

From mapping to action: Social network analysis as a strategic tool in cross-national community interventions

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ABSTRACT

Community interventions increasingly leverage Social Network Analysis (SNA) both to understand relational patterns and to facilitate structural changes within networks. Indeed, SNA serves not only as an analytical tool but also as a catalyst for reflection and change. Although SNA has been widely used as an intervention tool, its application in cross-national contexts remains underexplored. This study aims to address this research gap by investigating how SNA can contribute to cross-national community interventions. We use a case study approach based on a longitudinal analysis of the Assistance and Legal Program for Emigrant Support (ALPES) network, a cross-national project established at the Italian-French border. In this project, SNA has been used both as a diagnostic tool to map the information exchange network of third-sector organizations and as a strategic intervention strategy that produced behavioral changes in these organizations. Our results show that SNA functioned as both a translational monitoring tool and a catalytic intervention: network visualization prompted organizations to strategically alter their collaborative patterns and address structural gaps in migrant support services across borders. This demonstrates how network feedback processes can enhance inter-organizational collaboration in complex cross-national contexts.

1. Introduction

Social network analysis (SNA) has emerged as a powerful methodological approach for community interventions, offering unique insights throughout the intervention cycle from planning to evaluation (Hunter et al., 2019; Maya-Jariego and Holgado, 2015; Neal and Neal, 2017). By systematically examining relational structures, SNA provides a lens through which to understand complex social systems that traditional research approaches often fail to capture. In this vein, community interventions - deliberate actions aimed at improving social conditions and well-being of community members - have increasingly incorporated network perspectives to enhance their effectiveness (Robins et al., 2023; Valente, 2010; Valente, 2012).

Network-based community interventions have been implemented across diverse domains: in public health for disease prevention and health promotion (Gesell et al., 2013; Valente, 2012); in organizational development to improve inter-agency collaboration and service coordination (Faust et al., 2015; Haapanen et al., 2024); in online

communities to facilitate social support exchanges (Zhang and Yang, 2015); and in program implementation to enhance service delivery and monitoring (Valente et al., 2015). Despite their varied contexts, these interventions share a common emphasis on mobilizing collective social resources to address community needs.

However, network interventions in inter-organizational contexts face fundamentally different dynamics than those in interpersonal networks. While individuals can relatively easily adopt new behaviors or form new connections, organizations operate within systems of external control and resource dependencies that constrain their network participation (Provan & Milward, 1995). Organizations must balance serving their individual stakeholders with achieving collective network goals, and what benefits the network may not benefit individual members (Provan & Milward, 2001). This creates persistent tensions between maintaining organizational independence and achieving network coordination (Kenis & Provan, 2008).

These tensions directly influence how inter-organizational networks can be governed and how they respond to interventions. Kenis and

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Provan (2008) identify three governance forms - shared governance, lead organization, and network administrative organization - each requiring different levels of trust distribution and coordination mechanisms. Critically, what makes a network effective at the community level may undermine effectiveness at the organizational level, creating paradoxical outcomes where well-intentioned interventions can reinforce the very hierarchies they seek to modify (Provan & Milward, 2001). Understanding these dynamics is essential for interpreting intervention outcomes in inter-organizational contexts. Network interventions that successfully reveal structural patterns may paradoxically strengthen existing configurations as organizations recognize the efficiency of current arrangements rather than the need for change.

SNA serves multiple functions in community intervention contexts: identifying influential community members, mapping collaborative relationships between organizations, evaluating information flow, and monitoring structural changes over time (Maya-Jariego and Holgado, 2015). The utility of SNA is particularly evident at specific points in the design of the intervention process. In the planning phase, this approach provides crucial baseline data about existing community relationships and identifies potential intervention points (Zhang and Yang, 2015). During implementation, network measures can help track the adoption of innovations or behaviors across social systems, as demonstrated in studies of health behavior diffusion (Valente et al., 2015). In evaluation, network metrics offer concrete indicators of structural change, complementing traditional outcome measures (Gesell et al., 2013). Indeed, the design and assessment of organizational networks, if not carefully planned, is at risk of being inaccurate. As pointed out by Milward and Provan (1998), SNA is fundamental to understanding the inner structure of an organizational ecosystem and planning the next strategic moves. At the same time, researchers and practitioners should not forget that “most networks, at some point in their evolution, will be guided by a design decision” (Milward and Provan, 2006, p. 22), and thus an informed decision based on SNA is needed to design a successful network structure. In this context, the choice of such structure, and the selection of the analytical tools for its monitoring, are never random: they depend on the objectives of the network and external factors which may impact its functioning. The design of a proper community intervention can result in greater network effectiveness: from the increase in connections between different types of stakeholders (Valente et al., 2010), to a more frequent engagement in new activities (Kennedy et al., 2015), and a rise in the uptake of medical testing in targeted populations (Mukoka et al., 2025).

The theoretical framing of community interventions has evolved toward a more comprehensive multilevel perspective. Valente (2012) established a foundational typology distinguishing four strategies: individual identification (selecting specific actors based on their network position); segmentation (dividing the network into cohesive groups for targeted intervention); induction (stimulating peer-to-peer interactions to create behavioral cascades); and alteration (adding, removing, or rewiring network connections). Building on this framework, Robins et al. (2023) consolidated these into three primary intervention types that maintain Valente's core insights while providing a more streamlined classification: identification (discovering patterns from networks to select key actors or groups); diffusion (spreading information or behaviors through existing network structures); and structural change (deliberately modifying network configurations). Crucially, Robins et al. (2023) enhanced this framework by introducing a multilevel dimension that recognizes interventions operating across hierarchical social levels: local (nodes, dyads, egonets), setting (intermediate social spaces), and system (entire networks). Maya-Jariego (2025) provides a complementary perspective by examining the role network analysis plays in the intervention process rather than the type of change intended. This framework identifies four uses: preparatory (mapping relationships for design), substantive (programs centered on modifying relationships), performative (visualization as catalyst for change), and translation (monitoring implementation dynamics). The preparatory use—which

involves selecting key players and segmenting networks to design interventions—aligns with what Robins et al. (2023) categorize as identification strategies (Maya-Jariego, 2025, p. 19). Similarly, substantive interventions that aim to modify participant relationships through support groups or inter-organizational networks correspond to Robins et al.'s (2023) structural change category. However, Maya-Jariego (2025) framework uniquely captures how network visualization itself can trigger behavioral change (performative) and how relational dynamics shape implementation outcomes (translation). This multiplicity of perspectives suggests that effective community interventions, particularly in complex inter-organizational contexts, often engage multiple mechanisms simultaneously across different levels, requiring attention to both the intended structural changes and the processes through which network analysis shapes intervention outcomes.

