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The role of non-profit organizations in territorial cohesion in cross-border regions

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ABSTRACT

Cross-border regions usually suffer from barriers hindering networking and creating contact among people. On a sample of 244 non-profit organizations (NPOs) in the Upper-Rhine region at the French, German, and Swiss borders, the research used partial least squares structural equation modeling (PLS-SEM) to investigate how NPOs contribute to social capital creation and cross-border territorial cohesion, via the reduction of persistent cross-border barriers. Results show that NPOs are similar to other types of stakeholders. They are primarily oriented at the local level, not towards cross-border cohesion. The primary networking and regional social capital creation are implemented throughout business activities. Barriers influencing cross-border territorial cohesion show that NPOs can effectively overcome them. For that, NPOs in all three countries in our sample follow similar values and principles of work.

1. Introduction

The development in international relationships of the EU with other non-EU partners has witnessed challenging issues. The prominent visible cases are Brexit, harder negotiations with Switzerland and the U.S., or the tensions with Russia. On the other hand, everyday life on the borders of the EU and beyond also occurs through interactions among local stakeholders. These interactions are far from being negotiated by national governments. It raises the question of to what extent the less formal relationships are dependent on official policy lines, cultural differences, or independent as people live close to each other.

To study less formalized relationships within society. Non-profit organizations (NPOs) provide an excellent case for it. It is due to their voluntary basis and informal networks. People engage in these organizations voluntarily, thus reflecting their behavior in an organized form. NPOs are less bound by formal networked structures when providing their services (Potluka, 2021; Richardson, 2024).

Moreover, NPOs can be crucial in building social capital (Putnam, 1993). NPOs are oriented toward general benefit activities and are perceived as credible partners due to their non-distributional

constraint—they do not make a profit to share among the owners or managers (Salamon, 2012). Thus, NPOs are providing us with an opportunity to study the impact of social capital created by them on territorial cohesion in areas that face barriers that do not exist inside the countries (Mirwaldt, 2012). Two types of social capital are used to analyze territorial cohesion in our research. We take into consideration bonding social capital consisting of strong ties between similar individuals and bridging social capital relating to relationships between people with different backgrounds. The latter one is especially important for cross-border territorial cohesion, as it connects different societal groups (Putnam, 2000).

To shed light on our knowledge of the role of NPOs in creating social capital at the outer borders of the EU, we ask the research question: What are the preconditions and mechanisms for NPOs to contribute to more cohesive cross-border territories through social capital?

For our case study, we selected the Upper-Rhine region. This region has two EU member countries (France and Germany) and one EU non-member state (Switzerland). The case is even more interesting because two languages (French and German) are used in this region, and the language border does not copy the EU borders (the Swiss population

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officially uses both languages). Thus, we can compare the contribution of NPOs to territorial cohesion from the perspective of three jurisdictions and cultural differences and identities in a region where different cultures meet (Carey, 2002). The expected mechanism is that tackling cross-border barriers among territories with similar (language) cultures is easier.

The paper is organized as follows. First, after the introduction, the literature review section discusses the role of NPOs in creating social capital as a means for territorial cohesion in cross-border regions. In the third section, we introduce our data sample of NPOs from three countries. Moreover, the section also describes structural equation modeling (PLS-SEM)—a methodology to test factors influencing the results. The fourth section presents the analysis results and discusses the creation of social capital in the Upper-Rhine region. The final section concludes.

2. Literature review

2.1. Role of social capital in territorial cohesion

Territorial cooperation is regarded as a key factor to achieving territorial cohesion (European Commission, 2021; Medeiros, 2016), namely by contributing to increasing territorial integration by reducing cross-border barriers (Medeiros et al., 2022). Cross-border cohesion is thus understood in this paper as achieving a more cohesive territory via the reduction of cross-border barriers because of cross-border cooperation processes.

Territorial cohesion is affected by cooperation processes between different areas or spatial locations. The territories can also be described as functional areas connected by intensive socio-economic relations (Böhme et al., 2011, p. 48; Serwicka et al., 2024). When a group of people (for example, NPOs) demonstrate an aptitude for collaboration, this produces a climate for change that benefits all (e.g., in cooperation between universities and industry - Mascarenhas et al., 2022). Whether and with whom people cooperate depends on the existence of social capital.

The concept of social capital gained popularity mainly through the works of Bourdieu (1983), Coleman (1988), (1990) and Putnam (1993), (2000). The worth of social connection is associated with approaches to defining social capital. Nonetheless, the term generally refers to the advantages that arise from social relations. The most relevant distinctive feature of social capital is that it can be conceptualized not only as an individual resource (Bourdieu, 1983, pp. 190–191; Coleman, 1990, p. 300) but also as a means of enhancing the efficiency of society by facilitating coordinated action (Putnam, 1993, p. 167). In this way, social capital benefits social cohesion and makes us “better able to govern a just and stable democracy” (Putnam, 2000, p. 290).

