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Can Institutionalization Be Considered a Trap in Defining Functional Cross-border Areas? Coopetition and Local Public Services in Borderlands

Maciej Wojciech Molak¹, Jana Soukopová²

Abstract

Cross-border cooperation can be an example of a non-hierarchical co-governance tool based on the principle of multi-level governance, which was successfully implemented mainly thanks to European integration as part of building EU territorial cohesion. As a new tool, it has not been limited by the experience of public administration organizations to date, and it is largely based on coopetition aimed at more effective co-management of border regions. Within the framework of this paper, we are exploring the new point of view in the debate on functional cross-border areas. In the first part of the paper, we shall move towards the establishment of multi-level governance (MLG) and re-analyze the adequacy of this concept in line with the general scientific discourse of functional cross-border areas. In the next part, on the basis of desk research and analyses of public policy, the tools and forms for MLG research as well as their implementation were identified and compared on the national

¹ Masaryk University, Faculty of Economics and Administration, Brno, Czech Republic.

² Masaryk University, Faculty of Economics and Administration, Brno, Czech Republic.

and cross-border levels. In the last part of the case study from the Czech-Polish border, we identify the determinants for the organization and implementation of cross-border public services as a basis for defining cross-border areas functional for fire protection in the Jeseník District (CZ).

Keywords:

fire protection, cross-border cooperation, multi-level governance, public services
JEL classification: H76, R58

1. Introduction

The main task of public administration is to provide the population with public services in a scope, quality and accessibility reflecting the principle of proportionality, equality and fair redistribution of public resources (including the principle of subsidiarity). The assessment of public goods/services from a geographical perspective may seemingly change their categorization and shift them from the category of public goods to mixed ones. Spatial constraints, i. e. the local provision of public goods, can lead to the loss of the indivisibility feature through unequal access to the same quality and scope of a given service for all consumers. The property of the limited external effect of geographical origin to the defining features of public goods was examined by many researchers. This feature has important implications for the application of a decentralized provision of public goods within multilevel budget structures (Provazníková, 2015). This decentralized model is also enshrined in the legal order of the Czech Republic (CZ). However, this decentralized model brings a problem with the size of the municipality, which is not optimal in the Czech Republic in terms of achieving efficiency, for example, in the context of the organization and provision of local public services (Plaček et al., 2020). The provision of public services, both in terms of its organization and its financing, is implemented on the government, regional and municipal levels. In terms of space constraints, public services provided at the local level seem to be the most interesting. Forms of inter-municipal cooperation (including cross-border cooperation between municipalities) in the area of joint organization of local public services can lead to a reduction in fix costs, but the search for optimal economies of scale is influenced by many factors (Soukopová & Vaceková, 2018; Plaček et al., 2020). This is relevant for excluded sites or sites with reduced transport accessibility, e. g. peripheral border areas, mountain areas, etc. (Vulevic et al., 2020).

Within the Schengen area, the process of European integration and globalization, the so-called “re-territorialization” is intensifying, where the administrative boundaries of territorial units are losing importance at the expense of creating functional cross-border regions based on social, economic and cultural links (Princen et al., 2016). Especially for border regions, which are more often faced with insufficient transport infrastructure and limited availability of local public services, cross-border cooperation with its varying intensity of institutionalization may be one of the alternatives to multilevel governance (Princen et al., 2016).

The border regions have also become an incubator for the new quality and approach in the creation and implementation of public policies. Territorial cohesion, in the context of removing obstacles and barriers to integration at the EU’s internal borders, has become a tool for grasping the governance of regions with access not from an administrative point of view, but according to cultural, social (Turşie, 2022), territorial and economic functions. The implementation of the MLG has been introduced in border regions since its inception, not as a result of administrative and political reforms (Pollitt, Bouckaert, 2017), thus granting the chance for a “pure”, comprehensive and new qualitative dimension of regional governance so far unknown, especially in Central European countries.

General frameworks of territorial cohesion have become a point of research, and the process of defining the cross-border functional area, as well as the characteristics of which, is most significant (Sohn, 2014b; Jakubowski et al., 2021; Nijkamp, 2021). Within the scientific discourse, which has been transferred in part to the practice of public policy (EC), there is one paradox. The terms of the territorial cohesion of cross-border areas were based on so-called debordering (which means that borders become more permeable and “softer”; Cassidy et al., 2018). On the other hand, researchers are also interested in delimitating or demarcating regions by defining their cross-border functional areas. Borders are often identified by a functional dimension or a territorial redefinition (Sohn, 2014a), involving various aspects of interaction within the framework of cross-border cooperation (Faludi, 2004; Medeiros, 2015), as a distinct region of cross-border functional areas. The functional dimension, in the context of an integrated territorial approach, appears to be the provision of cross-border local public services, which addresses the “gap” arising from the peripheral location of certain border regions. This approach is territorial in nature, with the exception of administrative borders.

Within the framework of this paper, we are exploring the new point of view in the debate on functional cross-border areas based on providing cross-border local

public services. In the first part of the paper, we shall move towards the establishment of multi-level governance (MLG) and re-analyze the adequacy of this concept in line with the general scientific discourse of functional cross-border areas. In the next part, on the basis of desk research and analyses of public policy, the tools and forms for MLG research as well as their implementation were identified and compared on the national and cross-border levels. In the last part of the case study from the Czech-Polish border, we identify the determinants for the organization and implementation of cross-border public services as a basis for defining cross-border areas functional for fire protection in the Jeseník District (CZ).