The complexity of multilevel interventions becomes particularly evident in cross-national contexts, where networks must span different institutional environments, regulatory frameworks, and cultural boundaries. While community coalitions typically operate within shared local contexts, cross-national networks face additional structural challenges. Nascimbeni's (2018) analysis of European-Latin American organizational networks revealed how SNA can identify critical patterns in cross-national collaboration: in particular, center-periphery dynamics where international organizations occupy central positions, while local organizations remain peripheral with fewer cross-network connections. These structural arrangements have significant implications for sustainability, as they often leave local organizations with reduced capacity when international partners withdraw (Stadtler and Karakulak, 2020). Network visualization serves as both a diagnostic tool and a potential intervention mechanism by making these imbalances visible to network members, enabling strategic reconfiguration of collaborative relationships. In cross-national contexts, SNA can help to examine both formal partnership structures and informal knowledge-sharing relationships that sustain cross-border coordination (Cachia and Holgado Ramos, 2020). In particular, informal networks, i.e. relationships based on friendship, personal contacts, or information and advice exchange (Krackhardt and Stern, 1988), are especially relevant in the context of community intervention. Recognizing and accessing key individuals and organizations via informal networks can strengthen professional communities (Van Waes et al., 2018) and public actors (Siciliano and Whetsell, 2023); however, designing a program while considering the presence of informal aspects is always a challenge. Moreover, unlike coalitions operating in single-country contexts, cross-national networks face unique challenges that influence their intervention capacity, including language barriers, divergent funding mechanisms, and varied institutional expectations that impact information flow and trust formation across national boundaries. Their analysis becomes essential for understanding how these structural constraints shape intervention implementation across local, setting, and system levels simultaneously.

Our case study examines third sector organizations (TSOs) operating across the Italian-French border, illustrating how SNA can be applied as both a diagnostic and intervention tool in cross-national contexts. Drawing on the multilevel intervention framework (Robins et al., 2023), our analysis examines network dynamics at local (organizations), setting (plenary meetings), and system (cross-national network as a whole) levels simultaneously. This framework enables us to understand how identification processes locate influential organizations, diffusion mechanisms spread practices across organizational boundaries, and structural modifications optimize resource distribution and information exchange (Robins et al., 2023). Our study demonstrates how SNA functioned as both analytical tool and intervention mechanism, with network visualization prompting TSOs to strategically alter their collaborative patterns and address structural gaps in migrant support services across borders. By making structural imbalances visible to network members, this visualization process catalyzed organizational behavior changes that enhanced inter-organizational collaboration in complex cross-national contexts. This demonstrates how network

feedback processes can enhance inter-organizational collaboration in complex cross-national contexts. The following sections explore how SNA enhances cross-national community intervention. We begin by introducing the Assistance and Legal Program for Emigrant Support¹ (ALPES) network, a cross-national initiative at the Italian-French border addressing migrant support challenges. We then detail our data collection and analysis approach and present network data from 2023 to 2025, examining the evolution of organizational relationships and the participating organizations' response to visualization feedback.

2. Research methods

2.1. The Assistance and Legal Program for Emigrant Support (ALPES)

The idea for the creation of ALPES emerged at the end of 2021, following a meeting between French and Italian TSOs working to support migrants. This group of TSOs included associations, social enterprises, and cooperatives, working on reception centers for asylum seekers and refugees, legal cabinets, border health centers, anti-violence and anti-trafficking centers, and reception centers for unaccompanied children. These organizations primarily provide health and social services and legal support to migrants. During this meeting, initial discussions and observations laid the groundwork for creating a cross-national network dedicated to protecting migrants' rights. Joint fieldwork in the Ventimiglia area in northwestern Italy further strengthened the shared commitment to move beyond isolated interventions and build a coordinated and targeted response involving local TSOs. In 2022, 14 French and Italian TSOs agreed to form an informal partnership based on the share of information and good practices between members. In this respect, such partnership was defined, from the very beginning, as a network mainly based on informal relationships. ALPES's creation was driven by the recognition that exploitation transcends national borders and cannot be addressed within the institutional and geographical boundaries of a single country (Boudou, 2023; Vergnano, 2020). From a network perspective, the first version of ALPES can be seen as an emergent informal network with no formal rules or official structures (Cross et al., 2002), sustained by a small group of organizations. The establishment of this initiative was guided by a key question: how to structure an effective cross-national mechanism for sharing information about individuals, migration dynamics, and national legal frameworks? Since its inception, ALPES's mission has been to enhance the support provided to migrants on the move, facilitating their administrative procedures while amplifying their voices and respecting their autonomy, despite the ambiguity in norms and policy tools in the European Union (Cardwell, 2018). Through inter-organizational collaboration, ALPES aims to offer a more coherent, cross-border response to the challenges of human trafficking and smuggling.

ALPES's operations have been designed around three main aspects. First, the program seeks to connect organizations that work directly with migrants. ALPES brings together lawyers and social workers from French and Italian TSOs, whose aim is to facilitate the exchange of information about migrants and their current situation at the French-Italian border. Their goal is to provide the best possible support to migrants by collecting and using information about migrants and national migration rules, including efforts to prevent forced repatriation, wherever possible. Second, ALPES aims to enhance the visibility of network organizations with local public authorities and build a constant and constructive dialogue with them. This cooperation is crucial for improving the level of support for migrants. Finally, ALPES works to counter human trafficking and smuggling through both direct service provision and advocacy efforts. Putting pressure on national and European institutions to strengthen legal frameworks has been an essential

component of this mission.

The network grew from 14 founding organizations to 33 in 2023, before decreasing slightly to 31 in 2025. These organizations are spread across two European countries: Italy, which currently accounts for 18 TSOs, and France, with 13 TSOs. Other organizations in both countries expressed an interest in joining the ALPES network. Nevertheless, these organizations, even if invited to join the network, preferred not to commit themselves because of the following reasons: lack of time for travelling; lack of time for engaging with the network's activities; lack of resources for addressing (potential) partners' requests; lack of staff. ALPES' organizations form the nodes in Robins et al. (2023) local level of intervention. From 2022–2025, five in-person plenary meetings were organized (three in France and two in Italy), but organizations constantly exchanged information by email and video calls as well (Fig. 1). In this vein, the network was designed with the specific goal of creating a platform where TSOs could find partners, share information and collaborate on multiple projects. Following Robins et al. (2023, p. 110), we classify the plenary meetings as our settings - i.e. those “spaces that provide affordances for interaction”. All organizations share a common stance, actively tackling human trafficking via a non-judgmental approach, primarily focused on providing direct assistance for the victims of the trafficking. ALPES organizations aim to provide support to the trafficking victims, help them assert their rights, and empower them to choose where to rebuild their lives whenever feasible. This approach contrasts with the prevailing European framework, which, under the Dublin Regulation, mandates that migrants cannot freely choose their country of residence (European Parliament, 2013). However, as ALPES expanded and the discussion over the migration phenomenon became increasingly politicized, new challenges to collaboration started to emerge. Welcoming an increasing number of organizations from different regions and operating contexts increased the level of complexity of the collaborative dynamics. What started out as a small group of organizations, with closely aligned working methods and shared local experiences, evolved into a broader cross-national network. This is our system level (Robins et al., 2023): the entire ALPES network structure made by French and Italian TSOs.