Since our analysis perspective does not focus on the individual but on the community; thus, additional factors need to be considered. At the community level, social capital could be manifested in the collective capacity to foster civic engagement in general reciprocity, where committed actors collaborate to build social relationships and create and benefit from shared goods and values (Lim et al., 2024). However, when seeing social capital through a community lens, an important distinction is thereby to be made between the bonding and bridging qualities of social capital. This distinction can be traced back to the seminal work of Granovetter (1973) on strong and weak ties. Bonding social capital refers to social groups that define themselves by internal homogeneity, and bridging social capital refers to the links between different societal groups (Putnam, 2000, p. 22). For an organization, bonding social capital is important to differentiate its members from non-members and to legitimize its purpose and mission, while bridging social capital is essential to achieve greater impact and reach new constituencies (Putnam, 2000, p. 20; von Schnurbein, 2014). In terms of territorial cohesion, bridging social capital could be seen as particularly beneficial, as it widens the radius of trust between members by connecting different social, ethnic and cultural groups through interaction (Aruqaj, 2023). In

other words, bonding social capital is essential to “getting by”, but bridging social capital key in “getting ahead”. We follow Putnam’s assumption that both bridging and bonding social capital can have powerful positive social effects (Putnam, 2020, p. 23). However, as we will discuss later, distinction is important.

When it comes to social capital creation, especially in cross-border regions, social interactions play a crucial role (Medeiros, 2016). Such interactions can occur on a cross-border level between countries and at a domestic level between localities and institutions in the same country (Medeiros, 2015). This variety of potential contacts may increase bonding social capital due to interactions within a country and bridging social capital due to interactions across borders (Boehnke et al., 2015).

To create social capital, members of society need to interact with each other to create added value for the group, the network, and the individuals. NPOs take advantage of the networks by acquiring relevant resources through the involvement of citizens. They gain not only the resources of a person but also that of their network contacts (Reiser, 2010). Through their personnel and financial resources, NPOs can create a particularly favorable framework for generating social capital by providing opportunity structures (Medeiros, 2018, 2021; Ulrich, 2021).

2.2. What can NPOs offer to territorial cohesion and reduction of border barriers?

NPOs provide services where companies and the public sector fail (market and government failures). Through volunteer work, NPOs have a unique competence to penetrate deeper into society, build broader connections, and engage in mutual exchange. In turn, a dense and diverse network of NPOs can help support the empowerment processes of individuals at the local level. These activities enable projecting the behavior of individuals into social capital. However, extensive networking is needed to actively exchange resources and joint implementing projects to generate added value for society (Reiser, 2010). These resources are either financial or personnel (Adams, 2025; Potluka et al., 2017; Quinn et al., 2022).

Societies with a high degree of voluntary engagement are better able to cope with problems than those with low social capital (Hollenstein, 2013). Interaction can lead to professionalization and learning in NPOs involved in the collaborating networks (Belokurova, 2010; Scott and Laine, 2012). Moreover, NPOs’ cross-border collaboration improves the situation in less advanced parts of the regions and thus improves the territorial cohesion of these areas (Scott and Laine, 2012). The NPOs in the network find partners that can provide what they miss (as one of the precondition for a successful partnership see Potluka and Liddle, 2014; Scott and Laine, 2012).

Thus, they provide bottom-up solutions where top-down approaches work with difficulties, such as the European Neighborhood Partnership, aiming at improving cross-border collaboration (Scott, 2017). Scott and Liikanen (2010) highlight the importance of civil society and NPOs for developing communities, values, and their role in setting societal goals. Even if national political values and understanding of the meaning of NPOs in society differ, the networks are still present and collaborating across countries (see, for example, the case of EU-Russia in Belokurova, 2010; or U.S. and Canada case by Richardson, 2024; Sagan, 2010). Despite the influence of national governments on the situation, the permeability of borders for NPOs’ cooperation, and differences in understanding of the NPOs’ role, the added value of their networks prevails due to the flexible character of the networks set up by NPOs (Roll, 2010).

The experience of implementing the EU cross-border cooperation (Interreg-A) programs have revealed NPOs’ important role in increasing social capital in EU internal and external cross-border regions. It is visible in the rise of multiple forms of cross-border cooperation entities, including Euroregions, European Groupings of Territorial Cooperation and Eurocities (Giordano and Greco, 2023; Medeiros, 2018, 2021). A cursory glance over existing literature on cross-border governance and specifically on participatory cross-border approaches to design and

implement cross-border projects, programs and strategies have revealed the importance of NPOs to increasing social capital levels across EU borders (Ulrich, 2021).

2.3. NPOs in Switzerland, Germany, and France

When analyzing the role of NPOs towards territorial cohesion, an awareness of characteristics of the state of each country's non-profit sector is important. The historical paths vary among the Swiss, German, and French parts. The Swiss tradition is liberal and based on federal structures. Thereby, the Swiss foundation sector has grown consistently over the past few decades and has a high density of foundations (Schönenberger et al., 2025). Germany has a long historical tradition of foundations that take over responsibilities of the social state. Today, Germany is considered one of the countries in Europe with the highest number of foundations (Bundesverband Deutscher Stiftungen, 2025). The French tradition could be seen as more centralized, with a recent legal diversification accompanied by an increase in the number of foundations. A comparison of the welfare sectors of these three countries shows similarities. One exception is that "social services" and "health-care" are ranked highest in Germany and Switzerland, whereas in France, the category of "education and research" is given greater weight. This difference is due to the responsibility of the public authorities for education in Switzerland and Germany (Helmig et al., 2010, p. 198). Despite the specific characteristics of the NPOs in Switzerland, Germany, and France, there is a shared awareness of the value of their work. It lies in the tax breaks, and shared vision of commitment to the greater good.

