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Regional governance and Interreg cooperation – the case of the European Alps

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Abstract. Against the backdrop of the closing Interreg VI period, this paper examines the implementation patterns of the European Territorial Cooperation in the Alpine region. Using near-complete Interreg V (2014–2020) data, we analyze thematic foci, budgets, and spatial dimension across Interreg A programs and the Interreg B Alpine Space Programme. Our findings reveal a "soft" thematic orientation: Interreg A prioritizes projects in tourism, culture, and health and social services, while Interreg B targets more structural fields such as spatial planning and transport and mobility. Three drivers explain these patterns: (a) the spatial structure of the involved territories (e.g., urban corridors, tourism flows, and freight axes), (b) path dependencies and institutionalization, and (c) territorial diversity requiring place-based strategies. Furthermore, cooperation hotspots are concentrated in highly urbanized border regions (e.g., Geneva, Basel, Brenner, Lake Constance). Policy implications for 2028+ include safeguarding continuity, strengthening regional assets, and orienting cooperation towards resilience and strategic objectives while retaining the benefits of soft instruments.

1 Introduction

With the current funding period of Interreg VI coming to an end in 2027, the reflection on past funding periods is rather high on the agenda. This is particularly true as programs need to strategically set up and reprogram the subsequent 2028 funding period (Mazzola and Gambina, 2025). As many projects are still ongoing and because some calls are not closed yet, data for the current period are presently insufficient. However, the data quality for former Interreg periods – particularly Interreg V (2014–2020) – is very high and nearly complete, meaning that it can serve as a basis for systematic reflection and future prioritization (Chilla and Lambracht, 2023). This is true for European Territorial Cooperation (ETC) programs, as well as for domestic policies. Regarding the effect of Interreg programs on spatial development and planning, the European Spatial Planning Observation Network (ESPON) project COMPASS (Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe) concluded that these programs (and their projects) have had little influence on national planning systems and strategies. It has called for a revitalized Interreg scheme that "reaches into mainstream planning systems and strategies and builds capacity and trust in functional regions" (ESPON, 2018). At an informal level, however, territorial integration in cross-border and transnational regions is facilitating knowledge transfer and exchanges of good practices in territorial governance and spatial development (Berisha et al., 2021; González-Gómez and Gualda, 2014). Recent crises, particularly the COVID-19 pandemic, have highlighted the need for resilience in developing cross-border and transnational cooperation and have illustrated the complex political, socioeconomic, and administrative challenges they face (Hippe, 2024; Prokkola, 2022; Opiłowska, 2022; Weber, 2022). With every new EU budget period (Multiannual Financial Framework), territorial cooperation is discussed, negotiated, and concretized for the coming period (Medeiros et al., 2024). As a new period begins, those responsible for reprogramming can learn from past experiences.

Against this background, our paper addresses the following research questions:

- What implementation patterns can be found in ETC for the European Alpine region?

– Which driving factors can explain these implementation patterns?

We address these questions by examining the thematic foci of the Interreg cooperation programs in the European Alps, as well as their financial volumes and geographical distribution. We also differentiate Interreg A (cross-border) and B (transnational) schemes, as well as the thematic foci on rather "hard" versus "soft" topics. We reflect on the Alpine case, which combines a particularly high number of borders and involved nation states, as well as a specific territorial setting, given the mountain topography and the related challenges of territorial cohesion, accessibility, and climate change, among others (Lambracht and Chilla, 2025; Prokkola, 2022; Dax and Parvex, 2006). Our analysis explores how the European cooperation formats perform as cross-border cooperation is a particular case of regional governance with limited capacities for conflict resolution and, as such, must be concretely developed on a daily basis. This can inspire governance research in general terms as the relevance and effectiveness of "soft" instruments in the shadow of "hard" settings are of particular interest (Gänzle et al., 2019; Stead, 2013). Cooperation patterns and related governance are widely addressed topics in border studies with a high number of reports, evaluations, and academic reflections discussing whether cooperation programs are or are not pivotal in contemporary governance patterns in border regions (Medeiros, 2025; Giordano and Greco, 2024; Chilla and Lambracht, 2023). Many studies have focused on qualitative data to determine the reasons behind cooperation (e.g., Dittel et al., 2024; Marot et al., 2024; Caesar, 2017). Our paper complements more quantitative arguments in trying to better understand the patterns of cross-border cooperation dynamics and the related regional governance schemes.

2 The role of Interreg for regional governance

2.1 Governance and borders

The development of border regions still largely depends on consensus-building processes. This implies that decisions taken within border-regional committees require approval and effective implementation by domestic authorities in the respective political and administrative centers and capitals (Brunet-Jailly, 2022). Furthermore, political decisions on one side of the border must be carefully aligned to the situation, taking into account differing legal frameworks, administrative procedures, and policy priorities. As such, cross-border initiatives are frequently shaped by coordination challenges that arise from the coexistence of distinct national systems.

While the European Grouping of Territorial Cooperation (EGTC) allows for the establishment of a legal personality for cross-border institutions, thereby strengthening their formal capacity to act (Evrard, 2016), political mandates and decision-making authorities largely remain embedded within domestic spheres of the multi-level governance system (Crossey and Weber, 2024; Chilla, 2023). Consequently, cross-border institutions often operate within a framework of shared but fragmented competencies, where their effectiveness depends on the willingness of national, regional, and local actors to cooperate and coordinate. Hence, personal relations and trust-building are key to political processes along and across the border (Cejas and Masana, 2026).

Against this backdrop, governance schemes in cross-border cooperation become a key analytical and practical concept. Governance can be understood as a mode of coordination that encompasses horizontal (sectoral), vertical (multi-level), and spatial dimensions (Medeiros et al., 2024). It captures the interaction between a wide range of actors, including public authorities, economic stakeholders, and civil society organizations, across different territorial levels. While (regional) governance may be better described as a strand of debate rather than a clearly delimited conceptual framework (Willi et al., 2018; MacLeod and Goddwin, 1999), it nevertheless provides a useful lens for analyzing and operationalizing policy processes that extend beyond purely formal institutional arrangements. In particular, it highlights the importance of informal practices, negotiation processes, and network-based coordination mechanisms. ETC in general and Interreg programs in particular are invaluable within the debate on multi-level governance. Early contributions to this field, such as those by Hooghe and Marks (2003), were strongly grounded in observations of emerging cooperation formats within the European Union (EU; see also Benz, 2021). The increasing involvement of regional and local actors in EU policy processes has introduced complex political dynamics, including shifts in authority, the emergence of new actor constellations, and the need for coordination across administrative levels. In this context, the formation and stabilization of cross-border networks are key characteristics of governance schemes (Noferini et al., 2020), often facilitated and sustained through Interreg funding schemes. Funding allocation is not simply a simple administrative pattern but rather the outcome of interactions and negotiations between multiple actors operating under different institutional rules. The European Commission defines the regulatory framework and strategic priorities, while program-level institutions, managing authorities, and monitoring committees are central in translating these into funding decisions. Regional and local actors influence this process through project development, partnership formation, and agenda setting (De Sousa, 2013). These networks enable the exchange of knowledge, the development of shared strategies, and the strengthening of mutual trust among actors.