This growth brought undeniable strength, enriching ALPES with a wider range of expertise, resources, and perspectives. However, this growth also created coordination challenges and tensions over strategic direction. For instance, not all ALPES organizations are led by individuals who are fluent in both French and Italian: language barriers sometimes complicate the exchange of information, slow down coordination efforts, and may influence the level of participation within the network. At the same time, international issues have become more pressing in the last few years. Support activities for migrants, particularly across national borders, shifted from being primarily humanitarian concerns to becoming highly sensitive political topics, often exploited in public discourses for electoral or ideological purposes (Berdiyev and Can, 2022; Geddes and Pettrachin, 2020). This phenomenon had a direct impact on the work of all organizations operating in this sector. Legal frameworks are constantly evolving, sometimes becoming more restrictive; public authorities may adopt more aggressive policies; and civil society actors themselves may come under greater scrutiny or even criminalized for their support activities (Pannia, 2021; Reggiardo, 2019). This makes cross-border collaboration even more complex and sensitive, as organizations must navigate through not only operational difficulties but also political and social pressures.

2.2. Data collection and analysis

In this work, we adopted an action research approach (McNiff, 2013) to develop a collaborative relationship between researchers and organizations' representatives while trying to address real-world problems. In this specific context, the member of our research team who established the contact was actively involved in the creation of ALPES, participating in and organizing meetings (action and observation) and

¹ ALPES is a pseudonym used to protect the anonymity of the participating organizations.

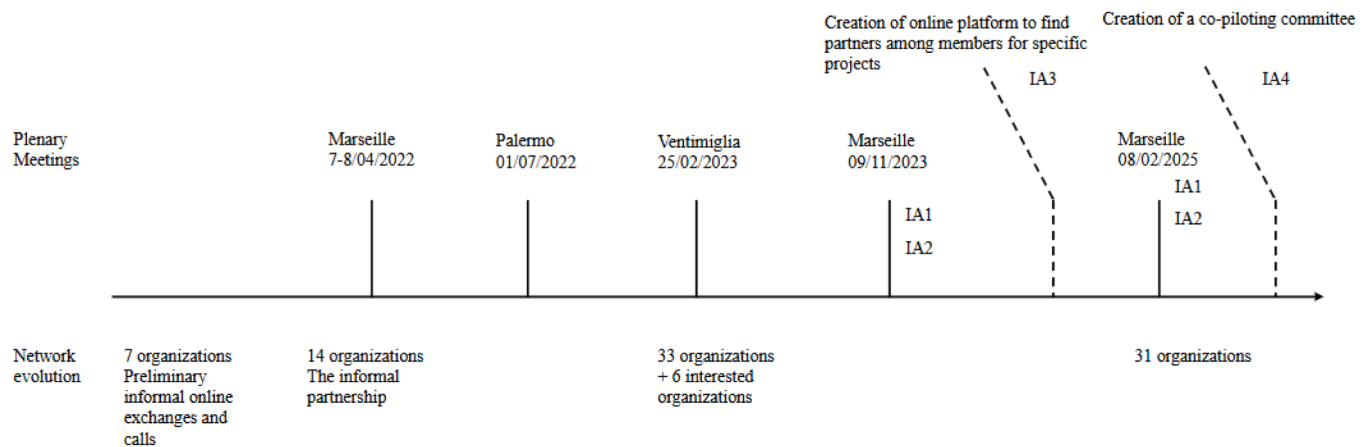


Fig. 1. History of ALPES network.

supporting self-reflection among participants in order to question the meaning of each activity (reflection). This approach helped in generating practical insights and facilitating continuous exchanges. Furthermore, attending and observing key meetings, where operational decisions were discussed and made, was crucial to develop a clear understanding of the different network dynamics.

To identify key actors and groups (Valente, 2012), we collected primary data from questionnaires administered to organizations' representatives in November 2023 and February 2025, during in-person plenary meetings. These meetings were public and attended by more than 200 individuals representing over 100 French and Italian organizations, including a mix of ALPES's affiliated and non-affiliated organizations. The questionnaire included both closed and open-ended questions. Questions were organized around key themes, including their level of engagement, perceived benefits and needs, expectations, and proposals for the future. One section of the questionnaire specifically focused on collaborative relationships, where we asked to indicate up to three organizations they exchanged information the most (using a fixed recall - see Marsden, 1990). As a result, we mapped an informal non-directed network where ties identify inter-organizational exchange of information. In addition, the questionnaire focused on organizations' willingness to participate in joint projects, applying for funding to support the network's activities, and whether or not to institutionalize the network. Network data were analyzed by focusing on centrality measures and the presence of subgroups in the network (Maya-Jariego, 2025): this is because our intervention aimed to prompt TSOs to design their collaborative patterns in order to address structural gaps in migrant support services, and therefore the identification of central actors and cohesive groups in the network is fundamental to achieve this objective.

Following the first in-person plenary meeting and network data collection, we proceeded with presenting the 2023 network to the ALPES members and we conducted a series of semi-structured interviews. Each interview lasted approximately 45–60 min and was conducted in a format adapted to the preferred language (French or Italian) and availability (online or offline) of the participant. Following Small and Calarco (2022), we ensured qualitative rigor by making analytical decisions explicit and grounding interpretations in observable evidence. We structured the interview's protocol around four main sections: the first one about initial reactions and interpretation of the network visualization; the second one aimed to explore participants' understanding of their role in the network; the third part focusing on current and potentially new collaborations, while the last part was dedicated to future improvements. For the analysis of interview data, all interviews were coded using a thematic coding approach. An initial codebook was developed deductively, based on the four sections of the interview guide, while additional codes emerged inductively as

recurrent themes within the transcripts (for instance: trust issues, difficulties in communication, barriers to collaboration). Coding was carried out manually, and we compared coding between researchers to enhance reliability. The robustness of the qualitative analysis rests on a multiple-evidence validation process. We connected results from the network visualization with interview data and fieldnotes to examine whether patterns identified in one source were confirmed, nuanced, or contradicted by the others. This combination of methods allowed us to develop rich, contextualized understandings of the social dynamics at play, explore meanings and experiences in depth, and uncover relational mechanisms that would not have been visible through a single data source. The integration of narrative insights further deepened this understanding. At the same time, we carefully designed the researcher's role in data collection, acknowledging that self-awareness (i.e. the understanding of how one's identity, positionality, and presence influence interviews, observations, and the data produced) is essential to maintaining analytical rigor (Small and Calarco, 2022). While it is fashionable to call for the 'triangulation' of research methods, this research confirms its validity (Milward and Provan, 1998). Then, in 2025, we repeated the same process (network data collection during the plenary meeting; presentation of the network; interviews, while the fieldnotes helped to make sense out of the quantitative data and explain the network structure).

3. Community intervention: identification of key actors and groups (2023)

As intervenors, our main goals at the beginning of the study were as follows. First, helping French and Italian TSOs to strengthen information-sharing practices. As underlined in the section dedicated to presenting the ALPES project, language and institutional barriers impacted ALPES's activities from the beginning of its journey, and they became even more pressing with its expansion. Strengthening communication among French and Italian organizations was a declared objective of ALPES's founders: as researchers/intervenors, our role was to support this goal by making existing communication gaps visible and by fostering awareness of how they might be overcome. Second, but strictly intertwined with the first one, we aimed to support the development of a more cohesive network and reducing network inertia (Ramasco and Morris, 2006), i.e. when organizations prefer to interact over time with the same partners. In a community network made by actors belonging to predefined groups, the tendency of connecting with relevant partners in the same group is higher (Sapat et al., 2019; Wang et al., 2016); the intervention intended to reduce the burden of (informally) managing the network assigned to key ALPES organizations. Indeed, these organizations naturally emerged as network leaders even if they did not ask for, as highlighted in the semi-structured interviews and the SNA results

presented below.