2.4. Obstacles to territorial cohesion at national borders with a perspective of the Upper-Rhine region

Separated jurisdictions create barriers between territories by imposing formal rules. The border regions lack homogeneity, internal coherence, or centralized connections (Lundén, 2018, p. 99). In EU border regions, despite the progress made since the founding of the EU, obstacles and untapped potential prevail in development (Medeiros et al., 2022; Torns, 2010). There are still potential economic benefits to be gained from labor policies, freight mobility, and the complete removal of barriers as well (Capello et al., 2023; Serwicka et al., 2024). Differences in legal and administrative conditions, languages, difficulties in physical access, economic disparities, socio-cultural differences, and lack of trust among people are the most critical barriers (Medeiros et al., 2022). However, there are fewer such barriers at the borders between EU member states compared to borders with non-member countries. In this section, we discuss factors influencing territorial cohesion to include them later to our analysis.

Legal differences

Legal and administrative differences are problems for cross-border territorial cohesion. Therefore, the integration processes are primarily aimed at removing these obstacles (Medeiros et al., 2023). In EU countries, the harmonization of legal conditions is higher than in non-EU countries. However, in the case of Switzerland and its participation in the Schengen area, we see that while integration is at a lower level, the impact of many barriers is diminished, while Switzerland applies similar legal norms as the EU member states. Moreover, in Switzerland place-based decision-making involves people much more in the political processes through the direct democracy system (see Federal Constitution of the Swiss Confederation - Title 4 The People and the Cantons) than in the EU. On the EU member states border, the EU came up with "b-solutions" aiming at helping to solve these issues (Medeiros et al., 2022). It covers, for example, cross-border rail bottlenecks or ICT-related barriers.

Economic disparities

Custom restrictions and high transaction costs make doing cross-border business less favorable (Roll, 2010). Compared to the U.S.,

migration in the EU is lower and inter-regional differences are higher. Moreover, according to Schmidt (2013), low mobility hampers convergence. From another perspective, barriers lead to networking and coalitions to tackle the barriers (Svensson and Balogh, 2018, p. 118). Economic differences can lead to the labor force commuting and increasing contacts among people in cross-border regions. Thus, borderland differences can paradoxically help cooperation and economic cohesion mainly because of economic opportunities and geographical proximity (see also Serwicka et al., 2024), but it strongly depends on the industry structure in the border regions (Jardon et al., 2024).

Switzerland is part of the Schengen area, which allows crossing state borders without needing a visa and enabling collaboration and economic exchange in the Upper-Rhine region. It represents a cross-border area that can be seen as a model for other such regions due to its long tradition of regional integration (Graf, 2020, p. 192). Nevertheless, the economic cross-border flows might be limited to only part of the society (see, for example, Gummy (2022), for the case of the Greater Geneva region).

Economically, the Swiss part of the Upper-Rhine region is the strongest, with the GDP per capita more than double that of the French part of the region (see Table 1). The Upper-Rhine region had 3.2 million employed people, and 97'000 workers commute to neighboring countries (61 % of them are from Alsace and 38 % from Baden). Moreover, unemployment is higher in the French part, which also creates barriers. Unemployed people engage less in social activities like volunteering (Taniguchi, 2006), and such places do not build social infrastructure and relationships to treat crises (C. Lim and Laurence, 2015). These figures are also underlined by the business initiatives represented by the density of SMEs in this region (see Table 1), providing information about an even deeper gap between the countries. However, for NPOs, a lack of funding for cross-border collaboration can also be a barrier (Scott and Laine, 2012), limiting the potential for cross-border collaboration and territorial cohesion (Scott and Laine, 2012).

Language and socio-cultural differences

Cultural development and language are interconnected. Both relate to learning processes, internal integration, and external adaption (Schein, 1992). People on borders are separated from one another by shared values from cultural differences defined by language (Hofstede, 1980). Two theories explain how culture (and language) affect people's behavior – institutional theory and social identity theory. The institutional theory proposes that institutions (including culture) affect formal structures and individuals' attitudes, perceptions, and behavior (Hodgson, 2006; Chen and Bond, 2010; Ritz and Brewer, 2013), including consumers' preferences on the market (Jardon et al., 2024). According to social identity theory, socialization forms behavior (Chen and Bond, 2010; Ritz and Brewer, 2013). These two theories can help us use language as a proxy variable for culture. We assume that people living in a specific region and speaking the same language share a common culture (Hofstede, 1980).

In the Upper-Rhine region, the Swiss population usually speaks German and French, though German is the primary language. In the French and German regions, people usually speak only their national language.

Lack of trust

Trust among people and institutions is also an important element for creating territorial cohesion (Putnam, 1993, p. 170). The "value of cross-border" or "local partners" in our model also emphasizes (when not directly) this trust element.

Regions at the border between France, Germany, and Switzerland have a particular advantage over other regions, e.g., in Central and Eastern Europe. This advantage is the long-term mutual trust in society, which is lacking in Central and Eastern Europe (Malecki, 2012; Potluka et al., 2019). These authors point out that among the analyzed countries, Hungarians were found to trust each other most in 2012 (approx. 28 % of people), while Poles and Slovaks had the lowest levels of trust

Table 1

Socio-economic statistics of the Upper-Rhine region.

