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Regional Planning, Land-Use Management, and Governance in German Metropolitan Regions—The Case of Rhine–Neckar Metropolitan Region

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Abstract: German cities and their hinterlands have a long tradition of cooperation; however, there remains considerable challenges when developing integrated governance models, especially in those metropolitan regions that cross state-boundaries. The Rhine–Neckar Metropolitan Region (MRN), with its unique location of a tri-state intersection, explored ways out of the governing dilemma and has pioneered cooperative federalism in Germany. To determine how the cross-jurisdictional cooperation is organized and realized in the MRN, and how well this model has worked in terms of regional planning, attributing land resources, and the reality of long-term governance, a series of interviews with involved officials and planners and MAXQDA software were employed to decode the transcribed text content. A second-hand qualitative database, including, but not limited to, meeting memos, protocols, and published works were added to examine our findings. The results indicated that diversified actors, a combined instrument, multiple collaborative contents, and the networked joint decision-making structure have strengthened the governance of the MRN. However, their public association-centered structure raised concerns in terms of inadequate participation of private agents and an excessive pursuit of regional balance as well. Ultimately, this paper discusses the inefficiency challenges facing the MRN and further reflects on the need for, and impacts of, high-level government participation in constituting a regional identity.

Keywords: metropolitan governance; regional planning; Raum+; cross-jurisdictional cooperation; formal and informal instruments; Rhine–Neckar Metropolitan Region (MRN); Germany

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1. Introduction

Metropolitan regions are considered a challenge for politics, planning, and land-use management because the political–administrative control structures barely correspond to the functional interrelationships and requirements of densely populated areas any more [1–3]. One of the central challenges is the deviation of administrative boundaries of regions and their subspaces from functional contexts. Socio-economic networks in particular follow different spatial logics than hierarchical-administrative spaces in which political and planning decisions are made [4,5]. Socio-economic transformations, such as the economic structural change towards a knowledge economy [6], influence not only the large metropolitan centres in metropolitan areas but also the rural hinterland and the small and medium-sized towns in the regions [7]. This also changes the relations between the sub-regions. Reflecting these changes in governance processes is a particular challenge for metropolitan governance structures.

Over the years in Europe, the interaction between different administrative levels has become more intense [8]. The reshaping and blurring of traditional state forms have produced effects that might be likened to a sort of "unlocking", opening up the field to sub-national actors and cities in particular. With EU governance in the making, any transformation of the state's role has promoted significant transformation in the modes of government of

sub-national territories [9]. A variety of different governance structures are introduced in cross-border areas. Depending on the spatial structure, e.g., rural or metropolitan regions [10], and on the cultural contexts [11] in the regions, the prerequisites for governance structures are very different. However, most contributions on cross-border governance in the European context deal with regions that cross national borders. Metropolitan areas that cross sub-national borders, e.g., federal states in Germany, states in the USA or provinces in China, are less discussed, even though potential different legal bases for land use planning in these sub-regions create very different preconditions for governance [12].

Germany is, de facto, an active and significant actor in such cross-boundary cooperation, especially in those metropolitan regions. Over the last 25 years of exploring ways of planning and governance, the 11 German European Metropolitan Regions (EMRs, cf. [13]) [1] have become recognized as symbols of the paradigm shifts in spatial planning to spatial development policies [14,15]. Their contribution is highly regarded, particularly in terms of strengthening the country's competitiveness in global markets.

In contrast to the earlier delimitation of urban agglomerations (which attempted to justify thresholds based on objective scientific criteria), the acknowledgment of EMRs has not a been deductive process regarding objective factors, but rather an inductive one in which subjective perceptions, a sense of belonging, and the derived political will of local political actors have played a decisive role [16]. Hence, the historical and geopolitical context cannot be ignored when shaping regional governance structures and in the subsequent planning and determining of land-use.

The past two decades have seen a heated discussion concerning the policy descriptions and classifications of German metropolitan regions (e.g., Zimmermann [17]; Diller and Eichhorn [15]). However, variations in regional characteristics and political contexts have made it difficult to generalize or draw specific lessons from such descriptions. Therefore, an in-depth case study was needed, which, albeit not covering all typologies, could at least reveal historical roots and practical experiences, especially for regions facing similar spatial planning challenges and land-management dilemmas.

In this work, a first attempt is mounted to determine the institutional and instrumental changes that have occurred in the context of historical metropolitan governance and, second, to capture the classical, but sometimes neglected, issues with real-world governmental practice in order to address the challenges on topics such as political linkages, regional planning, and land-use management at the metropolitan-region level.