Among the 33 affiliated organizations in 2023, 23 filled the questionnaire during the first day of the plenary meeting: this is a 70 % response rate which is considered acceptable in empirical studies using network data (Cronin, 2016). Moreover, in the data visualization and analysis, we also considered those organizations that have been mentioned by the respondents but did not fill the questionnaire. This is why the 2023 graph (Fig. 2) shows 25 organizations and not 23. The results from the data collection were presented during the second day, fostering a shared reflection on the structure and functioning of the network. After presenting the results of the data visualization, we conducted some semi-structured interviews aimed at investigating participants' understanding of the network and how this could have influenced their perception of their own role and ALPES as a whole. The data analysis revealed a predominantly internal collaboration among Italian TSOs and a similar pattern within the French group. As illustrated in Fig. 2, French organizations (light blue nodes) were almost entirely grouped in the upper-right part of the graph and relatively disconnected from the Italian organizations (orange nodes). In this figure, nodes' size is according to their betweenness centrality. Two organizations, ID10 (French) and ID31 (Italian), emerged as central actors in the network; interestingly, both of them focus on supporting victims of trafficking and

exploitation. However, their approaches are different: ID10 is a community health organization that supports sex workers, while ID31 has been active since 2000 in women's protection and migration's aspects. ID10 and ID31 hold the highest degree, closeness, eigenvector, and betweenness centrality scores in the network (Table 1), followed by ID3 and ID11, two organizations providing legal support. The centrality of ID10 and ID31 in the network seems less related to higher funding or formal institutional ties and more to their long-standing engagement in the field, their role in bridging different TSOs' subgroups, and their strong connections with local public authorities. Both their directors maintain extensive relationships at the local and national levels; moreover, in the case of ID10, the director's Italian nationality and fluency in both languages further facilitate cross-border communication and trust within the network. To identify the main groups in the network, we used the Louvain algorithm, and we compared our results with those obtained with two other algorithms: the Label Propagation and the Girvan-Newman algorithm (all network visualizations with the different algorithms can be found in the Appendix). We run both the analysis and data visualization using Python; by comparing the outputs produced by the different algorithms, we had confirmation that the Louvain algorithm was more effective in allocating organizations to the different groups, especially when looking at their geographical location. This is

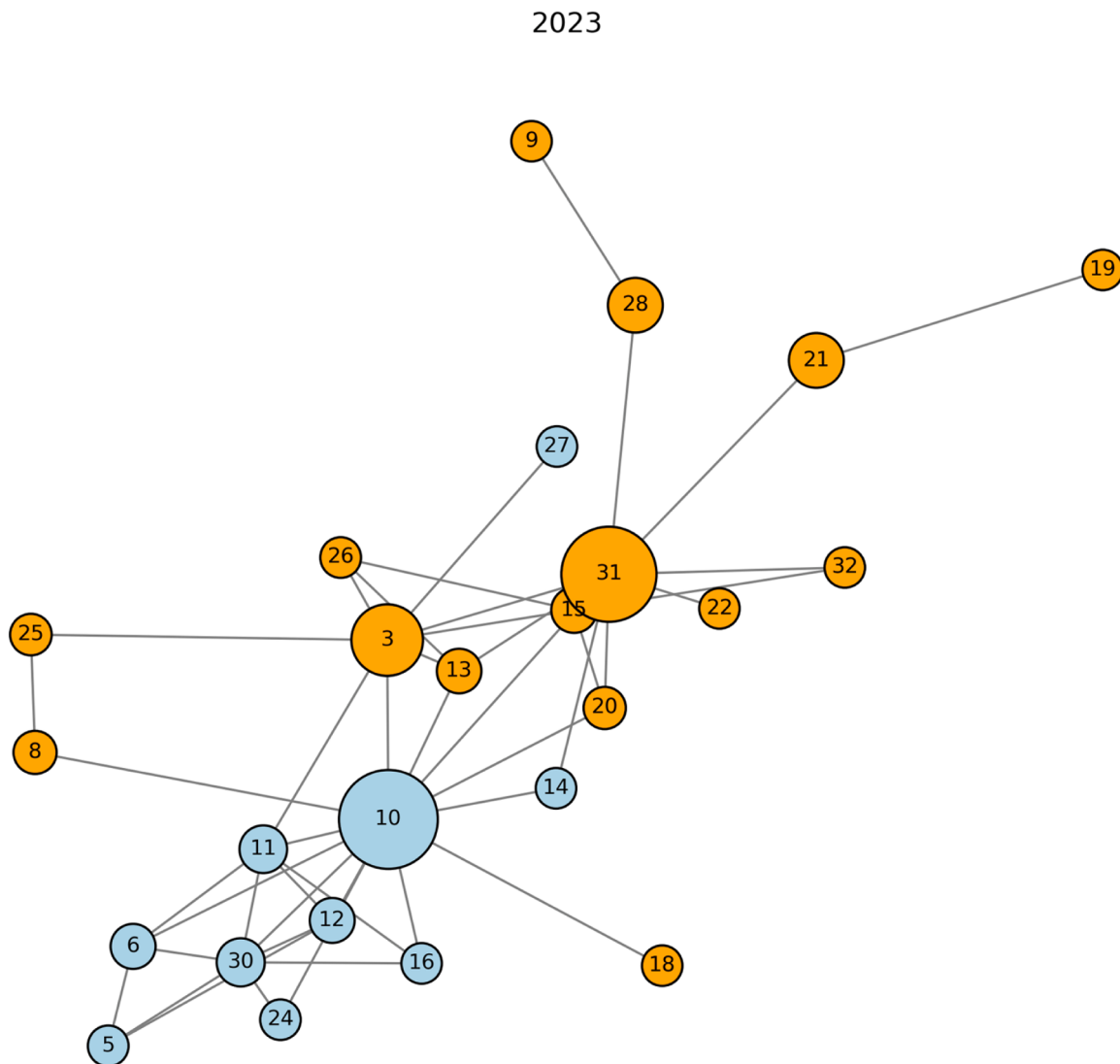


Fig. 2. Inter-organizational network in 2023. Light blue nodes are French organizations and orange nodes are Italian organizations; nodes' size is according to their betweenness centrality.

Table 1
Organizations' normalized centrality measures in 2023 (top 10 organizations).

ID	Degree	ID	Closeness	ID	Eigenvector	ID	Betweenness
ID10	0.542	ID10	0.649	ID10	0.693	ID10	0.494
ID31	0.417	ID31	0.615	ID31	0.452	ID31	0.452
ID3	0.333	ID3	0.558	ID3	0.449	ID3	0.213
ID30	0.292	ID13	0.511	ID11	0.439	ID21	0.083
ID11	0.250	ID11	0.480	ID30	0.430	ID28	0.083
ID15	0.208	ID20	0.480	ID13	0.315	ID30	0.041
ID6	0.167	ID14	0.462	ID6	0.311	ID11	0.038
ID12	0.167	ID30	0.453	ID12	0.311	ID15	0.027
ID13	0.167	ID15	0.444	ID16	0.278	ID6	0.023
ID20	0.125	ID6	0.429	ID15	0.259	ID12	0.023

also because of the sparsity of the ALPES network, which makes the Girvan-Newman algorithm less performative compared to the other two algorithms (Mann et al., 2008). We found a cluster made almost entirely by French TSOs (ID5, ID6, ID10, ID11, ID12, ID18, ID16, ID24, and ID30, with ID18 as the only Italian organization of the group), while the other two clusters (one including ID9, ID15, ID19, ID20, ID21, ID22, ID28, ID31, and ID32; the other including ID3, ID8, ID13, ID25, ID26, and ID27) are predominantly made by Italian TSOs.