Region	Population (inhabitants)	Density (inhabitants per km ²)	Area (km ²)	GDP per capita (EUR)	Share of long-term unemployed (> 1 year, %)	Businesses (per capita)	SMEs (per capita)
France (Alsace)	1'907'143	229	8'323	31'091	43.80	4.2	29.7
Bas-Rhin	1'140'057	238	4'796				
Haut-Rhin	767'086	218	3'527				
Switzerland (Nordwestschweiz)	1'532'947	427	3'588	76'788	15.40	4.4	69.4
Germany (Südpfalz and Baden)	2'847'778	295	9'658	40'452		4.2	43.9
Southern Palatinate	309'622	205	1'512	31'898	25.60	5.1	41.3
Baden	2'538'156	312	8'146	41'807	22.60	4.1	44.2
Total	6'287'868	292	21'569	46'538	33.40	4.3	45.8

Source: Own calculation based on Oberrhein: Zahlen und Fakten (2022)

(approx. 18 % of the people). Nevertheless, [Decoville and Durand \(2019\)](#) point out that the Upper-Region belongs to the most open regions to cross-border interaction in Europe, though having lower mutual social trust than expected.

2.5. Research gap

Based on the discussion above, we see that there is knowledge existing about the role of NPOs in social capital creation, and about the effect of social capital on cross-border cohesion. Nevertheless, there is still missing knowledge on the role of NPOs in cross-border cohesion creation. Thus, to answer the research question on: What are the pre-conditions and mechanisms for NPOs in contributing to cohesive cross-border territories through social capital?, we test the following hypotheses:

H_{1a}. *Personnel resources in NPOs contribute to social capital creation.*

H_{1b}. *Financial resources in NPOs contribute to social capital creation.*

H_{2a}. *Bonding social capital in NPOs contributes to territorial cohesion in cross-border regions.*

H_{2b}. *Bridging social capital in NPOs contributes to territorial cohesion in cross-border regions.*

3. Data and methodology

For our research, we collected data in a survey from NPOs in the Upper-Rhine region, covering three countries (France, Germany, and Switzerland). In the first step, we collected the names of NPOs from the business registers. We contacted NPOs per e-mail found on their websites. We have selected NPOs to collect their email addresses randomly as it was not financially feasible to collect the whole sample. If we had not found an e-mail address for a selected NPO, we contacted the next NPO in alphabetical order in the survey; 631 NPOs opened the survey, but only 252 organizations participated by reasonably answering questions (the other filled out only a few questions). Nevertheless, the number of responses varies across questions (see the overview of the population size and the sample in [Table 2](#), and information in [Tables 3](#),

Table 2

Number of NPOs in the Upper Rhine region.

	Switzerland	Germany	France
Registered Foundations	2'859	479	26'218 ³
Registered Associations	1'319 ¹	40'409 ²	
Contacted organizations	495	362	442

Source: [Alsace Mouvement Associatif \(2022\)](#); [Bundesverband Deutscher Stiftungen \(2022\)](#); [Common register portal \(2022\)](#); [Data-Asso \(2022\)](#); [Schweizerische Eidgenossenschaft Zentraler Firmenindex \(2022\)](#); [Statistische Ämter am Oberrhein \(2020\)](#); ¹ The Swiss associations are not obliged to register. Thus, their official number is low. ² The number includes organizations near Mannheim or Lake Constance, which are not part of the Upper-Rhine region. ³ For France, it covers the Bas-Rhin and Haut-Rhin regions.

4, 7, and [Annex 2](#)).

The questions in the survey were designed based on the previously reviewed literature and divided into sections: territory and identity, partnership and cooperation, and cross-border cooperation ([Perkhofer et al., 2016](#), pp. 161–162) (see [annex 2](#)). The questionnaire was sent out between the 22nd of February and the 11th of April 2022.

To evaluate the role of NPOs in cross-border collaboration, we apply partial least square structural equation modeling (PLS-SEM). The PLS-SEM method is used in research coping with indirect relationships and complexity and theoretical concepts that depend on various factors (for more reading about the method, we recommend, for example, publications by [Hair et al. \(2014\)](#); or [Mehmetoglu and Venturini \(2021\)](#)). See [Table 4](#) for the composition of our latent constructs: personnel resources, financial resources, bonding social capital, bridging social capital, ability to cope with barriers, and cross-border territorial cohesion. We apply PLS-SEM on variables defined by the survey among the NPOs in the Upper-Rhine region. [Table 4](#) shows the final version of the model after optimalization, including the questions used for operationalization (see also the [Annex 1](#) with the full list of questions from the survey).

When analyzing the data by the PLS-SEM, the relationships between latent constructs are tested for causal relationships, including mediation and moderation effects ([Hair et al., 2014](#); [Mehmetoglu and Venturini, 2021](#)). [Fig. 1](#) graphically describes the model of relationships among the seven constructs. We discuss the theoretical foundations of bonding and bridging social capital in [Section 2.1](#), together with territorial cohesion, personnel and financial resources in [Section 2.2](#), and the barriers to cross-border collaboration in [Section 2.4](#). The final selection of variables is presented in [Table 4](#).

[Table 4](#) shows the actual composition of the model after bootstrapping when optimizing the procedures, including variables used to define constructs.

The *plssem* package in STATA 17 SE ([Venturini and Mehmetoglu, 2019](#)) was applied for the analysis. This package applies the standardization of items to estimate latent constructs. It estimates the model in three steps. First, for each latent variable, scores are iteratively estimated. We estimated the reflective latent variables by applying 5'000 iterations in bootstrapping for each latent construct. During this procedure, we also imputed missing values by k-means nearest neighbor. Second, weights and loadings parameters are estimated. Third, we used the ordinary least squares regression method to estimate the effects among the variables in the model.