Cross-border governance schemes can, generally speaking, be highly functional, such as in their contribution to building trust between partners, facilitating information flows, and providing access to diverse forms of expertise (Järv et al., 2026; Hippe et al., 2024). Through repeated inter-

action and joint project implementation, actors may develop shared understandings and problem-solving capacities that would be difficult to achieve within purely national frameworks. However, despite these strengths, cross-border governance typically exhibits only limited capacity for resolving fundamental conflicts, particularly when these are rooted in divergent national interests, legal constraints, or political priorities (Thomann et al., 2019). Cross-border cooperation requires addressing fragmented territorial development systems, governance structures, and development priorities to achieve more integrated territorial development (Pallagst et al., 2022).

The specific characteristics and effectiveness of cross-border governance schemes are strongly influenced by the administrative cultures on either side of the border, as well as by existing institutional path dependencies (Knieling and Othengrafen, 2018). Differences in planning traditions, decision-making styles, legal systems, and centralization levels can significantly shape how cooperation is organized and implemented. In addition to the scope and intensity of cooperation, these contextual factors also determine the extent to which governance settings can evolve over time. Furthermore, funding flows can also be understood from the perspective of path dependency. Previous experiences with European funding, established administrative capacities, and existing cooperation networks influence future access to resources. Regions with stronger institutional capacities and longer histories of participation are often better positioned to successfully apply for and manage EU funds. Thus, funding allocation reflects current policy priorities, historical trajectories, and accumulated institutional knowledge, and cross-border governance should be understood as a context-sensitive and dynamic process (Caesar, 2017).

2.2 The Interreg programs

Over 3 decades of Interreg experience have generated a substantial body of academic literature on the program's outcomes and characteristics (Reitel et al., 2018). There is broad consensus that Interreg funding is crucial to facilitating cooperation, networking, and trust-building, as well as in supporting the development of concrete, place-based solutions (Frątczak-Müller and Mielczarek-Żejmo, 2020). However, as with governance schemes more generally, Interreg programs are an important precondition for successful development processes, while their capacity to resolve concrete conflicts remains limited (Medeiros et al., 2024; Colomb, 2018).

The actor networks established through cross-border cooperation can be understood as "territorial development assets" (Berzi, 2017:1584), with network capacity representing a critical factor for effective cross-border interaction (Nienaber and Wille, 2020). The success of cross-border cooperation varies significantly between regions, depending on the combination of enabling conditions – particularly economic factors, political leadership, cultural and identity-related aspects, state traditions, and geographical contexts (De Sousa, 2013). Moreover, cross-border barriers are multifaceted: physical, institutional, and socio-cultural obstacles may hinder cooperation in diverse and context-specific ways (Capello et al., 2018).

A core principle of Interreg cooperation is mutual learning from good practices. This "best-practice" approach assumes that innovation and diffusion processes can extend across borders (Knippschild and Vock, 2017). Stakeholder participation is widely regarded to be a key success factor throughout all phases of the policy cycle (Borges et al., 2021). Moreover, different forms of proximity (e.g., spatial, cultural, technological) can significantly enhance cooperation outcomes (Makkonen et al., 2018).

Interreg-based cooperation requires coordination between actors at the supranational, national, regional, and local levels. During the programming phase, Interreg programs are developed through negotiated processes involving member states, regional authorities, and relevant stakeholders. These processes translate EU cohesion policy into territorially specific strategies. Governance arrangements vary by country, with federal and centralized systems allocating responsibilities for program design, implementation, and monitoring differently. This is especially pronounced when comparing transnational and cross-border responsibilities. While central governments often retain strategic and regulatory responsibilities, regional authorities are becoming increasingly decisive in managing cross-border cooperation and adapting interventions in local contexts. This distribution of competencies reflects the tension between European-level coordination and territorially embedded decision-making, central to the Interreg governance model (Caesar and Pallagst, 2022).

Thematically, Interreg has addressed a wide range of policy areas, with the thematic scope of its cooperation varying considerably across programs and regions, thereby reflecting differences in institutional settings, policy priorities, and cross-border challenges (Noferini et al., 2020). This variation can be conceptualized by distinguishing between "hard" and "soft" policy approaches. Soft policies are typically characterized by informal, non-binding, and non-hierarchical modes of coordination. They rely on dialogue, mutual learning, and consensus-building rather than legally enforceable rules or statutory planning instruments. In this respect, they differ markedly from traditional planning approaches, which are embedded in hierarchical governance structures and supported by binding regulations and clearly defined competencies (Kazmarek, 2018).

Soft policy instruments include strategic frameworks, action plans, networks, and platforms for exchange that aim to align actors' interests without imposing legal obligations. Beyond their procedural features, the distinction between hard and soft policies can also be interpreted in terms of political dynamics and levels of contestation (Capello et al., 2018). Soft approaches are often preferred in politically sensitive contexts or where competencies are fragmented across

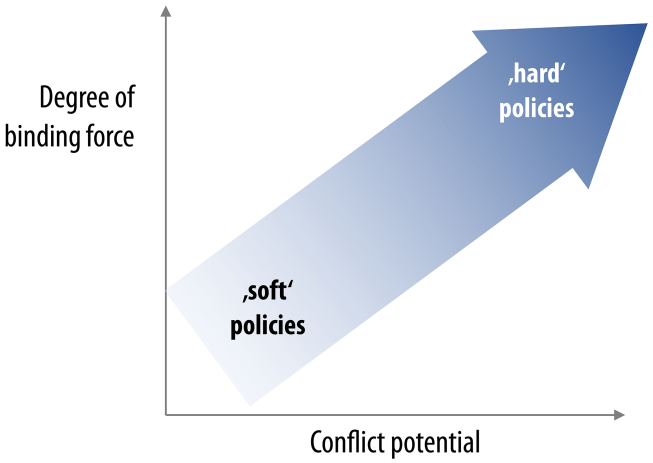


Figure 1. Hard and soft policies in the area of tension between binding force and conflict potential.

administrative levels and national borders. In such cases, actors may deliberately opt for less binding arrangements to avoid, mitigate, or manage conflict and opposition (Allmendinger et al., 2015). Figure 1 illustrates these dimensions by positioning policies along a spectrum ranging from relatively hard to relatively soft approaches.

2.3 The Alpine space

The specific context of the Alpine area is characterized by its topography and the high number of national borders as it encompasses the eight nation states of Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia, and Switzerland (Chilla and Lambracht, 2023). While the natural environment does not in itself determine cooperation projects or their dynamics, the spatial context is explicitly addressed through place-based approaches (Giordano and Greco, 2024). Territorial settings thus need to be carefully considered in terms of both the challenges and assets they pose and offer.

More concretely, key issues such as climate change, demographic shifts, and accessibility are closely intertwined with the region's natural characteristics and constitute central themes of cooperation (Lambracht and Chilla, 2025). As the Alpine region represents a meeting point of multiple nation states with diverse political cultures and statistical systems, European funding programs are required to align their strategies, calls for projects, and projects with specific priorities within the broader framework of EU territorial cooperation objectives. These efforts are complemented by national development strategies. However, across the multi-level system or between neighboring countries, thematic competition – and, thus, tensions – might arise.