To answer specific questions—such as who is contributing to or involved in metropolitan governance? Which instruments are valued or disregarded? Moreover, how is the land managed and regulated at the regional level? —a perspective is presented from a German empirical study—the interstate Rhine–Neckar Metropolitan Region (MRN). The paper is organized as follows: in the next section, based on a clarification of the focus of the discussion on the political thinking and governance of EMRs, we introduce our four-dimensional analysis framework—actor, instrument, content, and structure. Following Diller and Eichhorn's [15] recent research on differentiated governance structure in Germany, a case of the most complex but balanced governance structure—the MRN—with its private–public partnership is presented. After describing the methodology and data collection in the third section, four major findings from the case study—diversified actors, strengthened formal planning tools, versatile cooperation content, and a layered-networked governance structure—are presented in the fourth section. In the last section, this paper echoes the rethinking of higher-level government interventions raised by Evers and Vires [18], and reflects on the reinforcement of using classic tools for large city regions. Further attention is also called to be paid to in-depth qualitative research, as well as possible comparative studies on the topic of metropolitan governance.

2. Metropolitan Governance in Germany and Its Practice in the Rhine–Neckar Metropolitan Region

2.1. Definition of and Political Thinking behind the Metropolregion

Before delving into the governance issue, an initial clarification is needed on the definition of the specific German word in use here—Metropolregion. Varying but similar concepts have sprung up since the 1960s to describe entire city regions that have coalesced as units within the global economy [18], including the metropolitan area [19], megalopolis [20], and megaregion [21–23]. Distinct from these terminologies, the Metropolregion in German, and its widespread English translation, the "metropolitan region", is attached to more-political thinking, especially to describe those urban agglomerations with governance structures [16,24]. Influenced by the ideas of decentralization, devolution politics, and regionalism, governance debates around these complex large city regions have become popular [25–27]. Because the Metropolregion and the relevant spatial concepts are inherently multi-scalar, they distinguish between the scale of individual cities and their surroundings—described as urban functional areas, metropolitan areas, urban regions, or urban areas—and the larger scale of these cities and their surroundings [28]. This multi-scale nature is a critical challenge to governing megacity regions [18]. Collaboration in planning and the institutionalization of cross-jurisdictional (cross-state/-border) regions is more complex than in urban regions under a single administrative division [29–31]. Scholars have further argued that identifying power interactions between the same level of government at the regional scale and between different levels of government or development agents is becoming the focus of understanding trans-scalar governance [32,33].

Considering that metropolitan areas and their governance are a broad phenomenon with many implications, Lackowska and Zimmermann argue that an also relatively broad definition, such as the one suggested by Neil Brenner and others, seems justified [34].

- [Metropolitan governance]encompasses a broad range of institutional forms, regulatory strategies and governance projects—including, for instance, attempts to modify existing jurisdictional boundaries through annexation, merger or consolidation; proposals to establish supra- or inter-municipal agencies, councils, administrative districts or planning bodies; legal measures imposed by higher levels (such as federal government or the states) to regulate urban expansion; and a variety of intergovernmental and inter-organizational strategies to enhance cooperation and coordination among government agencies as well as between public and private institutions and actors [35] (p. 5).

It follows that the scope of metropolitan governance research includes multiple levels [30,36] of institutions or even innovative institutions as participants [34,37], various governance instruments corresponding to different types of collective actions [38,39], and a wide range of institutional forms [18,40]. Based on our previous study [41], we have sorted through these studies and categorized them into four general themes—who participate(s), through which instrument(s), taking what kind of collective actions, and, most importantly, through what governance structure(s)—in this paper (Figure 1).

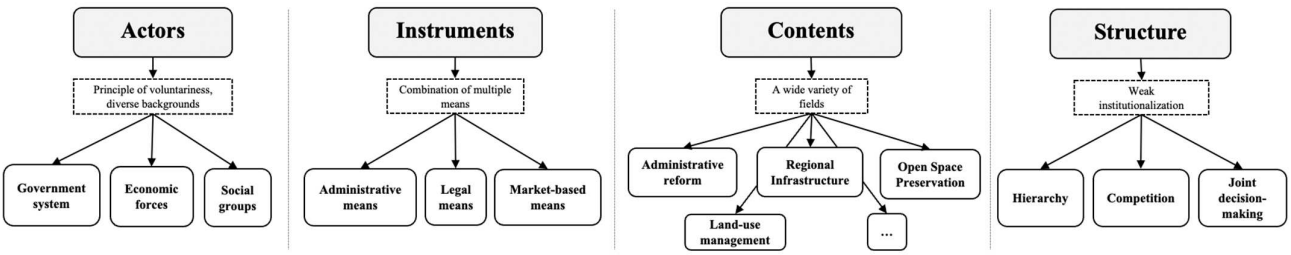


Figure 1. The Actor–Instrument–Content–Structure (AICS) framework. Source: the authors.