2. Literature review

In the review of research on cross-border functional areas to date, it is important to emphasize the transdisciplinarity of this concept, which influenced the directions of evolution of its definition. The scientific debate in recent years has been conducted in the field of multi-level governance tools and forms of institutionalization of cross-border cooperation, based on defining the concept of reterritorialization. The focus was that functional cross-border areas require an integrated territorial approach by removing administrative boundaries (Chrisidu-Budnik, 2019). The subject of a significant part of the research were cross-border cooperation programmes (as public policy), their result-oriented and thematic concentration as well as barriers to their implementation (Harguindéguy & Bray, 2009; Molak & Huk, 2012; Medeiros, 2015; Kurowska-Pysz et al., 2018). The institutional mapping method was used to delimit areas, simulate, categorize and select actors of cross-border cooperation, which, however, do not replace the level of national governance (Chilla et al., 2012). The publications of recent years bring a new look at the concept of the border and its dynamics, defining the determinants of complex institutional changes in the areas of: leadership, organizational capacity, supportive institutions, spatial dynamics, rapid change, existing networks and economics costs (Hataley & Leuprecht, 2018). Another method was brought by a study which tried to define cross-border functional areas by overlapping 4 independent factors: the intensity of cross-border cooperation, proximity to the border (incl. accessibility), the existence of institutional forms of cooperation and socio-economic connections (Jakubowski et al., 2021). A further attempt at the framework definition of cross-border functional areas was based on a comprehensive spatial and social analysis covering geographic, infrastructural,

historical, administrative and other aspects (Ładysz, 2021). Theoretically, the concept created by Sohn (2014a) included two opposing models: the “geo-economic model” (absence or selective territorial convergence) and the “territorial project” (convergence of social and cultural values).

Joachim Beck (2018) created an essential framework for functional cross-border cooperation. The six levels of cross-border cooperation determine the interaction between the actors and the level of coordination or implementation of joint strategies. This theory is the foundation for thinking about cross-border public services with various forms of institutional and non-institutional cooperation as a determinant of cross-border functional areas. The forerunner of research in the field of systemic cross-border fire protection as a public service is Princen et al. (2016), who identified its main barriers and determinants. An important element of the scientific discourse of recent years has become the debate on the position of cross-border cooperation in relation to the national structure of regional management and its institutional forms, e. g. the institutional and legal organization of euroregions (Noferini et al., 2019). The analysis of 61 out of 267 operating Euroregions showed that the potential for the implementation of cross-border cooperation is considerable regardless of the legal form. However, only a very few of them are able to implement territorially integrated cross-border strategies (including public services). A significant part of the research is based on case studies and is rather local or regional in nature, showing the specificity of specific cooperating countries, with the proviso that it is not a universal tool for defining cross-border functional areas. The ESPON study (2019a), which we shall discuss in detail in the next part of the paper, is very important for mapping the current state of cross-border functional regions and local public services.

3. Institutional context

A major step in reforming the institutional model of public administration in the Czech Republic and other Central European countries was the main external factor, namely the process of European integration (Chrisidu-Budnik, 2019; Stępień, 2008). Pre-accession negotiations between candidate Member States and European institutions had a crucial impact on the quality of legislation and other legal standards. With the accession to the EU in 2004, the public administration had to change at the same time, from the hitherto functioning national vertical organization of institutions and competencies, to governance. The main driver for this change has been the joint

implementation of European policies, with an emphasis on cohesion policy. Thanks to it, the concept of Good Governance has become widely known, which has two pillars: a structural one, concerning the functioning and organization of public administration and political representation at many levels, and a behavioural one, which is aimed at involving various new actors in decision-making processes (society, NGOs and the private sector, etc.) (Rhodes, 1997). The White Paper “European Governance”, issued by the European Commission, which defined five features of good governance, i. e. openness, participation, accountability, effectivity, and coherence, has become a new standard as well as a guide to new governance. These characteristics are particularly strongly and cumulatively included in the concept of multi-level governance based on coordination at several levels and their interconnection in a non-hierarchical arrangement (Chrisidu-Budnik, 2019). They are replaced by arrangements based on performance (performance frame), territorial dimension or fulfillment of individual public policy objectives (task-oriented).

Taking into account the five characteristics of Good Governance in the design and implementation of European policies has created a completely new alternative to the current hierarchical vertical national model of public administration. The main emphasis is its competence, territorial scope, caught in the legal (formal and informal networking) and financial framework (sources of funding). The main attributes of multilevel governance include:

1. Existence of many independent decision-making centres, which can also be set up on an ad-hoc basis according to real needs.
2. Vertical and horizontal reduction of the role of the state at the expense of European integration (including territorial beyond administrative borders) and the process of regionalization, including the division of competences and responsibilities among other actors.
3. The relations between the various actors in the framework of joint control are in the nature of cooperation, competition and cooptation.
4. Strengthening coordination within the network and in pursuit of common objectives.
5. Strengthening the importance of the bottom-up approach in the implementation of public policies and public services, strengthening the “territorial” approach as a space for knowledge and information transfer (Kopyciński, 2014).

The first four attributes have an organizational and political character. The fifth is directly related to the new competence and the creation of cooperation networks, the aim of which is better management of the territory and ensuring the provision of public services according to the functional links in the territory, not according to the organization of the hierarchical structure of public administration bodies. The implementation of European policies and particular operational programmes required changes in decision-making, but also the financing and implementation of various areas of public policy. Several directions of the public governance debate can be observed in the academic debate. One of them is the direction called social-political governance, which put an end to the state monopoly on public policy-making and introduced a polycentric model of joint coordination instead of the current simple redistribution (Kooimann, 1999). A key aspect is coepetition. Especially when looking at cross-border functional regions, this initial condition is important, because across the state border we oppose at least two “competing” regions partially operating in different legal and economic systems. The border as such becomes a booster for regional development (Sohn, 2014a).

The application of the concept of multi-level governance in practice occurs in various forms, different at the national level and at the cross-border one based on the Open Government principle (Beck, 2022).

The process of “cross-border regionalization” is based on attempts to “insert” cross-border social and economic links into the competence of cross-border legal entities, which are considered to be the highest form of cross-border cooperation (Beck, 2018). At the same time, they completely deviate from the current classification of regional statistics within the NUTS typology (Medeiros, 2018), which respects the administrative national organization of territorial units (does not exist on a cross-border scale).