4. Results and discussion

4.1. Obstacles to cross-border collaboration for NPOs

In the first part of the analysis, we test what obstacles the NPOs perceive in the Upper-Rhine region in relation to cross-border collaboration with other NPOs. The barriers perceived by the respondents are not an issue for collaboration. Only the legal differences make a problem, as 64 % of respondents see them as an obstacle (N = 146). In other

Table 3

Capability to tackle obstacles in cross-border regions alone or in collaboration.

		Are you capable of overcoming the obstacles in the cross-border region by yourselves?		Total	Have you found solutions to overcome obstacles?		Total
		yes	no		yes	no	
Germany	N	13	53	66	30	29	59
	%	19.7 %	80.3 %	100.0 %	50.8 %	49.2 %	100.0 %
Switzerland	N	7	6	13	7	6	13
	%	53.8 %	46.2 %	100.0 %	53.8 %	46.2 %	100.0 %
France	N	7	48	55	10	42	52
	%	12.7 %	87.3 %	100.0 %	19.2 %	80.8 %	100.0 %
Total	N	27	107	134	47	77	124
	%	20.1 %	79.9 %	100.0 %	37.9 %	62.1 %	100.0 %

Source: Survey, Chi-Square test, p-value= 0.004 (capability to solve problems alone); Chi-Square test, p-value= 0.001 (solutions found)

Table 4

Descriptive statistics for the tested models.

Construct	Items*	Question	Model	Factor loading
PERSONNEL RESOURCES	Size of workforce (0.208)	Q3.15	$\alpha = 0.386$, AVE= 0.611, DG rho= 0.755	0.661
	Providing HR to others (0.016)	Q2.6c		0.887
FINANCIAL RESOURCES	Complementing resources among partners	Q2.8b	$\alpha = 0.559$, AVE= 0.528, DG rho= 0.770	0.778
	Sufficient resources for local aims (0.001)	Q2.3d		0.660
	Sufficient resources for cross-border aims (0.001)	Q2.3e		0.737
BONDING SOCIAL CAPITAL	Intensity of intrastate partnership	Q2.1b	$\alpha = 0.814$, AVE= 0.584, DG rho= 0.872	0.865
	Intensity of benefits of intrastate partnership	Q2.1d		0.781
	Communication with intrastate partners	Q2.1 f		0.897
	Value of local partners (0.001)	Q2.2a		0.565
	Value of the state partners	Q2.2b		0.663
BRIDGING SOCIAL CAPITAL	The intensity of benefits of cross-border partnership	Q2.1c	$\alpha = 0.838$, AVE= 0.755, DG rho= 0.902	0.881
	Value of cross-border partners	Q2.2c		0.885
	We serve cross-border cohesion	Q2.3c		0.840
BARRIERS	Language (0.104)	Q3.2a	$\alpha = 0.168$, AVE= 0.352, DG rho= 0.618	0.568
	Economic differences (0.022)	Q3.2c		0.659
ABILITY TO COPE WITH PROBLEMS	Trust (0.153)	Q3.2 h		0.546
	Ability to overcome obstacles	Q3.3	one-item construct	
TERRITORIAL COHESION	Intensity of cross-border cooperation	Q2.1a	$\alpha = 0.869$, AVE= 0.874, DG rho= 0.932	0.974
	Cross-border communication	Q2.1e		0.893
			GoF= 0.676 N = 44	

Notice: Reliability measures (α = Cronbach's alpha, DG rho = Dillon-Goldstein's rho); AVE = Average Variance Explained, GoF = Relative Goodness of Fit. * The p-values in the brackets are displayed only for items higher than 0.000. Each item is described by a question from the survey (e.g., Q3.15 means question 3.15 in the survey in the annex).

cases, recognition is below 50 % (language 44.5 %; differences in economic, national and international support to NPOs are around 33 %). The crucial finding concerning bridging social capital in this cross-border region is that missing trust is not a barrier (only for 8.2 % of respondents). The analysis also confirms that the legal barriers are those that the NPOs cannot overcome (85.1 % of respondents who see legal barriers as a problem, N = 144, chi-square test, p-value=0.052).

Moreover, we also test whether the NPOs ability to tackle the obstacles differs across countries. While German and French NPOs see their capacities as insufficient to overcome the barriers alone, German NPOs can do that with the help of partners (see Table 3). This finding confirms the study by Boehnke et al. (2015) that in the Upper-Rhine region, the French population is less engaged in local issues and transnational engagement than the German population. The Swiss NPOs can either tackle barriers or do not care about them. It can also be caused by the position of Switzerland as a country with specific rules distinguishing it from other countries (it concerns the federalism model and a wide range of opportunities for democratic participation).

The second part of the analysis relates to the PLS-SEM model. We briefly describe the consistency and reliability of the constructs in our model. Table 4 shows the variables we used in constructs after the model's optimization. Cronbach's alpha and Dillon-Goldstein's rho measure the model composition quality. When using Cronbach's alpha, an assumption that all items are equally important is present, while this condition is relaxed for Dillon-Goldstein's rho.

We also need to point out that we face a trade-off in the model. We can either include all theoretically justified variables at the cost of making the model weak or focus on selecting variables with a strong association with the latent constructs, even if a relatively small number of them remain in the models. We dropped some of the items in the constructs to improve the reliability and validity of the model (see the model in Table 4).