Nevertheless, the historical and cultural foundations of cooperation – particularly in such regions as Lake Constance or the Tyrol–South Tyrol – reveal long-standing traditions and shared identities that can foster effective governance schemes. This heritage supports active cross-border initiatives and demonstrates that collaboration, in addition to being a contemporary policy objective, is also deeply rooted in a common cultural context. The evolution of these partnerships highlights the potential for resilient cooperative frameworks capable of adapting to changing socioeconomic conditions.

3 Methods

3.1 Operationalization

We take the example of the Alpine region with its nine Interreg cross-border programs and the transnational Interreg Alpine Space Programme (ASP), thus referring to 10 territorial cooperation programs in total. In doing so, we aim to understand what explains implementation patterns as a particular form of regional governance. We operationalize regional governance and spatial development perspectives within a quantitative research design. The cooperation patterns are examined though different configurations, such as thematic priorities, financial resource allocation, and spatial distribution. Comparing Interreg A and B programs captures differences between cross-border and transnational governance settings and their respective capacities to address territorial challenges.

This operationalization provides insights into the strategic orientation, geographical distribution, and relevance of cooperation programs in terms of financial design, even if it does not capture the relational and process-oriented dimensions of regional governance, including aspects such as trust-building, institutional learning, negotiation processes, and the quality of cooperation between actors. Consequently, we seek not to explain underlying mechanisms of cooperation dynamics but rather to identify the formal implementation patterns and structural characteristics shaping the governance potential of the Interreg programs in the Alpine area.

3.2 Data source and spatial coverage

This empirical work is based on Interreg data from the open-source KEEP database, which includes budgets, external funding shares, the location of cooperation partners (lead or project partners), and the thematic topics and priorities of European funding programs. The information can be downloaded as tables (e.g., Excel spreadsheets), diagrams, or maps. Some of these provide basic institutional mappings (KEEP, 2026a). We focused our analysis on Interreg V-A and V-B data while excluding Interreg small-project funds and other programs (e.g., INTERACT, ENI). The Interreg V period was formally implemented from 2014 to 2020, even if project-closing activities stretched to the following years. According to the KEEP representativeness section, this stretch has the highest representativeness compared to older periods (KEEP, 2026b). Moreover, it is the most recent

closed period as Interreg VI is still active, meaning that its statistics are incomplete.

We included the following Interreg V-A programs located in the Alpine region: ALCOTRA, Alpenrhein–Bodensee–Hochrhein, Austria–Germany, France–Switzerland, Italy–Austria, Italy–Slovenia, Italy–Switzerland, and Slovenia–Austria. We also include the Interreg V-B ASP. Several EU cooperation programs partly cover the European Alps region, including five further Interreg V-B programs. However, only the ASP covers the entire area and spatially impacts the region as a whole. Additionally, the ASP is closely linked to the EU macroregional strategy for the Alpine region (EUSALP), which covers the same area except for Alsace in France. All of our data refer to the status of the KEEP database as of December 2025. Table 1 gives an overview of the analyzed Interreg programs, including their type; launch; number of years in program participation until 2026; participating countries; number of projects in period V; and number of EGTCs in the territorial area of jurisdiction, located directly within the respective Interreg A program area (European Committee of the Regions, 2024).

3.3 Data interpretation and visualization

We based the data interpretation on different institutional mapping tools. Institutional mapping is becoming increasingly important as it records and visualizes institutional information, encompassing both "hard" (e.g., legal provisions) and "soft" institutions (e.g., informal networks; Pupier, 2020; Purkarthofer, 2016). Key components include the spatial dimension, the institutional–political dimension (mandates, resources, issues), and didactically accessible technical visualization (Chilla and Lambracht, 2023). In particular, the information regarding the coordinates of the project partners allows for a wide range of cartographic analyses and visualizations using GIS programs. For our mappings, we used the ESRI ArcGIS Pro software.

Our results are based on three institutional mapping approaches: first, we visualize a density map (Fig. 2) including point density information. Second, traditional statistical bar charts (Figs. 3 and 4) illustrate the financial structure of the different programs, as well as the thematic prioritization in the two different cooperation types (Interreg A vs. Interreg B). Third, we present a comparative institutional mapping (Fig. 5), which includes the spatial extent of the Interreg V-A program areas, containing information regarding their five most frequently mentioned thematic assignments, as well as their available budgets.

In so doing, we used the following statistical methods of exploratory data analysis and data structuring (Zimmermann-Janschitz, 2014), resulting in two key graphic results:

- For Fig. 2 (density mapping), a raster shapefile was created using the Point Density tool in ESRI ArcGIS Pro. Based on the point data imported into the geographic information system (GIS), the tool calculates the density of points within a specified neighborhood around each raster cell, thereby producing a continuous surface that represents the numbers of points per unit area and allowing spatial clusters and hotspots to be identified. Furthermore, it enables the analysis and visualization of geographic patterns that may not be apparent from the original data alone (Bertram et al., 2026).

- For Figs. 3–5, descriptive data visualization summarizes the key characteristics of the dataset, including project numbers, funding volumes, thematic priorities, and their distribution across the study areas of the Interreg programs. Charts and a map were produced to illustrate patterns and variations in the data. For Fig. 4 the individual thematic classifications were categorized to ensure better overviews and comparability. The categorization groups 42 individual topics into six overarching categories for the Interreg A and B programs. The categories are "governance"; "culture, tourism, and regional identity"; "space, infrastructure, and mobility"; "environment, climate, and energy"; "society, education, and quality of life"; and "economy, innovation, and digitalization".

4 Results

4.1 Density mapping

Figure 2 shows the density of the project partners' locations within the region, where the density differs between low (light purple) and high (deep purple).

The map reveals differences in the spatial distribution of project partners in the Alpine area, particularly between the different border regions. Indeed, along the French–German border, project partners are evenly distributed across the border region, with a comparatively high density of cooperation in comparison to the whole Alpine area. Conversely, the program areas situated along the Austrian borders demonstrate a higher concentration of project partners in prominent urban corridors and centers, including Salzburg, Innsbruck, and the Villach–Klagenfurt–Graz area. The rural border sections and territories that are farther away from the border exhibit lower partner densities.

Generally speaking, the distribution of project partners shows a concentration in highly urbanized and economically integrated regions. The Upper Rhine region exemplifies this as it is a densely urbanized corridor on the one side and can, on the other, build on the comparably longstanding cross-border collaboration between France and Germany. A similar phenomenon can be observed in other metropolitan corridors, including the Geneva–Annecy region between France and Switzerland; the Alpine Rhine axis between Germany, Liechtenstein, and Switzerland; the northern Italian metropolitan areas around Milan and Turin; and the Slove-

Table 1. Overview of Interreg programs in the Alpine region.