An example is the implementation of European Cohesion Policy, which includes various financial instruments to balance the chances of the regions, such as the European Regional Development Fund, the European Social Fund and European Territorial Cooperation. These funds are implemented within seven-year programming periods in all Member States and are all based on common thematic concentration. The implementation of EU programmes at the local, regional or national levels contributes to the fulfillment of common European policy objectives and is exclusively based on the performance framework of the achieved outputs and results (Regulation no 1303/2013). Such an approach deviates from the hierarchical structure of the public administration structure and the programme implanted directly

at the regional level meets the European objectives and only indirectly the national policy objectives enshrined in the Partnership Agreement with the European Commission. The main aim of the cohesion policy is to increase the competitiveness of regions. The implementation of cohesion policy makes one think about the territory as a functional unit, cross the administrative boundaries set so far, and eliminate the negative consequences of their existence (including institutional ones). Examples of multilevel governance tools introduced through Cohesion Policy are, for example, Integrated Territorial Investment (ITI) or Community-led Local Development (CLLD). Both these instruments are enshrined in European legislation and represent an integral part of the implementation of programmes at the national level in the Member State. In the cross-border context, the instruments fulfilling the concept of multilevel governance in institutional form are the European Groupings for Territorial Cooperation and the quasi-institutional form – Euroregions (Noferini et al., 2019) and other forms of local government associations and organizations outside the public sector. The aim of using these tools in the implementation of European programmes is a better integration of agglomerations, metropolitan, border and local units. Achieving the best results in the implementation of public policies is aimed at the functional links of the territory, not at the administrative organization. From the institutional point of view, the implementation of these tools means a transition from a sectoral approach to an integrated approach, both in thematic focus and the territorial dimension (Kociuba, 2017). The new tools and organizational structures are dual in nature and do not replace the original national hierarchical structure in the territory, but complement it. It is a formal mechanism of coordination and institutional partnerships which includes elements of cooperation and commitment (Chrisidu-Budnik, 2019).

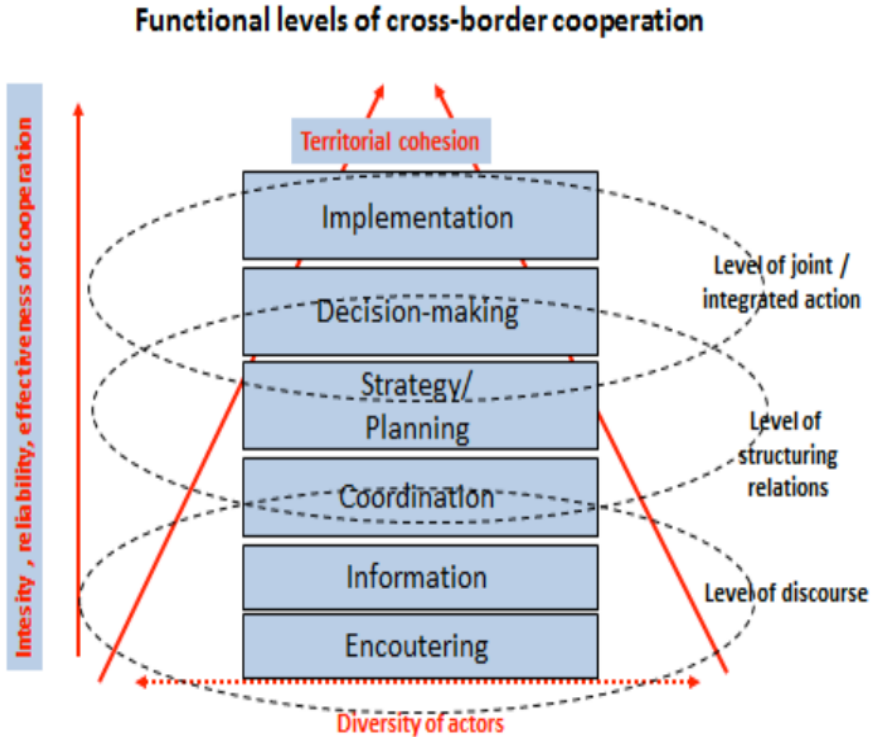
In the case of the implementation of multi-level governance tools on a cross-border scale (Bufon, Markelj, 2010), other significant factors affect the effectiveness of this model in comparison with the national level of MLG instruments.

Cross-border cooperation is usually implemented within a kind of hybrid model of parallel operation with self-governing bodies on both sides of the border. This model is characterized by a more horizontal arrangement, where entities with a similar position in the national management structure cooperate across the border (e. g. two municipalities, two regional authorities, etc.; KEEP database, 2021). There is a much lower intensity of cooperation across actors with different legal forms (KEEP database, 2021). Despite a certain similarity of legal forms and given the complexity of cross-border cooperation (trust, cultural and linguistic barriers, legislative barriers, etc.),

such a network can be classified as heterogeneous. Despite the fact that both partners are predominantly public entities, the complexity of cooperation (Molak & Huk, 2012) has a similar level as in the case of cooperation with a private partner. Thus, it shows a high resemblance to the cooperation of public-sector and private entities. Within academic considerations, this process is referred to as “cross-border regionalization”, where social and economic links take place within cross-border legal entities, such as Euroregions, EGTCs, eurocities, cross-border commissions, etc. (Medeiros, 2018). Joachim Beck (2018) proposed the gradation of six levels of cross-border cooperation (see Figure 1), as an extension of the scope within the so-called multi-level self-government/regional management (Beck, 2018). These levels of cooperation are interlinked and are based primarily on meetings with local and regional representatives for the open-minded exchange of information and mutual learning. The next phase is the regular exchange of information, followed by the coordination of approach and local policies. The following three levels overlap fundamentally with the legal competences of municipalities or regional governments. This is where joint strategic planning takes place to ensure coordinated and integrated approaches that underpin joint decisions. These processes are dual and take place simultaneously at both cross-border and national levels. The last level of cooperation is the joint implementation of tasks, such as the organization and provision of local public services (Beck, 2018). This model creates a new functional dimension for territorial cross-border cohesion and regional development, which complements ensuring the functioning of self-government in a stated territory. As an example of institutional tools for the implementation of steps 4–6, it is necessary to mention the European Grouping of Territorial Cooperation or Euroregions. However, these institutional forms of cross-border cooperation are based on re-demarcation, because the establishing entities, i. e. local governments and other public authorities, determine the competence of these organizations in a well-defined area of their own competence. Moreover, due to legislative limitations the principle of multi-level governance, which presupposes cooperation on the joint control of entities of various forms, including informal ones, is not fulfilled (according to the valid EGTC legislation in CZ, only public finance entities can be established, law 248/2000 Coll.).