Qualitative insights from the semi-structured interviews confirmed that TSOs often used ID10 and ID31 to communicate with other organizations. Therefore, the network developed around these two organizations: this facilitated international cooperation but at the same time created some friction. As pointed out by ID10:

“While there will always be reference organizations - and I believe that our organization, given its history and connections, will continue to play that role - what we need now is more transversal collaboration across the network. That is our shared goal”. (ID10)

The following reasons contributed to the development of the network structure presented in Fig. 2. First, the presence of language barriers: cross-national interactions occurred bilingually, but local communications were characterized by the use of French or Italian. This led to communication challenges and resulted in the use of intermediary organizations for overcoming these challenges. Second, individual members expressed a preference for contacting organizations with whom they had prior collaborations (Gulati and Gargiulo, 1999); as a result, the intermediation of ID10 and ID31 became fundamental for communicating within the network. This was perceived as particularly challenging from the members of these organizations; despite their strong commitment, they expressed a sense of overwhelm caused by this situation. For instance, ID31 representatives claimed that:

“If information always has to pass through the same organizations, then perhaps we don't know each other as well as we think we do”. (ID31)

Moreover, the semi-structured interviews highlighted another aspect that might have contributed to the above polarization: defining a clear fundraising strategy. All French TSOs were strongly in favor of public financial support, whereas many Italian TSOs perceived this strategy as problematic. The latter insisted on the risk that seeking public funding can compromise independence, particularly when national institutions promote policies that conflict with the network's core values. ALPES organizations generally share a critical ideological stance on migration, one that does not always align with the positions of European and national authorities. Public funding is undeniably important for sustaining operational activities, but at the same time it raises strategic and ethical dilemmas. In Italy, the prevailing funding model is project-based, and the trend towards “projectification” of social services (Hodgson et al., 2019) is more pronounced than in France. In this vein, several Italian TSOs (ID3, ID13, ID26, and ID31) have chosen to reject public funding as a form of protest against national policies and institutional agendas they view as incompatible with migrant rights.

4. Community intervention: diffusion and structural change (2023–2025)

The presentation of the network mapping results triggered reactions from the organizations' representatives. Proactive affiliates to the top central TSOs, namely ID10 and ID31, proposed the adoption of a specific tool for sharing information: an interactive map. This map, available in French and Italian, was conceived as a resource for visualizing individual contacts and detailed descriptions of the key activities undertaken by each network organization. While the map facilitated an understanding of the roles and responsibilities of TSOs, it also acknowledged that language barriers were still an issue once direct communication was initiated. As pointed out by a French organization:

“There is a real problem for me. I feel uncomfortable contacting people directly, if I don't know them, knowing they speak another language... but once I know them, I can contact them independently without going through intermediaries”. (ID11)

During the plenary meetings that followed the presentation in November 2023, another solution was presented and discussed: allocating tasks and activities by geographical area. In particular, focusing on the sharing of information on the local context and the needs of migrants moving from Italy to France and sometimes returning to Italy again. However, once more a potential risk was underlined, i.e. the fragmentation of the network, in a situation where - on the other hand - more cooperation was required from network organizations.

“We can also think about having two different formal structures, one in Italy and one in France, coordinating local actions. However, there is a strong risk of taking two different paths...”. (ID12)

After accessing the results of the network mapping, French and Italian TSOs became aware of their unbalanced collaboration patterns; moreover, it was confirmed that most of the inter-organizational relationships occurred via a limited number of nodes. This prompted a collective rethinking of networking strategies. As a result, three key approaches were adopted. First, TSOs committed to reinforcing collaboration across the network by diversifying their connections and encouraging 08 more inclusive information-sharing practices. Second, to reduce dependency on central actors, organizations were encouraged to use the aforementioned interactive map to identify and directly reach out to potential partners. Finally, recognizing the need for more structured (i.e. formalized) joint actions, TSOs decided to organize regular meetings with the specific goal of preparing and applying for EU-funded projects. With regard to the latter, i.e. formalizing network activities, this has always been seen as a challenging task by ALPES organizations. This apprehension stemmed from the idea that dedicated and formal structures would have reduced the direct involvement of TSOs. Some organizations, such as ID31, ID3, ID15, and ID31 - all Italians - openly shared their concern that the creation of formal structures would have impacted network activities, thereby hindering interactions among the organizations themselves.

In February 2025, we conducted the second network mapping following the same procedure we adopted in November 2023: during the

first day we collected network data from ALPES organizations, and then we presented the mapping results on the second day. This day was dedicated to a moment of reflection on the network - its current state and future prospects - and reserved exclusively for ALPES organizations. During the 2023–2025 period, two Italian organizations left ALPES (ID8 and ID32); and among the 31 enrolled organizations in 2025, 18 filled the questionnaire. This response rate (58 %) is lower compared to 2023; however, we checked those organizations who did not fill the questionnaire, and we can confirm that the distribution of location as node attribute does not statistically differ (using a significance level of 0.05) between the two groups of respondents and non-respondents. Table 2 shows a summary of ALPES organizations and their characteristics in 2023 and 2025, while Table 3 provides a summary of the main network statistics in these two periods. We also run a *t*-test for assessing pre- and post-intervention differences in terms of centrality scores. We found that only for closeness centrality we have a statistically significant difference, on the average score, between the two periods, while for the other centrality measures there is no significant difference between the pre- and the post-intervention period (see Appendix).

The new graph revealed a decrease in the number of connections and network centralization, an increase in network density from 0.153 to 0.165 (most likely because of the abandoning of ID8 and ID32), and an almost identical fragmentation score. Similarly to what we did in 2023, we included in the data visualization those organizations that have been mentioned by the respondents but did not fill the questionnaire. However, as represented in Fig. 3, most of the relational changes happened in the Italian group of organization and less in the French one.

This result was consistent with the observed level of participation to the plenary meetings since 2023, and some of the results extrapolated from the questionnaire. Indeed, the satisfaction rate regarding network interactions declined from 2023 to 2025: on a scale from 1 to 5, this rate was 3.3 in 2023, while in 2025 it dropped to 2.5. ID10 (French) and ID31 (Italian), continued to be the top nodes for closeness and betweenness centrality (Table 4), but new nodes emerged as central in terms of degree and eigenvector centrality (ID3, ID11, and ID30 - and they are all French organizations). Actually, French organizations became more cohesive, while only one Italian organization (ID21) gained centrality as a broker - having the third highest score for betweenness centrality. The clustering changed as well. While the 2023 cluster made almost entirely of French TSOs (ID5, ID6, ID10, ID11, ID12, ID14, ID16, ID24, and ID30) remained exactly the same, the other two Italian clusters were completely reshaped: one including ID2, ID17, ID19, ID21, ID27, and ID28, and the other including with ID3, ID13, ID15, ID20, ID22, ID31, and ID32.