Interreg program	Type of Interreg	Launch	Duration until 2026 (years)	Participating countries	Number of projects in period V	EGTCs
France–Italy ALCOTRA	A	1990	36	France, Italy	159	1
Oberrhein (Upper Rhine)	A	1990	36	France, Germany, Switzerland	132	4
France–Switzerland	A	1990	36	France, Switzerland	124	0
Italy–Switzerland	A	1990	36	Italy, Switzerland	118	0
Alpenrhein–Bodensee–Hochrhein	A	1995	31	Austria, Germany, Switzerland, Liechtenstein	102	1
Italy–Austria	A	1995	31	Italy, Austria	92	3
Austria–Bavaria	A	1995	31	Austria, Germany	83	0
Italy–Slovenia	A	2000	26	Italy, Slovenia	58	1
Austria–Slovenia	A	2000	26	Austria, Slovenia	52	2
Alpine Space Programme	B	2000	26	Austria, France, Germany, Italy, Liechtenstein, Slovenia, Switzerland	64	–

nian capital Ljubljana. The urban areas appear to function as important centers for cross-border cooperation, benefiting from high accessibility, institutional capacity, and dense economic networks (Lambracht and Bertram, 2027; Bertram et al., 2025). This is particularly interesting as not all of them are close to the border. In contrast, the inner- and peri-Alpine regions, characterized by challenging topography, lower population densities, and lower transport connectivity, show lower concentrations of project partners (Lambracht and Chilla, 2025). This spatial pattern suggests a close interlinkage between the intensity of cooperation and the presence of metropolitan structures and functional urban regions, while more rural and remote mountainous regions show a lower level of participation.

4.2 Budgets and thematic foci

The program implementation is characterized by differences in the number of projects per program area, the overall budget, and the co-funding shares. Figure 3 provides an overview of all cooperation programs for these numbers. The EU funding share is shown in blue, while the proportion of other funding (e.g., public or private, including co-funding) is shown in green.

The transnational Interreg V-B ASP includes a smaller number of projects compared to most of the V-A programs. Despite its larger territorial scope, the ASP only covers 64 projects, whereas Interreg V-A programs average approximately 102, out of 920 projects in total. The number of projects in each cross-border program area varies substantially. For instance, the France–Italy program area encompasses 159 projects, whereas the Slovenia–Austria program area comprises only 52. Furthermore, the average funding allocated to each project in Interreg V-B is higher compared to the cross-border programs. This can be explained by the divergent objectives and governance structure characteristics of the two funding streams. While Interreg V-A is designed to support locally embedded projects that address specific, cross-border challenges within neighboring border regions, the transnational ASP emphasizes strategic cooperation across the entire Alpine region. Consequently, ASP projects generally involve larger international partnerships, more complex governance settings, and broader thematic objectives. This implies higher financial resources per project in the ASP.

These differences also reflect the spatial structures of the program areas. Cross-border cooperation is closely linked to the intensity of functional interactions along shared borders, where local actors can develop comparably smaller projects to address everyday cross-border challenges. In contrast, transnational cooperation is less dependent on geographical proximity and instead connects institutions across larger distances to address common challenges such as climate change mitigation or to establish circular value chains, support innovation, or improve governance in the Alpine region. Consequently, the implementation of a smaller but more substantial number of projects tries to address the program's comprehensive scope. The figure further indicates that three of the

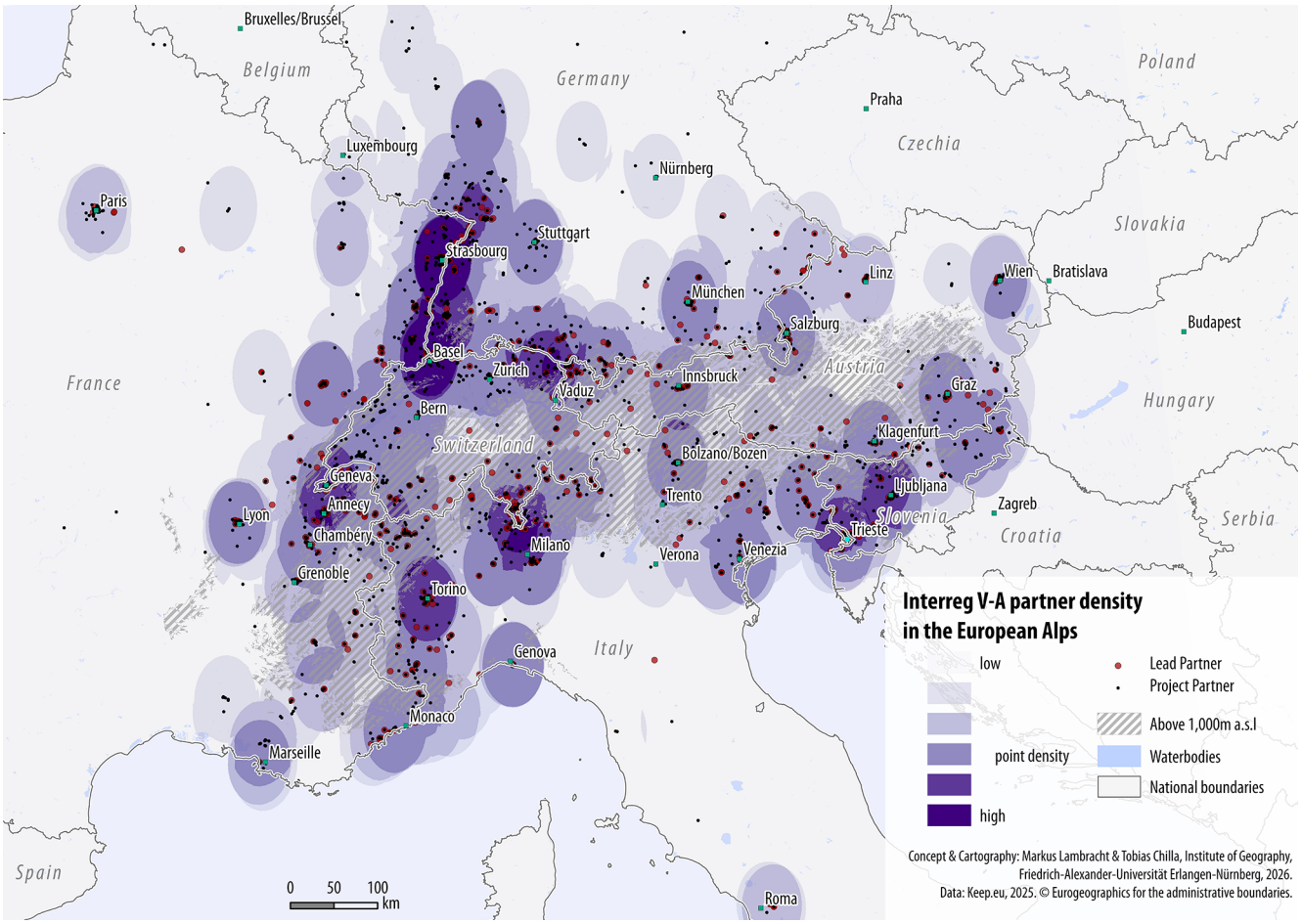


Figure 2. Point density of Interreg V-A partners (source: KEEP database 2025, own elaboration).

cross-border program areas account for substantially higher numbers of projects and larger overall program budgets compared to the other six programs, indicating differences in cooperation intensity between the border regions (namely ALCOTRA, France–Switzerland, and Upper Rhine).

Program areas with Swiss (i.e., non-EU) participation show a higher proportion of co-funding. As Switzerland is ineligible for European funding resources (e.g., European Regional Development Fund, ERDF), Swiss partners must finance their participation primarily through national and regional public funding, such as contributions from cantons or federal authorities. In contrast, the Interreg V-A programs involving Slovenia have the smallest number of projects but the highest proportion of EU funding within their overall budgets. This reflects the comparatively greater importance of ERDF support for project implementation in these program areas.