Figure 1:

Multilevel governance model for cross-border cooperation



Source: Beck (2018)

Beck's theory will be the starting point for conceptualizing research questions concerning forms of institutional and non-institutional cooperation in the context of creating and maintaining functional socio-economic cross-border links in the form of cross-border local public services.

4. Conceptualization of research questions

As mentioned in the introductions of this paper, there are many attempts to define cross-border functional areas. What is put together in the definition of this term, as in the case of the MLG, is transdisciplinary, which includes aspects of the social, political (Sohn, 2014a), economic, territorial, etc. This is why different definitions are mentioned regarding the concept of a functional region on a cross-border scale. Recent research has focused on aspects related to geographical proximity, transport accessibility in relation to border distances (30- and 60-minute range), cross-border cooperation intensity in terms of the number of Interreg projects implemented or through forms of institutionalization of cross-border cooperation (Jakubowski et al., 2021). Based on these parameters, the demarcation of potential functional cross-border regions was carried out, stating that it “(...) did not aim to develop a comprehensive and universal methodology to precisely delineate cross-border functional areas. Instead, it embraced the more modest goal of proposing a systematic way to identify them for further policy implementation in different geographic and socio-economic contexts” (Jakubowski et al., 2021). The analysis of cross-border projects implemented on the Czech-Polish border also corresponds to this.

Based on data from the Interreg Cross-Border Cooperation Program Interreg Czechia-Poland for the period 2014–2020, it follows that institutional cross-border entities have implemented 26 out of 233 projects (CRR, 2021). Of these, EGTC Novum implemented 6, EGTC Tritia (SK-CZ-PL) implemented one project, and quasi-institutional entities (cooperation of two national associations of the municipalities without joint legal entity) implemented 19 joint projects. According to the analysis of these projects, none of them met the parameters of the activity associated with joint implementation (Castanho et al, 2018) within MLG, e. g. in the form of cross-border public services. The project “Model.Go” implemented by the Euroregion Těšínské Slezsko in response to changes in the conditions for the cross-border labour market during the SARS-Covid-19 pandemic (e. g. Siatkowski, Konik, 2020) is closest to this. The second project, entitled “Ready to help”, was implemented by the Silesia Euroregion, the umbrella coordinator of cross-border cooperation between fire brigades. The remaining projects create various forms of dialogue, networking and collaboration, which fall into the second to third categories on the Beck scale. There are also sectoral projects, aimed, for example, at supporting cross-border tourism.

Our starting point shall be the assumption that the main task in the governance of regions is to provide the population with public services in the scope, quality and

accessibility reflecting the principle of equality (in relation to non-peripheral parts of the country).

Therefore, a tool such as cross-border cooperation can be an alternative for the organization, provision and delivery of local public services and at the same time be a key starting point for the definition of cross-border functional areas.

In this paper, we shall focus on a cross-border functional area in terms of providing local public services as the main feature of the existence of functional links. Especially for border regions, which are more often faced with low-density transport infrastructure and limited availability of local public services, cross-border cooperation with its varying intensity of institutionalization may be one of the alternatives to multilevel governance (Princen et al., 2016). The determinant for this approach is the need to provide and implement local public services with an emphasis on maintaining quality, accessibility and scope, regardless of the peripheral location of the area.

Therefore, within the conceptualization of the research part, we selected the Jeseník District as an area which meets the conditions associated with the peripheral geographical location (distance from the centre of the region inland), below-average demographic structure (Molak, 2019) characterized by major territorial barriers (e. g. low road-network density).

According to a study prepared by the European Grouping of Territorial Cooperation ESPON (ESPON, 2019a), territorial cohesion across the EU's internal borders is reflected in the provision of cross-border public services. A total of 34 areas in which cross-border public services occur or are planned have been identified. About 600 cross-border public services have been identified through case studies (ESPON, 2019b) mainly at the borders of the Benelux countries, France, Germany and the Scandinavian countries.

The survey identified that the main goal of cross-border cooperation is to reduce the negative effects associated with the existence of state (administrative) borders, but also the positive motivation for building new opportunities and the attractiveness of border regions (Kukovič, Haček, 2018). In its study, ESPON specified three main expected impacts of the organization and delivery of local public services in a cross-border context (ESPON, 2019a).

1. *Addresses shortcomings and gaps in the provision of national services.* Thanks to cross-border provision, the lack of services provided on one or both sides of the border can be overcome. Such a shortage may be the result of a peripheral

geographical location in relation to the inland or low demand on each side of the border.

2. *Cross-border services can lead to development changes in the regions.* Despite the sharing of potentials, resources and infrastructure, more effective solutions in the organization and delivery of public services can be expected than individual and non-cooperative generative activities.
3. *By providing cross-border public services, the latter shall be less costly* – they can increase efficiency and reduce costs for service providers compared to domestic service provision. By increasing the range of potential users, a cross-border public service can bring economies of scale by covering a wider range of services than domestic services, thus increasing the demand for the service. There will be a better use of investment and sharing of operating costs between stakeholders in the cross-border region.