Following the presentation of these results - and compared with those from 2023 - a first round of discussion was held to gather immediate reactions. The initial feedback shared the idea that something had gone wrong within the network:

“We have to admit that this is a failure: we have not been able, in all these years, to work on a sufficiently solid structure”. (ID31)

Furthermore, similarly to what happened before, ID10 expressed disappointment about its central position, despite all their efforts to decentralize the network:

“I would like to point out that, since the beginning, the aim of ALPES was for everyone to be an active part of the network...instead,

everything continues to pass through a sort of informal secretariat, which would be me”. (ID10)

The question of funding a permanent and stable structure became increasingly important, especially in light of the (voluntarily) role played by some organizations in the network. For instance, organizations such as ID21 argued that ALPES members should create a more formal structure fostering cross-collaboration. Regarding the funding aspects, these discussions confirmed what was already observed in 2023: ALPES organizations are willing to apply for funding, but they face institutional issues, especially the Italian ones. These issues are reflected in their networking strategies:

“As TSOs, we can rely on public funding, but we work against government migration policies[...]Public funding has very specific and strict limitations...this is why it is often preferable to turn out to foundations”. (ID31)

However, this is not always the case when considering, for instance, French organizations:

“I believe that[...]in France and Italy the relationship that associations have with public funding is different. I think we have a different culture of relating to the State. In France it is normal for an association that does general public activities to ask for financial help via public funding”. (ID14)

Two alternative strategies were proposed to address the above issues: accepting the network's polarization and using ID10 and ID31 as network brokers; or creating, via a top-down approach, a formal structure with a secretariat and dedicated human resources to (a) run administrative activities and (b) sharing information between organizations. As a more concrete and immediate action, it was decided to establish a co-piloting committee composed of three French and three Italian organizations. Its composition would be based on the results of the network mapping, and its main task would be to identify funding opportunities and create a formal structure - shifting from a voluntary model to one that includes a paid part-time staff member. The committee is supposed to meet online once a month and constantly communicate with the rest of the network organizations.

5. Discussion: what outcomes?

Drawing on the multilevel perspective theorized by Robins et al. (2023) and adopted in this paper, goals, actions, and outcomes can be linked to and observed at different levels: local, setting, and system. Another relevant aspect pointed out by these authors is that outcomes may or may not be aligned with the goal(s) of the intervention; in the second case, this can produce unexpected consequences at different levels. These misalignments become clearer when examining not just the level of intervention but also how network analysis itself shapes outcomes—through what Maya-Jariego (2025) identifies as its preparatory, performative, substantive, and translation functions. In our intervention, the same network visualization activities that were intended to promote structural change (substantive use) instead functioned primarily as diagnostic tools revealing organizational constraints (performative use), ultimately producing outcomes that diverged from our initial goals.

In the cross-national context examined in this study, using SNA as an

Table 2
List of ALPES organizations and respondents to the questionnaires (in 2023 and 2025).

	Total members	Respondents	Nationality	Legal status	Area of activity
2023	33	23	12 French; 21 Italian	20 associations; 7 social cooperatives; 3 non-governmental organizations; 2 foundations; 1 private organization	27 social; 4 health; 2 legal
2025	31	18	12 French; 19 Italian	19 associations; 7 social cooperatives; 2 non-governmental organizations; 2 foundations; 1 private organization	26 social; 3 health; 2 legal

Table 3
Network statistics.

	Average path length	Centralization	Closeness centralization	Density	Edges	Fragmentation score
2023	2.407	0.422	0.463	0.153	46	0.685
2025	2.905	0.343	0.327	0.165	38	0.656

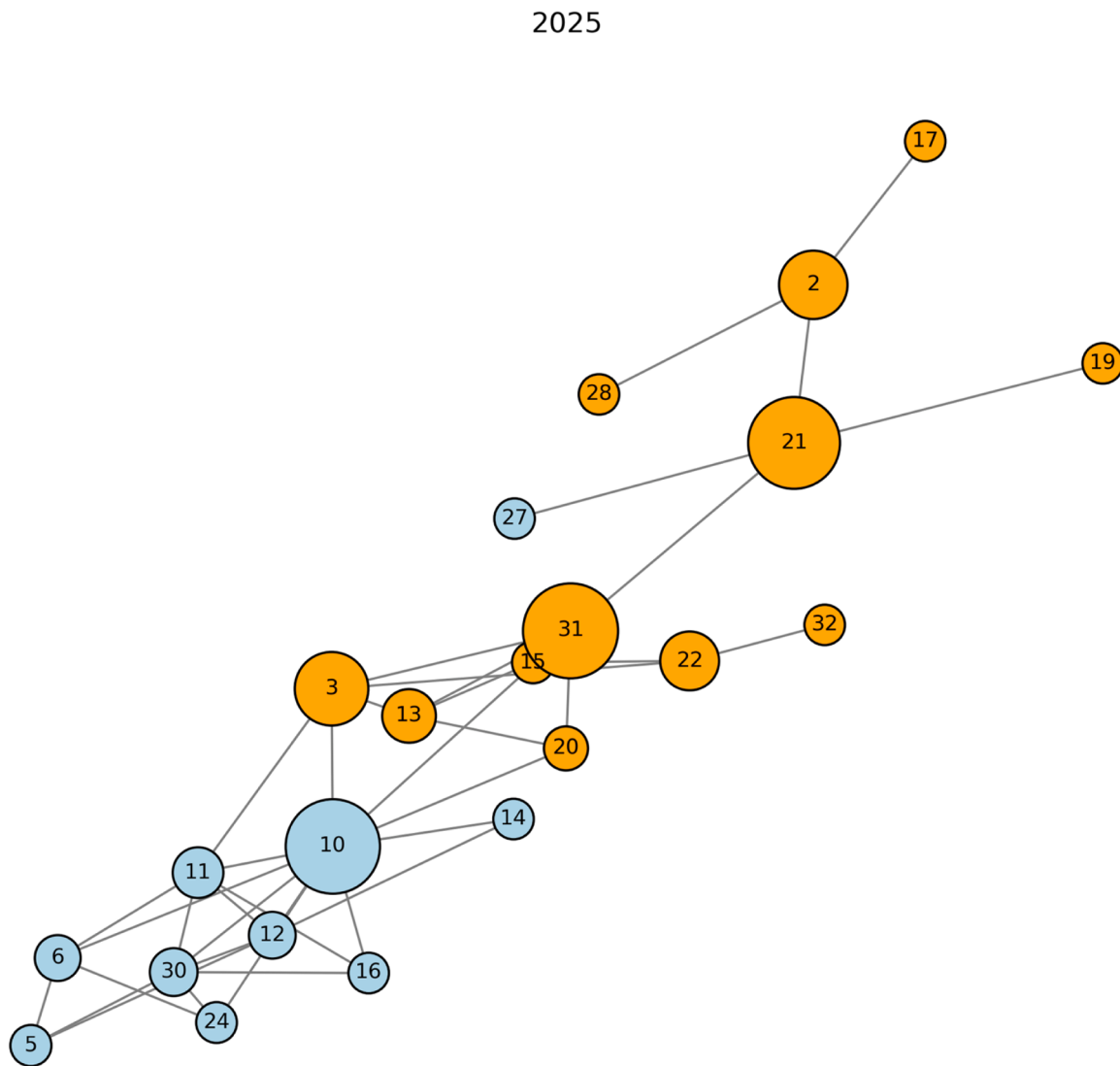


Fig. 3. Inter-organizational network in 2025. Light blue nodes are French organizations and orange nodes are Italian organizations; nodes' size is according to their betweenness centrality.

