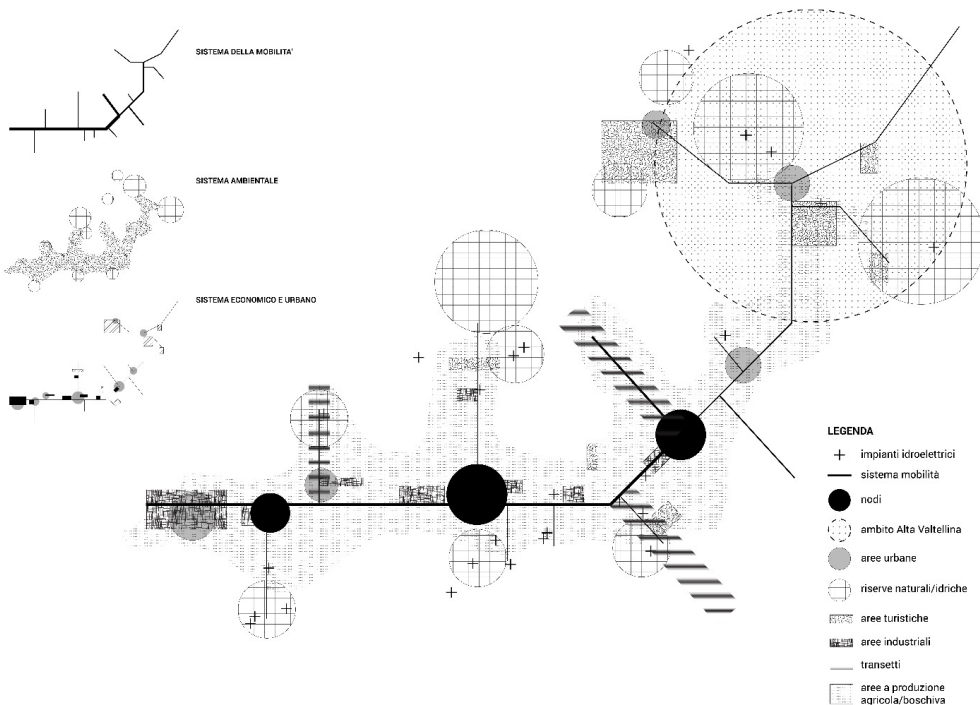
- *universities, schools, firms, associations, and public institutions*
- *material/physical and intangible/digital services*
- *productive, educational, and research activities*
- *productive and touristic places*
- *strong and marginal areas*

on the basis of the analyses summed up by these pictures





Preliminary outcomes of the Valtellina pilot project (2024)



*The outline of a **first trans-scalar and cross-border territorial figure** for the potential location of research and innovation ecosystems **at the intersection of existing networks** (of economic activities, productive landscapes, mobility infrastructures, and green and blue networks):*

- **Urban nodes** (Morbegno, Sondrio, and Tirano)
- **Territorial transects** (Val Masino, Val Malenco, Val Poschiavo, and Aprica Pass, even in relation with the surrounding regions of Val Engadina and Val Camonica)
- **Landscape and environmental areas** (Upper Valtellina, even in relation with the surrounding regions of Val Engadina and Val Venosta)



The next steps (2025)

- The **validation** of this trans-scalar and cross-border territorial figure **with local actors and stakeholders**
- Its transformation into a **spatial vision, articulated into regeneration scenarios**, beginning with the definition of:
 - the **specific locations of research and innovation hubs**, to select in abandoned spaces to reactivate **at the intersection of existing networks (including green and blue networks)**
 - the **specific themes for research and innovation hubs**, to identify in relation to potential interactions with other EUSALP AGs:
 - for instance, transition of production (AG2), transition of logistics (AG4), transition of energy (AG8 and AG9), diversification of tourism (AG6 and AG7), development of health and wellbeing (AG3 and AG5)



The next steps (2025)

- The **validation** of this spatial approach with international partners of the AG1 and the other AGs of the EUSALP strategy
- The **transferability** of this spatial approach to the definition and implementation of the whole EUSALP strategy, beginning with:
 - ✓ policy and planning recommendations and guidelines for “**territorialized**” and “**thematic**” **research and innovation ecosystems** in relation to local characteristics of multi-faceted Alpine areas
 - ✓ planning tools and mechanisms for the advancement of the preliminary **Joint Paper of Spatial Planning** of the EUSALP macro-region



What is added value of this approach?

How can our project gain an added value from your project learnings (regarding approach, results, network integratin, etc.)?

Open questions (from the research project and its pilot projects) for further research in the Alpine macro-region

How should your approach/method be applied further in ecological connectivity planning / research?

Experimenting with spatial planning and design to connect and develop synergies between:

- European policies and guidelines with local features of multi-faceted Alpine areas
- Goals of digital and ecological transition with goals of territorial cohesion
- **Goals of economic innovation and re-industrialization with goals of landscape and environment regeneration**



What is the added value of this approach?

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Open questions (from the research project and its pilot projects) for further research in the Alpine macro-region

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Experimenting with new roles and formats of universities:

- From attractors of funds, to main players of the interaction between public and private actors

- The concept of a widespread and flexible campus:
 - (1) in available spaces along main networks (including green and blue infrastructures)
 - (2) shared by more universities, in collaboration with local actors (schools, institutions, associations, firms)
 - (3) focusing on specialized didactic and research activities (including the multi-functional value of ecological networks)



Best / Worst practice

- *The main weaknesses and threats*

- *Within the EUSALP strategy, the high fragmentation of the governance and the lack of a spatial planning approach (now limited to AG4, AG7 and AG8), with the connected **risks of banalization of the topics***
- *Among the EUSALP strategy, the Alpine Convention, and the Interreg Alpine Space, the **risks of partial overlapping and the connected risks of mutual limitations***