One of the most common categories of cross-border public services identified in the ESPON study (ESPO, 2019a) was civil protection and disaster risk management. Ensuring coverage of all parts of the border country with sufficiently robust fire protection is very difficult and expensive in the case of some peripheral localities. Therefore, even here, to meet territorial coverage while maintaining economic efficiency (Plaček et al., 2020), cross-border cooperation can be an alternative to expanding the public service provided at the national level.

Under ideal conditions, it assumes an even territorial distribution of the provision of this service (travel time to the place of the emergency) while maintaining capacity and specialized aspects. Even these conditions are extremely difficult to fulfill in peripheral areas, which include the border region such as Jeseník District.

Cross-border cooperation in the field of fire protection faces basic challenges and problems that are different from inter-municipal inland cooperation. These are mainly different legal systems and competencies of individual components, intervention methodologies, inconsistent procedures in deciding on the cross-border deployment of units or, finally, the insufficient routine of rescuers (practice and training) in cross-border interventions (Lotter et al., 2017). Routine is defined here as a certain automation of individual procedures in the case of intervention on both sides of the border – so that cross-border intervention is not hampered, e. g., due to language barriers, ignorance of regulations or clarification of competence at the place of intervention compared to similar intervention inland (Princen et al., 2016). This is the reason why we have chosen fire protection for our research as an example of

sustainable cross-border links within the MLG.

Based on a model of cross-border cooperation, Beck came up with the underlying assumptions of multi-level governance. In total, this paper is an answer to the following research questions:

RQ 1. *Is cross-border cooperation itself a determinant of the functionality of cross-border regions, or is it only a tool for the implementation of social and economic functions?*

The subject of the analysis will be the intensity and nature of cross-border cooperation (implementation of joint projects Interreg CZ-PL 2014–20) which creates preconditions for defining cross-border functional areas (Jakubowski et al., 2021) within the organization and cross-border local public services. It will be examined as the types of actors involved in these projects in the context of the implementation of the MLG principle (cooperation across institutional and non-institutional forms of legal entities).

RQ 2. *Can institutionalization of cross-border cooperation be considered a trap within when defining functional cross-border areas?*

The significant point is whether the cross-border institutional form of providers (Euroregion, EGTC, Eurocities, etc.) is necessary for the organization and implementation of local public services or whether there are other more effective forms of delivering these services.

RQ 3. *Can the cross-border function of local public services be involved in the definition of cross-border functional regions?*

The crucial aspect is whether cross-border local public services can be a determinant for defining cross-border functional areas in the context of territorial cohesion. At the same time, it is not a question of delimiting these areas in terms of administrative borders.

5. Methods and data

The following methods were used in the research part:

- Desk research within the framework of public policies and laws in the field of cross-border cooperation, documents related to ensuring fire protection, action capability, fire plans, etc.
- Desk research of cross-border cooperation projects within Interreg V-A Czech Republic-Poland 2014–20 and other programmes, especially in the field of rescue management and fire protection across the EU (KEEP database),
- Clustering and mathematical-statistical processing of data related to firefighting interventions at the national and cross-border level in the Jeseník District.

As mentioned, the Jeseník District was chosen as the reference area for the purpose of solving research issues. The public service to be examined is fire protection with a cross-border dimension. The aim of this cooperation should be to speed up the delivery of assistance to the scene of emergency. This is a challenge in particular to geographically inaccessible regions which are characterized by natural obstacles (mountains, watercourses, etc.) or low-density transport infrastructure in borderlands. Cooperation with local and regional authorities responsible for crisis management is often an integral part of these activities. Cross-border cooperation of rescue services can be divided into two groups (Gabryšová & Ciechomski, 2019):

1. The first linked to day-to-day cooperation in the exchange of information,
2. The second associated with the capacity to deal with emergencies and crises that require intervention on the other side of the border (Molak & Struk, 2021)

The barriers of cross-border in fire protection have been resolved with local and regional actors focusing on the financial aspects of cross-border cooperation. Therefore, interregional agreements on mutual cross-border assistance in the event of disasters, emergencies or fire protection in the neighbouring country require more contractual partners, e. g. local and regional authorities, insurance companies, crisis management authorities, etc. These agreements aim to remove legal barriers and contain a model to cover the costs associated with the intervention on the other side of the border. Each interregional agreement may contain its own model, provided that it does not conflict with the provisions of a superior legal act, such as a bilateral intergovernmental agreement, which in turn provides a framework for regional or local cooperation. This agreement covers the cooperation of professional and

voluntary fire brigades within a comprehensive fire protection system. In most cases, in the case of incident aid, it is financed from the budget of the country sending the aid. The host country/region covers the costs of the units operating in the territory of the given state, provided that the very presence of the units in the neighbouring country is longer-term (e. g. accommodation, meals, etc.). However, in terms of the specifics of the scope of the rescue systems, such as fire protection, emergency, and crisis management, from the users' point of view, it is a purely local public service.

In order to find answers to the research questions, an analysis of 233 projects implemented within all priority axes (4) of the Cross-Border Cooperation Program Interreg Czechia-Poland 2014–2020 was carried out to identify potential cross-border public services. Particular attention was paid to projects (26) implemented by entities showing instinctive forms of cross-border subjectivity – EGTC (7x), Euroregions (19x). In addition, an analysis of the activities of these entities (annual reports on their activities) was carried out in terms of cross-border public services (implemented outside the Interreg programme).

As part of the methodology of the research part, the Jeseník District (CZ) was selected as the reference area for our study (out of 14 districts lying directly on the Polish-Czech border). As part of the analysis of geographic, infrastructural, and demographic conditions (Molak & Struk, 2021), this area shows the characteristics of a peripheral area from the point of view of the centre of the region (Olomouc), while showing good territorial connections with Polish communes on the Polish side (see Table 1).

Table 1.