The reliability of the constructs is at a reasonable level in the final version of the model. Dillon-Goldstein's rho is below the recommended value of 0.7 only for barriers (see Table 4), while Cronbach's Alpha is below 0.7 in half of the cases (personnel resources, financial resources, and barriers). According to that, an assumption that all items are equally important was absent, while Dillon-Goldstein's rho confirmed the reliability of the constructs under the condition of unequal importance of the items (Mehmetoglu and Venturini, 2021).

The information on how much variance, on average, the construct captures in its associated items (AVE) is higher than the required value of 0.5 in all cases except one—barriers. The model is slightly below the acceptable values of the relative goodness of fit.

The model shows that bridging social capital is important for cross-border cohesion (see Tables 5 and 6). This finding is an understandable conclusion confirming existing theories explaining the roles of bonding and bridging social capital in territorial cohesion (Boehnke et al., 2015; Mirwaldt, 2012). The fact that in border areas, there is less homogeneity in society makes the role of bridging social capital crucial for social and territorial cohesion. Bonding social capital also has a

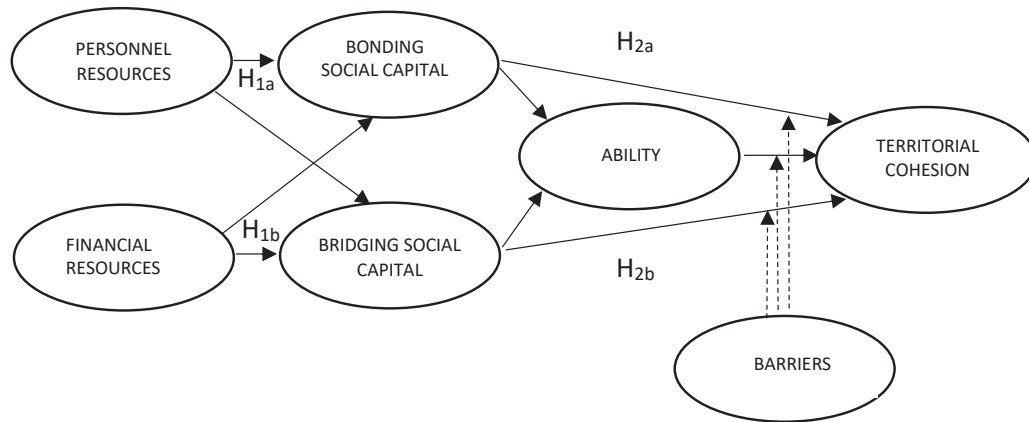


Fig. 1. Tested model.

Table 5
Structural model – standardized path coefficients.

	Bonding social capital	Bridging social capital	Ability to cope with problems	Cross-border cohesion
Personnel resources	−0.035 (0.797)	0.007 (0.946)		
Financial resources	0.636 (0.000)	0.460 (0.000)		
Bonding social capital			0.008 (0.949)	0.180 (0.088)
Bridging social capital			0.003 (0.985)	0.631 (0.000)
Ability to cope with problems				−0.228 (0.059)
Interaction bonding social capital and barriers				−0.199 (0.083)
Interaction bridging social capital and barriers				0.079 (0.543)
Interaction ability to cope and barriers				−0.144 (0.298)

Notice: p-values in parentheses, the latent construct BARRIERS is used in its negative value.

Table 6
Estimated indirect effects of latent constructs on cross-border cohesion.

	Direct	Indirect	Total
Personnel resources → Cross-border cohesion		−0.003	−0.003
Financial resources → Cross-border cohesion		0.459	0.459
Bonding social capital → Cross-border cohesion	0.180	0.049	0.228
Bridging social capital → Cross-border cohesion	0.631	0.052	0.682

positive effect, though lower than bridging social capital (+0.180), but the coefficient is significant only at a 90 % significance level. Our analysis did not prove the contribution of social capital to the ability of NPOs to cope with cross-border problems (the estimates are insignificant). Thus, social capital helps cross-border cohesion in other ways than increasing the ability to cope with problems in NPOs.

Our analysis confirms the hypothesis H_{1b} about the role of financial resources in developing social capital through NPOs' capacities. The financial resources of NPOs positively contribute to the creation of social capital (see Tables 5 and 6). NPOs use their finances to build other types of capacities to fulfill their missions (Adams, 2025; Quinn et al., 2022).

The results underline the availability of financial resources as an

important aspect of cross-border cohesion through NPOs. Personnel resources, on the other hand, do not contribute significantly. Thus, we reject the hypothesis H_{1a}. The difference lies in the flexibility of resource use. While financial resources can be used to buy other types of resources, personnel resources can be used only for work.

Coffé and Geys (2007a), (2007b) state that strong bonding social capital can harm cohesion. It explains the results of our model only partially. According to our results, bridging social capital contributes more to cohesion than bonding social capital does. It confirms our hypothesis H_{2b}. Nevertheless, we also found a positive but weaker effect of bonding social capital on territorial cohesion, which is in line with our H_{2a}. Moreover, these authors also point out that some governments see social capital as a desirable public policy outcome. Such a coercive creation of social capital can work only to some extent (Potluka and Medeiros, 2024). Similar cases are the EU cross-border policies that aim to get people to know each other (Boehnke et al., 2015). It seems to be more reasonable as, in some cases, social capital was at a very low level.