Table 4
Organizations' normalized centrality measures in 2025 (top 10 organizations).

ID	Degree	ID	Closeness	ID	Eigenvector	ID	Betweenness
ID10	0.476	ID10	0.512	ID10	0.706	ID31	0.451
ID11	0.286	ID31	0.512	ID11	0.530	ID10	0.441
ID30	0.286	ID3	0.467	ID30	0.506	ID21	0.414
ID3	0.238	ID20	0.420	ID12	0.436	ID3	0.230
ID12	0.238	ID11	0.412	ID3	0.355	ID2	0.186
ID31	0.238	ID21	0.412	ID6	0.353	ID22	0.112
ID6	0.190	ID13	0.389	ID16	0.342	ID13	0.076
ID13	0.190	ID30	0.382	ID24	0.307	ID11	0.056
ID21	0.190	ID12	0.375	ID31	0.305	ID30	0.039
ID2	0.143	ID6	0.368	ID5	0.254	ID12	0.033

Table 5

Network intervention actions in the ALPES network (2023–2025): actions by goal, level, type, and outcome.

Intervention Action (IA)	Goal	Intervention Type	Intervention Level	Outcomes
Network Mapping and Analysis (2023 and 2025) (IA1)	Understand collaboration patterns by measuring centrality and detecting clusters to identify key actors and groups	Identification	Local (measure centrality scores) System (detect clusters)	Successfully identified ID10 and ID31 as central brokers; revealed French-Italian polarization; confirmed burden on central organizations rather than reducing it
Visualization feedback at plenary meetings (2023 and 2025) (IA2)	Catalyze organizational reflection and reconsideration of collaborative ties through inter-organizational dialogue by making network structure visible	Diffusion Structural change	Setting (facilitate peer discussion and shared reflection during plenary) Local (encourage organizations to alter their collaborative ties) System (reduce clustering)	All organizations saw the network structure; some organizations recognized need for change; heightened awareness of national divisions French and Italian organizations responded differently to visualization: French organizations maintained cohesion while Italian organizations fragmented further, deepening the national divide rather than bridging it
Interactive map tool (IA3)	Enhance the diffusion of information between French and Italian organizations to bypass central brokers	Diffusion Structural change	System (network-wide information sharing) Local (enable new dyadic connections)	Limited adoption; organizations continued using familiar brokers; revealed deeper institutional barriers: language gaps, divergent funding philosophies (French favoring public funding vs Italian resistance), and incompatible governance preferences
Co-piloting committee (IA4)	Distribute leadership responsibilities through mixed governance structure	Diffusion Structural change	System (committee disseminates information to all network organizations) Setting (establish regular committee meetings) System (create governance structure)	Committee proposed but implementation pending; shift from voluntary to formal structure triggered resistance from organizations valuing informality (particularly Italian organizations)

intervention tool via pre-determined actions produced a series of unexpected results on the network evolution (Table 5). In a network characterized by the presence of TSOs with similar values but different national backgrounds, organizations' structural positioning appears to be influenced by their institutional environment. At the beginning of the project, in 2023, the network was polarized into two main groups, the French and the Italian one, even if some informal relationships existed between organizations from these two groups. However, after two years, this polarization has even increased, which means that the initial goals (enhancing the diffusion of information between French and Italian TSOs and developing a more cohesive network) have not been achieved. The community detection results confirmed that most of the changes occurred among the Italian organization, while the French organizations became less involved in the exchange of information with their Italian partners. To some extent, this can be seen as an issue of network inertia (Ramasco and Morris, 2006): there is a group of organizations (mainly the French ones) with a preference for interacting with the same organizations, and there may be several reasons for this behavior. Kim et al. (2006) suggested that these reasons can be classified into intra-organizational aspects, network positioning, and environmental characteristics; in our context, it seems that network position - in particular, the social status attributed to certain organizations - and the external legal framework play a relevant role in increasing network inertia. This has become a source of tension, which is still undermining nowadays the stability of the network. The strategic changes induced by the community intervention are more evident among the Italian organizations, while French organizations did not radically change their relational structure and maintained their network inertia.

The strengthening rather than reduction of broker dependence represents a critical unintended effect of our intervention. While network visualization aimed to encourage direct ties between organizations, it instead reinforced the centrality of ID10 and ID31. This paradoxical outcome echoes Provan and Milward (1995) finding that network interventions can produce results contrary to theoretical expectations. The persistence of these brokerage positions despite intervention efforts reflects the network inertia that Kim et al. (2006) describe - where existing network configurations resist change due to accumulated relationship-specific investments and established routines. For

peripheral organizations, the network visualization appears to have confirmed rather than challenged the efficiency of existing arrangements, inadvertently legitimizing the very hierarchies the intervention sought to modify.

The application of both Robins et al. (2023) multilevel framework and Maya-Jariego's (2025) intervention typology reveals why visualization-based interventions face particular challenges in cross-national inter-organizational contexts. While Robins et al. (2023) framework helps explain how structural patterns persisted across different levels (with brokers maintaining centrality despite system-level awareness of the problem), Maya-Jariego's (2025) performative and translation perspectives illuminate why visualization alone proved insufficient. The workshops successfully raised awareness (performative function) but the translation process was blocked by institutional barriers that network metrics alone could not capture: divergent funding philosophies between French public-oriented and Italian private-resistant approaches, language barriers limiting direct communication, and incompatible governance preferences. This highlights a critical insight for network interventions: in complex institutional settings, the performative power of visualization may paradoxically reinforce existing structures by making their efficiency visible without addressing the underlying institutional logics that sustain them.

However, SNA results pushed for an urgent discussion about formalizing some aspects of the network structure, such as establishing a mixed French-Italian co-piloting committee and eventually introducing a formal secretariat (we were informed about these proposals during our meetings and interviews with the ALPES members). The introduction of a formal secretariat is still debated within ALPES, and it will move from an informal involvement of ALPES organizations to the mandatory mediation of a third body. In this vein, an undesired "ancillary outcome" (Robins et al., 2023, p. 111) of the intervention has been the run towards strengthening the formalization of network procedures and activities. This is currently discussed as a potential solution for reducing the extra burden on key organizations, the second goal of this project, which has not been achieved during the first intervention.

This can be an issue for TSOs' identification with ALPES values and operations. The network has evolved from a start-up phase focusing on

implementing small-scale activities to the development of a network structure centered around two main organizations (ID10 and ID31). Then, ALPES has progressed to the consolidation phase with a strategy that has been influenced by the community intervention actions. However, these actions have not been able to reduce network tensions. A small, densely connected core of organizations appears fundamental to coalition functioning, creating a central hub that coordinates the information flow while maintaining links to peripheral partners. In this vein, ID10 and ID31 continued to be central in the network and key brokers for their own communities: ID10 for French organizations and ID31 for Italian organizations. SNA helped us to identify this network core and document how individual organizations improve their effectiveness through strategic positioning (Faust et al., 2015), but the intervention's outcomes did not reduce the pressure on key organizations belonging to the core.