Important differences between transnational and cross-border programs can be identified when exploring the thematic dimension of different funding strands more closely. It is possible to quantify the thematic project assignments and to provide a graphical overview of the dynamics for both Interreg V-B and V-A.

Figure 4 provides an overview of the thematic topics for all Interreg V-B (red, broader columns) and Interreg V-A (blue, broader columns) projects, regardless of their program affiliation. The KEEP database allows up to three thematic assignments for each project, meaning that double assignments apply in 56 % of all cases, and triple assignments apply in 6 % of all cases. The total budget volume per topic is shown as thin orange (Interreg V-B) or light-blue (Interreg V-A) columns.

Figure 4 visualizes a total of 42 thematic assignments, thereby providing a multifaceted picture of the relevant themes in cross-border and transnational cooperation. The thematic priorities follow the same categorization for both forms of cooperation. Nevertheless, in the transnational ASP, the projects in the program period were only assigned to 31 thematic priorities. The figure shows, that for the Interreg V-A programs, the top five themes are

- tourism,
- cultural heritage and arts,

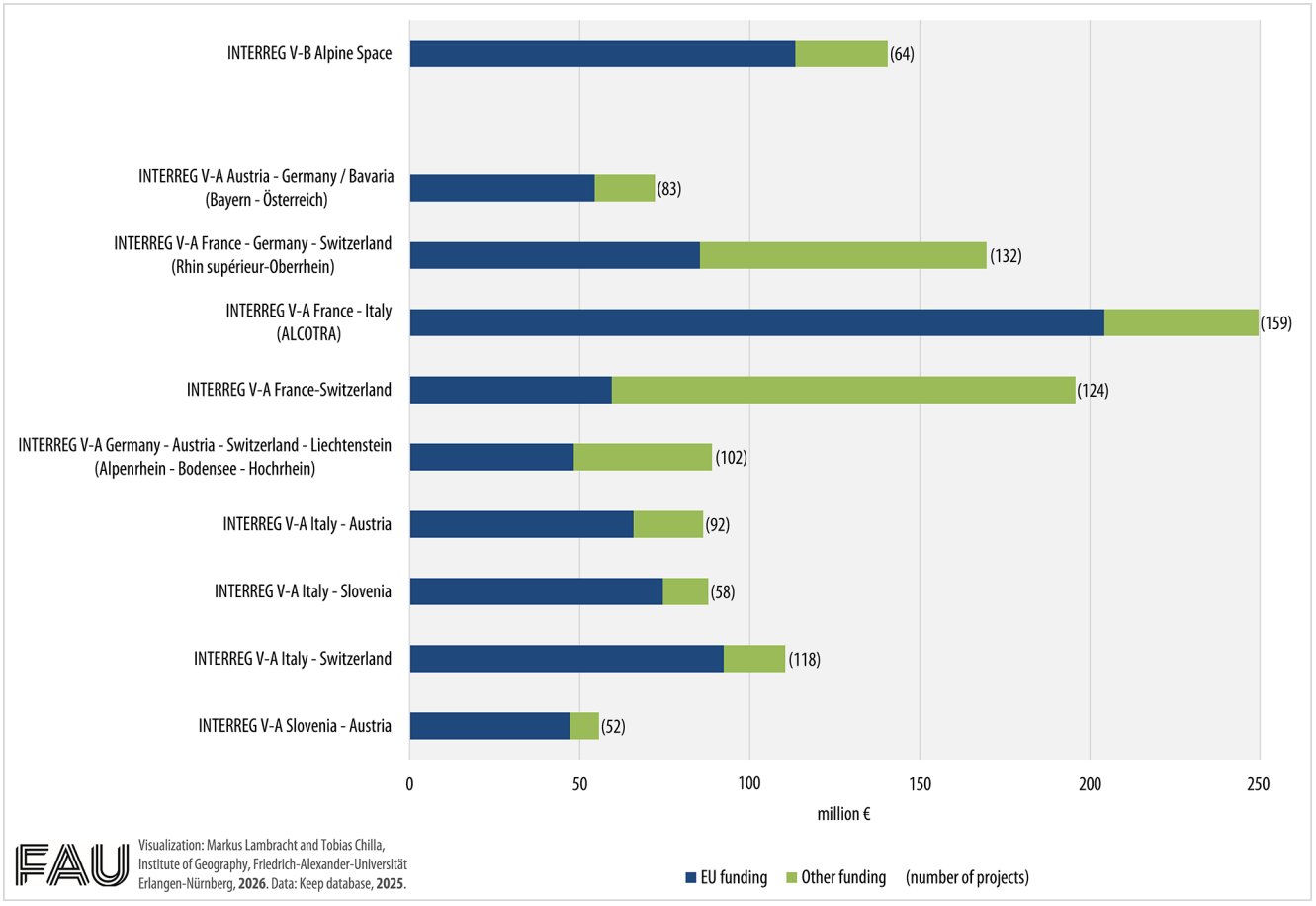


Figure 3. Interreg V-B and V-A budget volumes and the shares of EU and other funding in the area of the European Alps (source: KEEP database 2025, own elaboration).

- health and social services,
- institutional cooperation and cooperation networks, and
- education and training.

For the Interreg V-B ASP, the top five themes are

- regional planning and development,
- governance and partnerships,
- climate change and biodiversity,
- sustainable management of natural resources, and
- innovation capacity and awareness-raising.

This overview shows that different issues are addressed depending on the level of governance. This can be linked to the respective areas of responsibility at the regional or local level. Topics such as tourism, cultural heritage, and the arts align with the political focus of local authorities. This thematic focus can be regarded to be rather "soft" as it allows for consensus-based activities without high investments (e.g., cross-border thematic routes for tourism and partnership support for cultural heritage associations on either side of the border). More "difficult" topics – in the sense of transnational coordination and negotiation processes – have less prominent roles. For example, topics such as transport infrastructure are much harder to address due to (a) limited mandates at the regional level and, (b) in connection with that, the limited available budgets, as well as (c) the sensitivity of the topics. The Brenner Corridor is a prime example of these constraints. Its development requires coordination across multiple levels of government; substantial financial resources beyond the scope of regional authorities; and negotiation of politically sensitive interests between Austria, Germany, and Italy (Hippe et al., 2026b). Nevertheless, the figure shows that these topics are certainly addressed, albeit in fewer projects but with higher budgets per project. In contrast, projects dealing with topics such as education, cooperation, inclusion, and common identity have comparatively lower project budgets than, for example, climate change and digitalization. Generally speaking, these priorities include both soft and hard topics. While regional planning (more than development) tends to