Another issue concerns the differentiation of bridging and bonding social capital. Although it may seem that bridging social capital is the desired one and bonding social capital is "only" accepted (Putnam, 2000), this is not quite the case. These two types of social capital are just two very interrelated parts of social capital. Moreover, attempts to create bridging social capital can lead to a loss of identities, harm cultural heritage and a loss of bonding social capital.

Resources have a positive direct effect on bridging social capital but a low effect on the ability to cope with problems. Our explanation for the Upper-Rhine region is that people concentrate on local issues rather than cross-border collaboration. The data from the survey shows that only about 5.5 % of NPOs feel a sense of belonging to the Upper-Rhine region (cross-border), and about 39.5 % feel a sense of belonging to both the local partners and the Upper-Rhine region. The majority of NPOs concentrate on local and national partners. This comparison underlines the existence of bridging social capital in the Upper-Rhine region. However, the level of bridging social capital is lower than that of bonding social capital. Although bridging social capital has a crucial effect on cross-border cohesion, such cohesion is not a primary goal of NPOs in our survey. Nevertheless, through their activities, NPOs help create both social capital types. By the nature of NPOs' activities, they do not create negative bonding social capital that would harm territorial cohesion.

These results show that although some barriers exist, they are not essential for NPOs in this border region. This conclusion applies not only to individual barriers but also to combinations of barriers. It shows that the Upper-Rhine region is territorially cohesive from the perspective of the NPOs.

Legal and administrative borders belong to the most intensely perceived barrier for NPOs in the Upper-Rhine region. This finding

complies with the findings of Medeiros et al. (2022), while the other barriers are less relevant. Compared to other cross-border regions in Europe, the need for more funding for NPOs is less important in contrast to other outer borders of the EU (Scott and Laine, 2012). However, missing funds and capacities were mentioned but are of relatively low importance in causing low interest in cross-border collaboration. The reason is that the region is relatively rich (though with differences among its various parts) and provides sufficient financial resources for NPOs.

4.2. NPOs and cross-border territorial cohesion

The NPOs in the cross-border Upper-Rhine region are oriented towards local target groups and local partners, which is consistent with their overall role in providing services for marginal target groups. Most of the NPOs in this region emphasize collaboration with local partners (64.4 %, N = 188), while international collaboration is important for 26.2 % of respondents (N = 130).

We have found no statistically significant difference among the NPOs from the three countries in their orientation toward local or cross-border territorial cohesion. However, if we look at the data in more detail, we can find that French NPOs are relatively more oriented toward local communities and their cohesion than German or Swiss NPOs (see Table 7).

Moreover, there is also a strong tendency for NPOs to collaborate primarily with local partners, as the NPOs see the highest added value in collaborating with them. While 68.1 % of German NPOs prefer local partners as those with the highest added value, followed by 47.1 % of national partners, the international partners added value as high is perceived only by 30.0 % of German respondents. Very similar situation prevails in both neighboring regions (Switzerland 85.7 % for local, 57.1 % for national, and 30.8 % for cross-border partners; in France, it is 50.0 %, 33.3 % and 16.7 % respectively).

From the perspective of social capital building, our results have significant consequences. First, bonding social capital is stronger than bridging social capital. The EU program Interreg-A increases interactions among people in cross-border regions, thus increasing bridging social capital (Malecki, 2012) through increased trust (Giordano and Greco, 2023). The preference for networking with local partners in the surveyed region still prevails (high added value of local partners shows chi-square test, p-value=0.039).

We also see differences among countries. Both German and Swiss NPOs are interested in building partnerships with their counterparts in the Upper-Rhine region (both achieved about 30 % share of responses claiming the high added value of foreign partners). French NPOs selected such a response in 16.7 % of cases.

Even though it is a cross-border region, we can call the Upper-Rhine region a functional area connected by intensive socio-economic relations (using the definition of Böhme et al., 2011, p. 48). According to our knowledge of NPOs in our sample, functional areas are built not only

by NPOs but also by the public and the business sector's activities. The NPOs concentrate mainly on local target groups and partners, thus building bonding social capital but less bridging social capital across borders (Boehnke et al., 2015) when any service is missing. Such a role is unnecessary in regions equipped with social capital as the market or the public services serve all target groups' needs.

Moreover, identity as a source of bonding and a potential barrier to bridging social capital is not an issue in the region. It is because many people speak other languages, and some even live in regions across the border. Thus, the political dimension of identities is not an important issue in this region (among many cases where the situation might be different, see examples described in Roll, 2010).

The analysis also confirmed the importance of trust among the stakeholders. The NPOs in our sample confirmed that they work with trust as a fundament for further collaboration, which also distinguishes the Upper-Rhine region from other regions, especially those in countries and regions accessing the EU after 2004 (Malecki, 2012; Potluka et al., 2019). From this perspective, the NPOs contribute to territorial cohesion as trust is the cornerstone of its creation (Kneidinger, 2010, p. 25; Medeiros et al., 2022).

To sum up, in border regions where people can meet for a long time, mutual trust increases both with people within the country and from border regions of neighboring countries. In the case of the Upper Rhine, the situation is even more intense because over 3 percent of the economically active population commutes abroad to work, which is much higher than the EU average. There is such an intensive daily exchange and collaboration among people that there is no need for specific NPO services to facilitate cross-border contacts. This intense exchange explains why NPOs in all three countries are primarily focused on their local target group - the need for meeting and networking is met by labor market activities.