Furthermore, the network statistics reveal important insights for intervention theory. While density increased slightly (from 0.153 to 0.165) and centralization decreased (from 0.422 to 0.343), these apparent improvements mask underlying fragmentation. The increase in average path length (from 2.407 to 2.905) and reduction in edges (from 46 to 38) indicate that organizations became more distant from each other despite the intervention. Although the reduction in network size from 25 to 22 organizations may contribute to some metric changes, the clustering analysis particularly highlights how national boundaries create resilient sub-structures that resist integration. For instance, closeness centralization decreased from 2023 to 2025: since this measure is usually associated with accessibility to resources (Deng and Koltai, 2025; Freeman, 1978), its reduction indicates that network's changes did not move towards a stronger integration. These findings suggest that structural awareness alone cannot overcome the institutional and cultural barriers embedded in cross-national networks. Our analysis, which is the result of the integration of a quantitative and qualitative approach, shows that three main aspects may have had an impact on the intervention actions and therefore on ALPES's development and stability. First, the language barrier, which can undermine the capacity of inter-organizational networks to serve as platforms for information sharing and organizational learning. Second, the different vision concerning the funding system and the relationship with public authorities, which relates to the institutional environment in which organizations legally operate. Third, the governance structure, as it is important to find a balanced approach mixing together collective actions and autonomous initiatives - especially in a cross-national context. Potentially, these aspects may impact multiple cross-national community intervention projects, not just for migrant support but also in health-, education-, and social-related initiatives.

6. Conclusions

The analysis of community interventions has become a central focus for network applications. In this vein, SNA can be used "to improving the effectiveness in the implementation of programs" (Maya-Jariego and Holgado, 2015, p. 123) targeting inter-organizational networks. Moreover, these interventions exemplify the multilevel framework, with dynamics spanning local organizational ties, setting-level collaborative groups, and system-wide coordination structures. Therefore, community interventions must consider the presence of complex interactions between local actors, and the potential impact of multiple actions at different levels.

This study makes several contributions to the literature on network intervention. First, applying Robins et al. (2023) multilevel framework to a Franco-Italian cross-national context reveals how interventions unfold differently when spanning distinct institutional systems. Our analysis shows that inter-organizational interventions operate simultaneously across multiple hierarchical levels and through what Maya-Jariego (2025) identifies as various functions of network analysis - from preparatory mapping to performative visualization to translation of

implementation dynamics. Second, our mixed-methods approach proved essential for understanding not merely that structural change was limited, but why. Quantitative metrics revealed persistent structural patterns, while qualitative insights exposed the institutional, linguistic, and cultural barriers that network measures alone could not detect.

The persistence of broker dependence and the asymmetric responses between French and Italian organizations reveal structural constraints that resist modification through awareness alone. Rather than indicating intervention failure, these outcomes demonstrate how inter-organizational networks develop stable configurations that, while appearing inefficient, serve important functions for member organizations. The movement toward formalization through the proposed co-piloting committee represents an adaptive response that acknowledges these constraints, though whether this formalization will overcome or merely institutionalize existing hierarchies remains an open empirical question. These findings suggest that successful community interventions in cross-national contexts must move beyond assumptions of structural malleability to recognize networks as embedded in institutional environments that both enable and constrain change, addressing the cultural and institutional differences inherently characterizing such networks. Visualization-based interventions may paradoxically reinforce existing structures by legitimizing efficient but hierarchical configurations, suggesting that effective interventions may need to work with, rather than against, existing institutional structures while seeking ways to gradually reshape collaborative incentives.

6.1. Limitations and recommendations

While interventions in cross-national communities may be affected by the same issues we observed in ALPES, we also encourage scholars to empirically analyze inter-organizational networks located in other countries and focus on other sectors. Moreover, further research should concentrate on investigating the formal aspects characterizing these networks. ALPES does not have a formal legal structure, making cooperation *ad hoc* and administratively complex. This legal gap undermines the ability of French and Italian TSOs to scale up their impact and advocate effectively at international level. However, formal aspects are present in this project, as well as in other cross-national projects: this is why we encourage researchers to consider these aspects in future studies on community interventions.

Finally, four main limitations of our work lie in (a) the inability to forecast network changes, (b) the unintended consequences of the intervention itself, (c) the challenges of integrating quantitative network data with qualitative interview narratives, and (d) the impossibility to observe and analyze interpersonal relationships and relationships with other actors (i.e. migrants and public authorities). As we mentioned before, the second round of data collection and visualization produced an acceleration towards the formalization of some networking aspects. Using advanced statistical network models to predict network changes may strengthen the robustness of network intervention studies and support local actors and policymakers in their decisions. Second, by visualizing the network and highlighting central actors, the intervention may have inadvertently reinforced dependency on key nodes or contributed to a sense of fragmentation among less-connected organizations. This aligns with previous literature on unintentional effects of network interventions (Erickson, 1984; German et al., 2012), such as concentrating influence or discouraging peripheral actors from active participation. Recognizing these dynamics is essential for interpreting the findings and guiding future interventions aimed at fostering more balanced and resilient networks.

Third, while our mixed-methods approach proved essential for understanding the intervention's outcomes, integrating quantitative network data with qualitative interviews presented specific methodological challenges. These data types were affected differently by researcher presence. Network data collection remained relatively unaffected by researcher characteristics, whereas qualitative data emerged

through processes shaped by researcher positionality, including language fluency, professional background, and perceived outsider/insider status in this cross-national context (Small and Calarco, 2022). Moreover, because we presented network visualizations before conducting interviews, participants' reflections were inevitably shaped by seeing their structural positions. Interview narratives thus sometimes offered post-hoc sense-making of observed patterns rather than revealing the prospective reasoning behind collaborative choices. We mitigated these challenges by triangulating across multiple data sources (fieldnotes, meeting observations, and follow-up discussions) which helped us distinguish between genuine organizational dynamics and reactions to visualization itself. Future network intervention research should consider collecting qualitative data both before and after visualization exercises to better capture prospective decision-making alongside retrospective interpretations.

Regarding interpersonal relationships and relationships with other actors, we should not ignore that individuals play an important role in the observed context. Future studies can explore how those working or volunteering for TSOs communicate to address daily issues, and how their relationships shape TSOs' strategy and therefore the evolution of the network. Furthermore, how providing support to the same migrants or having connections with the same public authorities increases or not their efficiency. More in general, future research could address these limitations by employing longitudinal designs with higher participation rates, focusing on multiplex relationships, and using predictive network models to anticipate potential paradoxical effects of interventions.

CRedit authorship contribution statement

Giorgia Trasciani: Writing – original draft, Supervision, Project administration, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Stefano Ghinoi:** Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation. **Guido Conaldi:** Writing – original draft, Validation, Supervision, Methodology, Investigation, Conceptualization.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.socnet.2025.11.005](https://doi.org/10.1016/j.socnet.2025.11.005).

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