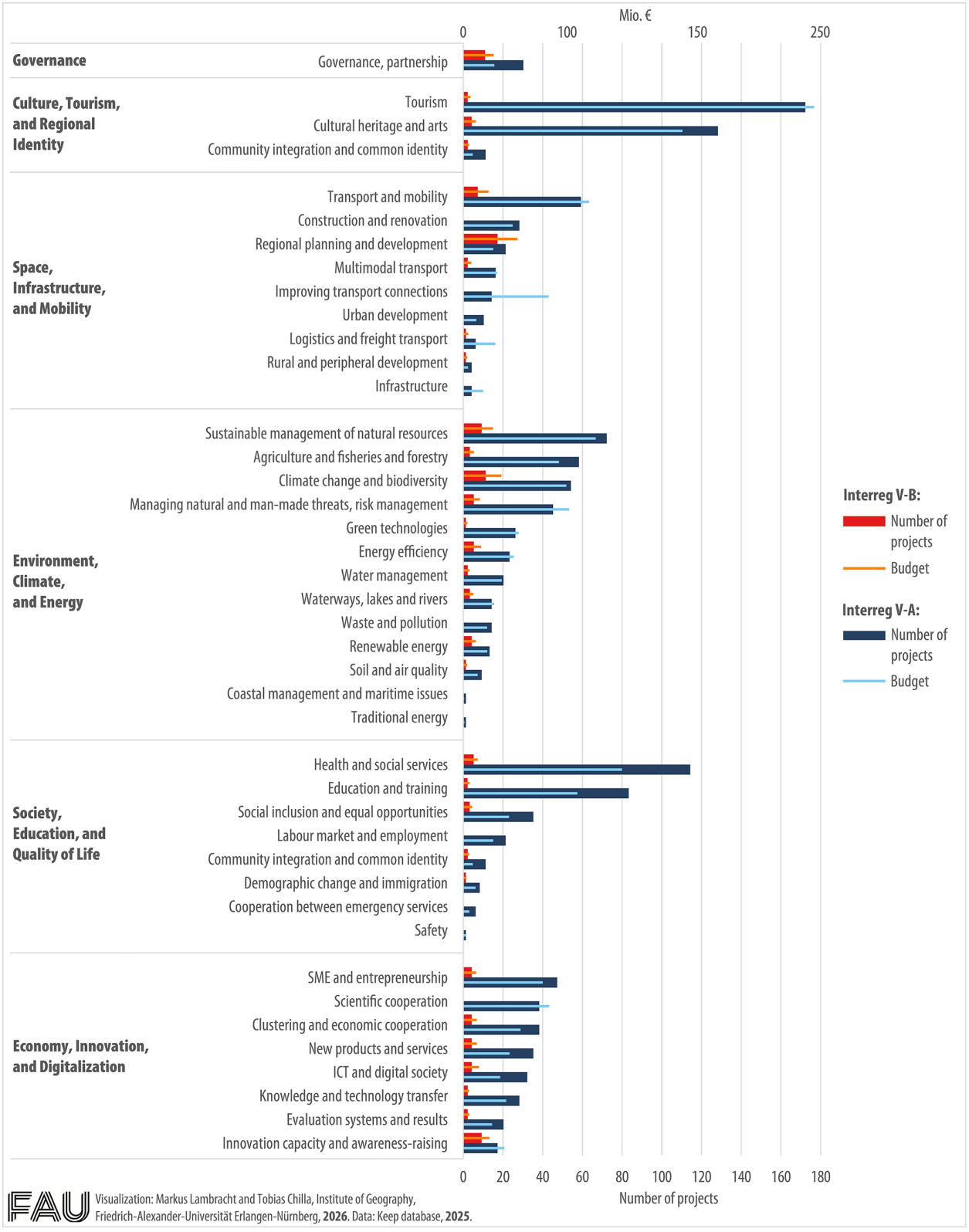


Figure 4. Thematic and financial focus of the nine Interreg V-A and Interreg V-B programs in the European Alps (source: KEEP database 2025, own elaboration).

address "harder" issues, awareness-raising in innovation is a typically soft topic.

When comparing the two forms of cooperation, it becomes clear that the two overarching categories "environment, climate, and energy" and "economy, innovation, and digitalization" are addressed primarily in the context of transnational cooperation. In contrast, cross-border programs take the lead regarding "culture, tourism, and identity" and "society, education, and quality of life". No clear pattern emerges for the topics of "governance" and "space, infrastructure, and mobility". The topics of governance, spatial planning and development, and transportation appear to play a greater role in Interreg B due to the size and heterogeneity of the region. Moreover, the thematic overlap with the EUSALP must be considered here. In contrast, specific topics such as infrastructure or urban development seem to be anchored in Interreg A cooperation.

4.3 The comparative perspective

Figure 5 shows the nine Interreg V-A program perimeters in different colors and differentiates the five main themes for each program area. Overlapping of perimeters is visualized by different types of hatches. The comparative perspective can be summarized as follows: first, in several program areas, "tourism" is amongst the top three thematic priorities. Second, other softer topics, such as "cultural heritage and arts" or "education and training", but also environmental topics like "climate change and biodiversity" seem to be majorly important in regional and local cross-border cooperation. Third, the Swiss borders in particular show a higher priority in the field of "health and social services" than the other border regions.

Each border region must be reflected against its regional context. The Interreg V-A programs vary across the Alpine border regions and largely reflect their specific territorial characteristics, cooperation history, and socioeconomic context. For the different border regions, the following specificities can be highlighted:

- *Austria–Germany.* Cooperation focuses on tourism and institutional cooperation in particular. Economic, ecological, and social topics are also relevant. Despite language and cultural similarities, the overall intensity of cooperation seems to be comparatively modest. The prominence of topics such as "education and training" and "clustering and economic cooperation" seems to be associated with the Salzburg metropolitan area, which comprises universities and has a high density of economic actors.

- *Austria–Italy.* The border region shows distinct thematic patterns between its northwestern and southeastern parts. The transalpine Brenner and Tauern axes and the agglomerations of Innsbruck and Salzburg are reflected in projects related to "SMEs and entrepreneurship", while historical cooperation is linked to the shared history of the Tyrol and South Tyrol. In the southeast (Kärnten, AT; Veneto, IT; Friuli, IT), characterized by peripheral areas with high mountains, cooperation focuses on "sustainable management of natural resources" and "managing natural and man-made threats, risk management". Given the dense tourist infrastructure and very high infrastructural accessibility, the high relevance of "tourism" is unsurprising.

- *Austria–Slovenia.* This border region is characterized by a comparatively small number of projects and a lower overall budget than the other Interreg cooperation areas. The strongest thematic focus is on "institutional cooperation and cooperation networks", reflecting a relatively young cooperation history. Tourism and cultural heritage also represent important priorities due to the attractiveness and ruralness of the border area.

- *Austria–Switzerland–Liechtenstein.* Cooperation is dominated by "tourism" and "education and training". These thematic priorities correspond to the region's role as a transport and tourism hub around Lake Constance and the Rhine Valley, as well as its high concentration of universities and educational institutions in the enclosed agglomerations.

- *Germany–Switzerland.* Cooperation dynamics show thematic concentrations in "cultural heritage and arts", "education and training", and "*scientific cooperation*", reflecting the dense network of universities, research, and educational institutions. "Health and social services" also constitute an important thematic field, particularly in the more urbanized parts of the border region.

- *Italy–Switzerland.* Cooperation is shaped by important transport corridors between northern and southern Europe (Gotthard, Montblanc), resulting in a strong emphasis on "transport and mobility". Additional main thematic foci in this cross-border region are "tourism", "cultural heritage and arts", "clustering and economic cooperation", and "health and social services", particularly in the Ticino–Lombardy cross-border area.