Basic data of the research area

Jeseník District	
Area	719 km ² (33% of the area are forests)
Population	37,968
Population density	52.8 per km ² (136 per km ² is the average in Czechia)
Border length with Poland	101 km
Road across-border points	14
Are the Czech municipalities destined for cross-border fire protection coverage in the region's emergency plans?	YES

Basic land characteristics	transport infrastructure mainly of local character, geographical obstacles – mountainous terrain, irregular and less dense population, mostly small villages
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Source: CZSO (2020)

In order to identify the functional links of cross-border cooperation and the factors influencing them in the field of fire protection in the reference area of the Jeseník district, the following data were analyzed: the legal framework of cooperation at the international level (agreement), regional and local mutual emergency assistance agreements; cross-border interventions of volunteer and professional fire brigades for 2015–2021 for the reference area.

The analyzed data including inland and cross-border interventions are in Table 2.

Table 2.
Content of research data

Period of data:	2015–2021
Area of data:	Jeseník District
Total number of interventions:	6,622
Number of cross-border interventions:	82
Number of emergencies:	4,189
Data about interventions:	<ul style="list-style-type: none"> - Number of interventions by professional and volunteer fire brigades - Travel time to the scene (inland time vs. across -the-border time) - Travel time to the scene (inland time vs. across-the-border time) - Duration of individual interventions

Source: Authors

Using statistical and mathematical methods, an analysis of data on 6,622 interventions (4,189 incidents) of fire brigades in the Jeseník District, was carried out (for the period 2015–2021).

The interventions were divided into the categories presented in Table 3.

Table 3.

Types of fire brigades, Jeseník District. Period 2015–2021

Type of intervention	Cross-border Interventions	Inland interventions
Fire	50	1,140
Road traffic accident	20	1,045
Large-scale road traffic accident	0	6
Railway accident	0	36
Air accident	0	7
Accident – other	0	9
Leaks of various substances	1	249
Other emergencies (epidemics, infections, etc.)	0	94
Other assistance (incl. false alarm)	8	669
Technical and technological assistance	3	3,285
Total number (2015-2021)	82	6,540

Source: Authors

These data were subsequently divided into 3 clusters related to the type of assistance provided regarding:

1. assistance in an emergency when the time of arrival since the announcement is crucial (especially fires and accidents) – the travel time was the order of units,
2. assistance requiring special or professional equipment (e. g. car accidents, chemical leaks, etc.),
3. assistance requiring the involvement of larger capacities of firefighters for a longer period of intervention, e. g. forest fires, floods, etc.

These 3 clusters are relevant for local public service parameters related to availability (cluster 1), quality (cluster 2) and scope (cluster 3).

To analyze the potential of cross-border cooperation in the field of cross-border interventions, the Regional Directorate of the Fire Brigade in Olomouc developed a

GIS map containing the optimal travel times of volunteer and professional firefighters with cross-border overlaps.

The data concerning the time of arrival at the place of intervention were processed according to particular clusters, with the proviso that in the case of cluster 1 it was the arrival of the first and second units at the place of the emergency. The data were refined and clustered. Averaging is used for comparison purposes, given the fact that places and types of emergencies are unpredictable and random.

6. Results and discussion

Based on an in-depth analysis of 233 projects implemented within the Interreg V-A Czechia-Poland Cross-Border Cooperation Program 2014–2020, the conditions for the definition of cross-border public services have been identified in very few cases. The intensity of cross-border cooperation on the CZ-PL border is high (Jakubowski et al., 2021), but at the same time it does not fulfill the defining feature of creating sustainable socio-economic links. In the definition of the cross-border functional region of Jakubowski et al. (2021) there is no clear correlation between the number of implemented cross-border projects and the creation of links in the form of local public services, which will fundamentally change the perception of functional cross-border links. Within our analysis cross-border public services are met by the cooperation of fire brigades (10 projects) and the police (2 system projects). Other projects implemented in individual priority axes were sectoral cooperation supporting regional development or strengthening ties between the inhabitants of border regions. The projects are mainly network-based and support specific cross-border solutions, e. g. in the field of networking and development of tourism infrastructure and products, support for educational exchange, people-to-people projects, etc. These projects have an influence on the creation of socio-economic links in border regions and are an essential part of territorial integration, but they are not purposeful for the creation of cross-border local public services. Cross-border cooperation is a tool for achieving an impact on the territory (RQ1), and the intensity of cooperation is not a determinant of functional cross-border areas. Its content and the creation of strong and sustainable socio-economic links are much more important, e. g. in the form of local services (ESPON, 2019a).

For the purposes of analyzing the functional cross-border links, fire protection

was selected because it shows elements of cooperation at the local, regional and national levels and has the character of a local public service (from the user's point of view). Police cooperation is more hierarchical and centralized, without elements of competition, and is based mainly on the provisions of the Schengen Agreement, i. e. it does not show changes in dynamics at the local or regional level.

Cross-border fire protection redeems all the functional aspects of a cross-border link. Fire protection in its organization and financing, as in the Czech Republic and in Poland, has a mixed system combining competences at the national, regional and local level. However, when considering this public service from the resident/user point of view, it is a local public service. In order to ensure the fire protection of the regions, emergency fire plans are created which define the catchment area of particular fire brigades. For some peripheral areas in the Polish-Czech border area, the national emergency fire plans also include units on the other side of the border, which have shorter travel times than national units. This cooperation has a legal framework that is task-oriented, providing mutual assistance in emergency and crisis situations. The legal framework for cross-border interventions takes the form of a framework agreement at the international level, defining the tasks, duties, and responsibilities of each side. In addition to the agreement at the international level, cross-border interregional agreements were signed in order to detail the operational procedures of regional operational centres. No special institution has been established for cross-border fire protection, and this cooperation takes place at all levels of the risk management hierarchy, from the commune level, through the district level and the national system. The cooperation includes units in the national fire protection system (professional level) and voluntary fire brigades based on the model of voluntary association, appointed by municipalities. Thus, they meet the basic conditions for the cooperation of various types of organizations which form the basis of the multi-level governance concept. At the same time, this cooperation in the territorial scope is not limited by national or administrative borders and is demonstrated in order to achieve the greatest use for the user of this service (coverage as large as possible and maximum reduction of travel time). As part of the flagship project "Safe Borderland" implemented throughout the Czech-Polish border area, coordinators trained specifically for the implementation of cross-border activities were appointed at the level of all regional operational centres. Professional preparation of personnel on both sides of the border in terms of legal knowledge, implemented cross-border procedures and knowledge of the language of a neighbouring country was aimed at reducing the time of intervention administration resulting in sending the nearest fire brigade unit to the scene as soon as possible. The cooperation is largely bottom-up and results from