5. Conclusions

In our research, we wanted to answer the question about the pre-conditions and mechanisms for NPOs to contribute to more cohesive cross-border territories through social capital in places at the EU borders. In our study, we see four main findings. First, our data shows that having financial resources enables NPOs to actively create both bridging and bonding social capital (Confirms H_{1b}). On the other side, disposition of personnel resources by NPOs was not decisive for creation of social capital (Reject H_{1a}).

Second, NPOs work with their target groups and are primarily oriented at the local level. The orientation of most NPOs in the region towards local partners and local target groups is understandable from the perspective of getting knowledge of the local target groups' needs easier than the international one. NPOs do not primarily aim at cross-border target groups or even do not care about such target groups. Thus, their contribution to the creation of bridging social capital and cross-border territorial cohesion is small in comparison with bonding social capital.

There is an intense commuting to work in this region. Thus, the primary networking is done throughout business activities. Companies mediate great contact between regions and cross-border territorial cohesion. Nevertheless, the existing bridging social capital enables overcoming barriers to territorial cohesion. By the nature of NPOs' activities, they do not create negative bonding social capital that would limit bridging social capital. Although the NPOs are not oriented towards cross-border cohesion, they help to build social capital and, thus, at least, do not harm territorial cohesion.

This finding may point out potential tensions between bonding and bridging social capital, particularly in regions with strong local identities. Nevertheless, the ability to speak various languages and commuting to work to other countries indicate that both types of social capital contribute to cohesion in the Upper-Rhine region (Confirms H_{2a} & H_{2b}).

Third, the NPOs' perception of barriers influencing cross-border

Table 7

What territorial cohesion does your NPO perceive as its target - local or cross-border?.

		Both	Cross-border	No interest	Local	Total
Germany	N	19	6	4	24	53
	%	35.8 %	11.3 %	7.5 %	45.3 %	100.0 %
Switzerland	N	5	0	3	4	12
	%	41.7 %	0.0 %	25.0 %	33.3 %	100.0 %
France	N	4	4	4	15	27
	%	14.8 %	14.8 %	14.8 %	55.6 %	100.0 %
Total	N	28	10	11	43	92
	%	30.4 %	10.9 %	12.0 %	46.7 %	100.0 %

Source: Survey, Non-parametrical gamma test, p-value= 0.192; composition from three questions-on local cohesion (n = 181), cross-border cohesion (n = 128), and country of origin (n = 148)

territorial cohesion shows that NPOs can overcome these barriers. The German NPOs mentioned that although some barriers to cross-border cohesion are challenging to overcome when they attempt to do that alone, it is possible to succeed with the help of other partners. The main obstacle consists of legal and administrative procedures. The other types of barriers (especially those rooted at the local level and directly connected with the cross-border region) are perceived as less important or marginal, especially the language, as people use two languages used across the Upper-Rhine region.

Fourth, NPOs in all three countries in our sample work on similar values and principles. We see these cooperation elements as crucial for building social capital. NPOs can build bridging social capital if necessary (or not to harm it) and thus help to overcome cross-border barriers and improve cross-border cohesion. To do that, NPOs need resources that provide opportunities for cross-border programs like Interreg-A.

In summary, NPOs in cross-border regions can contribute to greater territorial cohesion by reducing cross-border barriers through cooperation and building social capital. In regions where the perceived differences are relatively small (as in the Upper-Rhine region), the need to apply bridging social capital is relatively small, but should the need arise, NPOs are ready to contribute to territorial cohesion, or at least they help to create the positive bonding social capital without harming bridging social capital. Nevertheless, there is room for improvement since bridging social capital and lowering barriers will benefit all participants in the long run. If policymakers want to contribute to this process, policies providing resources to NPOs where both the government and the market are failing seem appropriate.

We are aware of the limits of our research. First, the survey sample in this research was randomly selected and, therefore, does not cover the whole population of NPOs in the three countries in the Upper-Rhine region. Especially in Switzerland, the response rate was lower than in Germany or France, so the Swiss sample is smaller. In addition, we "lost" some responses compared to the other countries as some respondents ignored some questions. Second, the current research provided insight into the role of NPOs in territorial cohesion in countries that are culturally very similar. Moreover, the principles of the political systems are very similar in all three countries, though they are not the same. Thus, subsequent research should concentrate on research on EU borders with different cultural and political systems, such as Finland/Russia or Greece/Turkey. In these regions, we can expect high bonding social capital but low bridging social capital and, therefore, lower cross-border cohesion. Research in such regions could shed more light on our knowledge of the role of NPOs in overcoming barriers to territorial cohesion.

CRedit authorship contribution statement

Milan Weller: Writing – original draft. **Eduardo Medeiros:** Writing – original draft. **Lina Schubnell:** Writing – original draft, Investigation, Data curation. **Oto Potluka:** Writing – original draft, Supervision, Formal analysis, Conceptualization.

Declaration of Competing Interest

- The work described has not been published previously except in the form of a preprint, an abstract, a published lecture, academic thesis or registered report.
- The article is not under consideration for publication elsewhere.
- The article's publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out.
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- The authors did not use any AI or AI-assisted technologies during the preparation of this work in the writing process.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.rspp.2025.100253](https://doi.org/10.1016/j.rspp.2025.100253).

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