- *Italy–France.* The ALCOTRA program represents the most active Interreg V-A program in the European Alps. The main thematic foci are "tourism"; "cultural heritage and arts"; "managing natural and man-made threats, risk management"; "climate change and biodiversity"; and "governance, partnership". These priorities reflect the predominantly rural character of the area. The focus on tourism can be regarded to be one of economic potential, particularly in proximity to the metropolitan area of Torino. With climate change and expected stronger impacts in this region, the focus on greener topics is not very surprising.

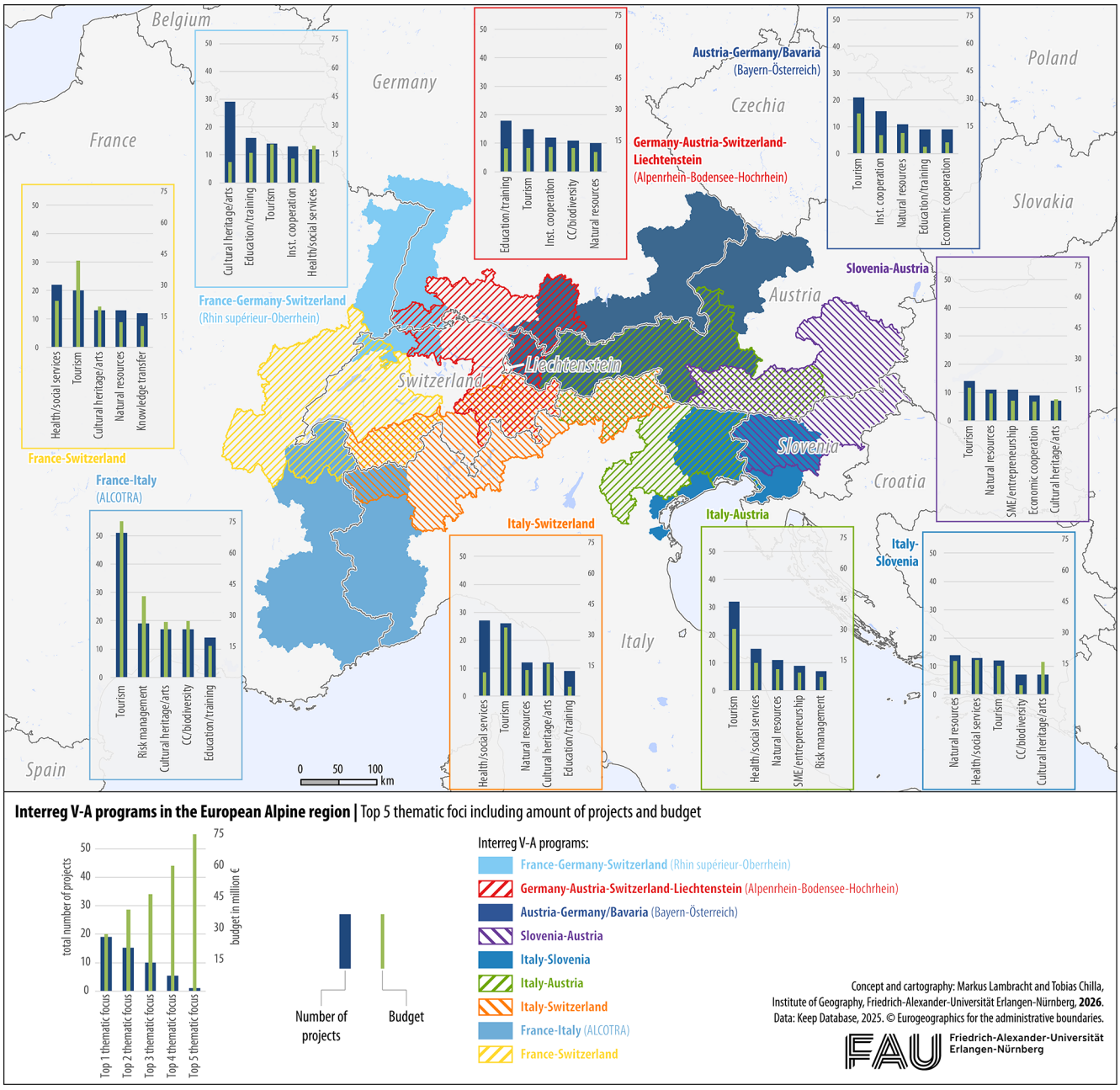


Figure 5. Top-five thematic focus areas in the different Interreg V-A programs (source: KEEP database 2025, own elaboration).

– *Italy–Slovenia.* Similarly to the Austria–Slovenia border area, this cooperation area shows a comparatively low number of projects and total budget. The thematic distribution is more balanced than in other regions, with "institutional cooperation and cooperation networks", "innovation capacity and awareness-raising", and sustainability-related topics playing a stronger role than "tourism", which is not among the three dominant themes.

– *France–Switzerland.* This border region displays a distinct thematic profile characterized by "health and social services", "transport and mobility", and "knowledge and technology transfer". This must be seen against the background of a highly urbanized border region. With the Greater Geneva and Basel regions, two of Europe's most metropolitan border regions are located in this perimeter. Furthermore, some more rural areas facing accessibility challenges (e.g., the canton of Valais) more heavily emphasize "tourism" and "cultural heritage and

arts" as key regional assets and potential drivers of development. The region has the second highest total number of projects and the highest percentage of third-party funding due to the particular status of Switzerland as a non-EU member.

These results reveal considerable variation in thematic priorities across the Alpine Interreg V-A program areas that should be reflected in combination with the density map (Fig. 2) and the charts including the budget information (Fig. 3). While tourism emerges as a common topic in the cross-border programs, other themes differ according to regional characteristics. Metropolitan and economically integrated regions show stronger emphases on education, research, innovation, and health, whereas more rural and mountainous areas focus on environmental management, risk prevention, and cultural heritage. Furthermore, differences in project numbers and funding intensity imply differences in the cooperation governance across the Alpine region(s).

5 Discussion

Our analysis of cross-border cooperation in the European Alps highlights several key themes related to regional governance. More generally, the thematic orientation of Interreg cooperation in the Alpine region can be characterized as relatively "soft". However, important differences emerge between program strands: while Interreg A is predominantly based on smaller projects, often related to tourism and cultural cooperation, Interreg B tends to address more structural and "harder" policy fields, such as spatial planning and transport and mobility. The spatial distribution pattern further suggests that the intensity of cross-border cooperation is mainly driven by the density of functional cross-border linkages, whereas transnational cooperation is organized around strategic networks linking the major metropolitan and institutional centers of the Alpine macro-region rather than continuous territorial interaction (Hippe et al., 2026a). Furthermore, in line with the research objective of identifying key explanations for implementation patterns in ETC, three main drivers can be distinguished.

First, the region's spatial structure acts as a catalyst for territorial cooperation. Urbanization patterns are particularly significant in shaping economic development and tourism dynamics in border regions. Valley floors and peri-Alpine metropolitan areas are characterized by relatively higher levels of urbanization and population density (Borsdorf and Haller, 2020), while interface zones between inner-Alpine regions and major peri-Alpine urban centers (e.g., Milan, Turin, Munich, and Salzburg) form the core territories of many Interreg program areas. These locations offer particularly favorable conditions for cross-border economic interaction (Paul et al., 2026; Bertram et al., 2025; Lambracht, 2024).