ensuring the fulfilment of the statutory duty of fire protection, which is on the part of municipalities. In the case of small municipalities or municipalities with a low density of population, helpful tools to ensure the legally required coverage of the area by the fire protection system can be inter-municipal cooperation (Plaček et al., 2020) or as an alternative – cross-border cooperation. It can be stated that there is no need to create separate institutions for this functional cooperation. The basis for its operation are the existing resources and the legal framework created by simple international and cross-border agreements (RQ2). This analysis confirmed Noferni's conclusion (2019) that institutional and quasi-institutional cross-border cooperation forms (Euroregions, EGTC, associations, etc.) are still not a sufficiently effective multi-level governance tool for cross-border cooperation (Beck, 2018). However, the potential for the development of these forms must also be confirmed here, including the use of funds from the Interreg and other programmes (Chilla et al., 2012; Noferini et al., 2019).

In order to verify the functional cross-border links, an in-depth analysis of data on interventions of professional and voluntary fire brigades was carried out for the purposes of this paper. The territory of the Jeseník District in the Czech Republic was selected as the reference area. The area of this district is characterized by a border location, far away from the centre of the region of the city of Olomouc (approx. 1:15h), which is located behind the Jeseník foothills. The district's location in relation to the centre of the region is peripheral, which is additionally strengthened by the low density of the road network and variable weather conditions typical of mountain areas. It is debatable which of the following is of more importance: delimiting the distance of users of potential local public services from the border (Jakubowski identified two zones – 30 and 60 minutes of reaching the border) or the providers of the service. On the example of cross-border links to ensure fire protection, a key factor is the distance of regional metropolitan centres from the peripheral position of the border. That means, the greater the distance to the region's capital, the greater the potential for cross-border cooperation as filling a "gap" in a given local service (Vulevic et al., 2020). It is important, on the other hand, that there is a suitable provider and at the same time sufficient road infrastructure (Ładysz, 2021; Jakubowski et al., 2021; Mladenovič, 2021).

The main purpose of the analysis was to answer the researchers' questions about cross-border public services as a determinant defining functional cross-border areas (RQ3).

As part of mutual assistance in accidents and emergencies in 2015–2021, 82 cross-border departures of fire brigades to the area of the Jeseník District were carried

out. The share of cross-border interventions ranged from 0.7% (2015) to 2.02% (2018) of all interventions at the level of the Jeseník district. In the pandemic years (2020–2021), the number of interventions decreased and ranged from 0.78% to 1.01%. However, that was also caused by a general decrease in human mobility and activity, which is the most common cause of emergencies. The increase in the intensity of cooperation was, among others, a result of the implementation of the flagship project “Safe Borderland” (implemented in 2016–2021), thanks to which approximately 3,500 professional and voluntary firefighters took part in joint exercises, training or language courses. The project was implemented with a systemic approach and included, apart from training human resources, also the purchase of specialized equipment and the creation of a mutual notification system about emergencies in the entire Polish-Czech border area (all regions were included in the system). In the area of the Jeseník District itself, there was a threefold (in the years before the pandemic) increase in the intensification of cross-border interventions (compared to 2015).

The most common type of intervention involving units from Poland were fires (61%) and car accidents (24%). It should be emphasized, however, that in the overall statistics of interventions in the reference area (domestic and cross-border), fires account for only 17.73% of all interventions, and accidents for 16.08%. This disproportion is related to the peripheral location of border municipalities in the area where these events took place (e. g. Javorník, Zlaté hoře, Mikulovice, Bila Voda, etc.). In the case of fires and car accidents, the key parameter for the effectiveness of intervention is the shortest possible time of units to the emergency place. Fire plans always provide for the arrival of 3 fire brigades to the scene.

As results from the analyzed data, in the case of 52 interventions of fire brigades from Poland, they were the first or the second on the place of emergency with an average travel time of 18 minutes. Due to the random nature of this type of incidents (both the type and location), the data compilation calculated the average travel time to the place of intervention (see Table 4).

Table 4.

Average travel time of units (CZ+PL) to the scene of emergencies

Type of interventions	Professional fire brigade	Volunteer Fire Department	CZ	PL
Average travel time for an in-country intervention in the area of the Jeseník District	X	X	16:53 min.	-
Average travel time of Czech/Polish units to the place of emergencies with cross-border intervention for units that were at the scene of the 1 st or 2 nd (key travel time – mainly fires and accidents).	X	X	15:01 min.	18:11 min.
Average travel time of professional firefighter units to the place of intervention for emergencies with cross-border intervention	X		29:02 min.	22:10 min. (17:30 min. for cases that were 1 st or 2 nd)
Average travel time of Polish/Czech units for emergencies with cross-border intervention – all events, regardless of the type.	X	X	25:57 min.	24:17 min.
Average travel time of all units (CZ + PL) for emergencies with cross-border intervention – all events, regardless of the type.	X	X	25:30 min.	

Source: HQ of Regional Fire Brigade Olomouc Region, 2015–2021. Own processing.