The strong inflow of tourists into Alpine regions calls for strategic cooperation approaches to sustainable tourism management and infrastructure development (Scuttari et al., 2016). Local authorities and stakeholders face the challenge of balancing economic opportunities with the preservation of natural and cultural resources, ensuring that growth does not undermine environmental integrity or local heritage. Moreover, the Alpine region's position along major European freight transport corridors provides substantial economic potential, both at the transnational level and for border regions themselves (Hippe et al., 2026b; Ravazzoli et al., 2017).

Proximity to larger urban centers and agglomerations reinforces the importance of economic, educational, and institutional networks, including cooperation in health and social services. The high density of universities and research and development institutions in the region aligns with a strong focus on education, training, and scientific collaboration. This, in turn, fosters closer linkages between scientific and economic networks, contributing to innovation and regional competitiveness (Derudder and Liu, 2025). Evidence for this tendency can be found in the thematic priorities of Interreg V-A program areas. For instance, the prominence of health and social services is particularly characteristic of more densely populated and urbanized border regions.

This observation is especially relevant in the context of such highly urbanized cross-border areas as the Greater Geneva and the Basel regions, two prominent metropolitan border regions. Moreover, the Alpine area also includes more peripheral and rural areas facing accessibility challenges, such as the canton of Valais (Nogués and González-González, 2021; Dianin and Chizzali, 2025; Pot et al., 2021). These contrasting spatial conditions underline the region's heterogeneity. Notably, the Alpine region records one of the highest total numbers of Interreg projects Europe-wide and exhibits a comparatively high share of third-party funding, partly reflecting Switzerland's non-EU member status.

In contrast, predominantly rural and mountainous regions show a stronger emphasis on tourism, cultural heritage, environmental management, and risk prevention, which can be explained by the attractiveness and economic relevance of the region's rural areas. These sectors both contribute to regional identity and represent key fields of cross-border cooperation, particularly within Interreg A programs. This is particularly prominent in the Italy–France (ALCOTRA) border area and the border areas in relation to Slovenia.

Second, some of the patterns might be explained by the concept of path dependency in funding periods (Knieling and Othengrafen, 2018). In "older" program areas, the density of cooperation activities and the budget allocations tend to be higher (see Table 1). This highlights the importance of continuity in cross-border cooperation. Cooperation experience tends to overcome formal and administrative barriers for future activities. They have created institutional and procedural frameworks that enable regions to navigate administrative complexities more effectively. By building on earlier initia-

tives, actors can generate synergies that enhance the impact of subsequent projects. This continuity contributes to the accumulation of knowledge and experience, thereby strengthening regional collaboration over time and, in some cases, helping to compensate for discrepancies in domestic administrative practices (Frątczak-Müller and Mielczarek-Żejmo, 2020). The example of Slovenia, which joined the EU in 2004, supports this finding.

Moreover, the establishment of EGTCs is a significant step forward in the institutionalization of cross-border governance (Evrard, 2016). As seen in Table 1, many EGTCs have their territorial area of responsibility located within the respective program areas. These frameworks facilitate coordination between national, regional, and local actors, enabling them to address shared economic potentials and common challenges more effectively. In particular, EGTCs support integrated approaches to regional development in areas such as mobility, spatial planning, and resource management. By fostering institutionalized cooperation, they help to reduce fragmentation and promote more coherent strategies for tackling transnational issues (De Sousa, 2013). This is especially evident in cross-border contexts such as those between Austria and Italy, where EGTCs contribute to closer alignment between domestic and cross-border governance structures.

Third, some of the revealed patterns must be explained by the territorial diversity of the involved regions. The diversity across border areas calls for differentiated and context-sensitive development strategies (Capello et al., 2018). Each cross-border region is shaped by a unique combination of spatial, economic, cultural, and institutional factors, a nuanced understanding of which is vital for designing policies that effectively address local needs and potentials. On the one hand, key sectors such as tourism, education, and culture require tailored approaches that both build on regional strengths and respond to specific challenges (Stoffelen and Vanneste, 2017). On the other hand, major transport corridors also influence thematic specialization. Border regions located along strategic Alpine transit routes, such as the Brenner and Gotthard corridors, place greater emphasis on transport, mobility, and economic cooperation (Hippe et al., 2026b). Such a place-based perspective both enhances policy effectiveness and fosters a stronger sense of ownership among local stakeholders.

In summary, factors such as historical trajectories, metropolitan influences, path dependency, institutional frameworks, and regional diversity collectively deepen our understanding of cross-border cooperation. A comprehensive consideration of these dimensions is essential for developing sustainable and effective policies that enhance regional collaboration and support economic development in border areas (see also Dax and Parvex, 2006). Future research should continue to explore these interdependencies in order to identify transferable best practices across different cross-border contexts.

Our empirical evidence suggests that certain areas are "hotspots" of cross-border spatial cooperation, particularly in highly urbanized border areas. In many cases, the scope and intensity of cooperation are rooted in long-standing traditions and a well-established "culture" of cross-border interaction, as exemplified by the Lake Constance region. Due to a gradual, evolutionary process, this area is now widely regarded to be a model case of Alpine cross-border cooperation and governance. Other prominent examples of intensive cooperation include the southeastern Bavaria–Salzburg region, the Brenner Tyrol–South Tyrol–Trentino corridor, the Friuli Venezia Giulia–Slovenia border area, the Swiss–French Geneva metropolitan region, and the ALCOTRA program area along the French–Italian border.

6 Conclusions

Our study supports the idea that the "consensus context" of European integration highlights the importance of networks and the emphasis on soft themes such as cooperation, knowledge exchange, and institutional capacity. Spatial cooperation patterns across the Alpine space vary significantly, driven by factors such as path dependencies, spatial characteristics, and a rich territorial diversity. Nevertheless, our study carries important limitations. Indeed, we demonstrate the relevance of Interreg programs based on quantified and regionalized information. This prioritizes the analysis of general patterns across all Interreg programs over conducting a more detailed assessment of the underlying mechanisms. The operationalization does not account for criteria such as personal relationships, organizational structures, functional interrelations, and capacities. Further research might build on our findings and integrate more qualitative information and methods to verify and support the results. This could provide a more nuanced understanding of how different dimensions emerge within Interreg collaboration in the Alpine area.

Nevertheless, our findings underline key lessons for future cooperation in the upcoming programming process: continuity is essential as long-term collaboration builds trust and effectiveness, and territorial assets are pivotal in shaping development opportunities. Strategic orientations should, therefore, focus on identifying, strengthening, and further developing these regional potentials in order to foster resilient Alpine spatial development.

Data availability. This paper is based on Interreg data from the open-source KEEP database (https://keep.eu/, last access: 12 December 2025), including Interreg V-A and V-B data, while excluding Interreg small-project funds and other programs (e.g., INTERACT, ENI). The Interreg V period was implemented from 2014 to 2020. All data refer to the status of the KEEP database as of December 2025.

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