Generally, the travel time to the place of intervention in border communes is longer than the average travel time within the entire district. Despite the fact that the average travel time of Czech units to the scene of the incident in the peripheral border areas of the Jeseník District in situations requiring the shortest possible travel time to the scene of the incident is shorter than the arrival of Polish units, the main difference lies in the type of units being the first to the scene of the incident. As part of cross-border interventions in the Jeseník District, professional firefighters from Poland are faster at the scene of incidents in the border areas (on average 17:30 minutes) compared to 29 minutes for Czech firefighters. This is due to the location of a

professional fire brigade in Jeseník. It causes a significant extension of the travel time to the emergencies in border communes, especially in winter. In the case of incidents with serious consequences requiring professional equipment and training (e. g. car accidents, railroad accidents, etc.), the category of the unit that appears on the spot is an important element. The travel times to the peripheral sites indicate the importance of the support of volunteer fire brigades as an important element of fire protection. Units of this category are, as a rule, first in most of the incidents. Due to the local nature of the organization and financing of this public service, an important mechanism increasing the coverage of fire protection may be inter-municipal cooperation or cross-border cooperation at the local and regional level (some Polish guard units from the national system are included in regional emergency plans, e. g. for the Czech Commune of Bila Voda).

The second type of intervention, important for fire protection in the border areas, are emergencies of a longer duration, requiring a longer engagement of a larger number of units (e. g. extensive forest fires, floods, etc.). Units from Poland took part in several such events. Due to their very unpredictable and incidental nature, they constitute a smaller share in the overall statistics of events. However, it should be mentioned that events absorbing large numbers of units (6–8) may threaten the level of fire protection in an area (interventions of this type last, for example, 12–20 hours). Therefore, and in such cases, cross-border cooperation was used approximately 10 times in the reference period.

Analyzing the data from over 6,000 interventions, it also shows that for the coverage of an area with fire protection, not only the distance from the border is important (Jakubowski et al., 2021), but also the distance from the centres of regions in terms of the country. The lower the availability of these central urban centres, the greater the need to look for alternative solutions for the organization and implementation of local public services. In these regional centres, the availability, quality and scope of public services is usually sufficient, in this case the density of the network of professional fire brigades in relation to the population density and the protected area. An example would be interventions where the Czech professional fire brigade arrived at the accident (Zlate hory) after 35 minutes (Jeseník) and those from Poland after 14 min (Glucholazy).

This service achieves all 3 impacts specified for cross-border service provision according to the ESPON study (2019a), with an emphasis on increasing availability and costs (Molak & Struk, 2020).

The total value of protected property values estimated by the Regional

Headquarter of Fire Brigade (Olomouc Region) in the framework of cross-border interventions in 2015–2021 amounted to CZK 43,840,000.

7. Conclusion and policy recommendation

Attempts to define cross-border functional areas in the current research discourse are based on many aspects in the field of sociology, law, economy, etc. The trend of recent years is an attempt to delimit and demarcate new functional areas by entering them into methodological models, including such aspects as the distance from the borderline, communication accessibility or the intensity of cross-border cooperation and its institutional forms (Jakubowski et al., 2021; Reitel, 2007, etc.). Cross-border cooperation can be an example of a non-hierarchical co-governance tool based on the principle of multi-level governance, which was successfully implemented mainly thanks to European integration as part of building EU territorial cohesion. As a new tool, it has not been limited by the experience of public administration organizations to date, and it is largely based on cooperation aimed at more effective co-management of border regions. After more than 15 years of membership of Central European countries in the EU, you can already observe the mature effects of cross-border cooperation, which often take institutional forms (EGTC, Euroregions, Eurocities, etc.) to support the creation and management of cross-border functional areas. They are often equated with the functional region itself. The paradox is the attempt to re-establish the boundaries (this time external) of cross-border functional areas, which is the result of the process of “removing” state borderline (debordering).

In our paper, starting from the assumptions of NPG and MLG, analyzing the case study from the Czech-Polish border, we define a cross-border functional area through the prism of local cross-border services. Their functioning is based on socio-economic links and serves to meet the needs of residents in the expected quality, availability and scope. This is a particularly important parameter for peripheral areas, which are often border areas.

As a case study, we chose fire protection in the peripheral area of the Jeseník District. Although fire protection may seem to be a specific example of a local public service, its territorial/spatial aspect is very important there. It includes both geographic (transport accessibility), quality (voluntary and professional firefighters) and time (travel time) aspects. Cross-border links complement the public service provided at the national level, while increasing its economic efficiency and benefit for residents

(ESPON, 2019a).

Cross-border cooperation is a tool to achieve the desired scope and availability of a public service. Bilateral inter-government and regional agreements were sufficient to implement the cross-border fire protection, without the need to establish further cross-border institutions. This solution turned out to be sufficiently robust against pandemic-type turbulences (Ansell et al., 2020), which caused the closure or the everyday restrictions on cross-border traffic. Despite this, although the intensity of cooperation decreased, the mechanism of cross-border interventions continued to operate when needed.

At the same time, when analyzing the activity of 6 Euroregions and 2 EGTC in the Polish-Czech Borderland (and their activity in Interreg projects), we concluded that it did not comprise the characteristics of cross-border public services, it rather constitutes a certain space for the development of cross-border inter-links. According to the analysis of these aspects of cooperation for the purpose of creating new linkages of public services for local communities, institutional forms of cooperation seem so far unfunctional. An important aspect within the cross-border functional areas (territorial approach) seems to be an area dynamically changing with time according to the given needs, without attempts to demarcate “apparent” borders. In its essence, multi-level governance involves crossing administrative boundaries in order to build relationships between actors of different subjectivities and interests (Blatter, 1997). The very idea of a cross-border institutional entity, by its logic, involves demarcation in an administrative sense, that is to say by means of reaching across the boundaries of its founding entities (municipalities, regional administration, etc.). As a result, the cross-border functional region is limited by the above-mentioned administrative borders (ESPON, 2019a) and not by real needs and their development dynamics defined by Hataley and Leuprecht (2018): leadership, organizational capacity, supportive institutions, spatial dynamics, rapid change, existing networks and economics costs.

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