Firstly, actors in metropolitan governance usually include multiple levels of government (e.g., central and local), market actors (e.g., enterprises, private individuals), and

social groups (e.g., public organizations, citizens) [30,42]. They generally come from diverse backgrounds and follow the principle of voluntariness. In some supra-regional or very complex cases, the involvement of higher-level governments (or even the state) is considered essential [18,41]. Secondly, instruments include economic, legal, and administrative instruments [43], and a combination of these means is common in practice [39]. As for cross-jurisdictional metropolitan regions, the effectiveness of initiatives has often been discussed [38]—legal instruments can be used to restrain government and market behavior. These are the basis for ensuring that metropolitan governance is carried out in a reasonable, practical, and orderly manner [44,45]. Thirdly, a wide range of collaborative contents can be found in metropolitan governance, including, but not limited to, the three topics that Eaves and de Vries [18] have summarized—administrative reform, regional rail infrastructure, and the preservation of open space. However, classical aspects, such as spatial planning and land-use management, are often inactive or undervalued at the metropolitan regional level [3,39,40]. Krawchenko noted that fiscal policies, in particular, "are currently considered to be outside the domain of spatial and land-use planning" [2] (p. 12). Lastly, the governance structure includes hierarchy, competition, and joint decision-making [46]. Cross-regional governance structures tend to have less political legitimacy, institutionalization, and decision-making capacity than traditional administrative regions [8,40]. The arbitrariness associated with relatively loose governance networks in regional governance has also led to governance failures (cf. Jessop [47]) in various metropolitan areas.

2.2. The European Metropolitan Region Concept in Germany and Some Remarks

In 1995 and 2005, 11 densely populated metropolitan regions were designed as EMRs by the Conference of Federal and State Ministers for Regional Planning (*Ministerkonferenz für Raumordnung* [MKRO]) in Germany [13]. They are understood as "Motors for social, economic, and cultural development with easy accessibility on a European and international basis and further radiation towards the urban area" [48] (p. 417). The initial goal of the EMR concept was to strengthen the positions of their host countries in international competition, and much attention has thus been paid to their role as growth engines and regional gateways [14,15]. Their achievements in these respects have also earned EMRs recognition as one of the most effective spatial planning policies in Germany [49]. However, the concept attracted academic criticism from the very beginning [15]. On one hand, scholars have directly criticized the over-emphasis of metropolitan regions on competitiveness, efficiency, and austerity [14]. Danielzyk [50] and Waterhout et al. [51] have both pointed out that this entails a risk of the peripheralization of non-metropolitan areas. Their orientation as engines of development, on the other hand, has exacerbated a disregard for classical spatial planning topics, such as settlement management, central-place structure, and open-space preservation [2,52].

With regard to the governance structure, despite a long tradition of cooperation between German cities and their neighboring municipalities [53], the strong local autonomy, territorial fragmentation, and state competition in the federal system has more or less stopped them from developing comprehensive modes of governance [40,52]. After more than 25 years of EMR-making, along with the corresponding state/municipal rescaling, the majority of the EMRs have now formulated identifiable and mainly stable governance structures [42]. Although facing quite comparable problems and the need for action on these, these metropolitan regions have come up with considerably different political and institutional solutions. To classify varying governance structures in the 11 EMRs, Diller and Eichhorn [15], on the basis of Gualini [54], Blatter [55], and Kinieling [16], distinguished between two types of institutionalization—public-law vs. private-law forms [15,56].

As stated in Diller and Eichhorn's work [15] (pp. 17–18), *Region-type I* denotes a governance structure primarily led by a regional organization under private law, whereas *Region-type II* represents the other structure, characterized by organizations governing under public law. Through this approach, disparities among these regions in the participant attributes, chosen instruments, regional planning status, and governance structure were

examined. Based on the current formalization of governance in the 11 EMRs, the four different situations can be further described by several criteria, including the attributes of actors, the integration of formal instruments, variety of cooperation contents and the complexity of their governance structure (Figure 2). The findings are explained in detail in Table 1 and described below.

- Low–Low (LL) Situation: the EMRs in the LL situation are governed by organizations under private law. *Gesellschaft mit beschränkter Haftung (GmbH)*, a form of limited liability company in Germany with uncomplicated stakeholders and foundations (cf. BMWK), was often used to promote specific regional projects in EMRs, such as Central Germany and Hamburg. These entities are commonly active in the economic and social spheres but have failed to integrate formal tools. Therefore, highly fragmented regional plans can easily be observed in these regions. We have attributed this to another possible reason, beyond the historical, through our literature review (Organization for Economic Cooperation and Development, OECD report [57], also see Federwisch [58])—that is, their complicated cross-state territories. Boundaries, even at the state level, are argued to increase the difficulty in formulating public governance bodies and undertaking formal collective actions, regional planning, and land management.
- High–Low (HL) Situation: HL situation contains the EMRs with much simpler cross-state situations than in LL. Although the two groups share some similarities in terms of the type of governing body and the degree of formalization of governance structures, strong and uniform regional planning can only be found in core areas in some cases, such as Northwest, Hanover–Braunschweig–Göttingen–Wolfsburg, Nümberg, Munich, and Rhineland. This again reflects our previous argument concerning the impact of administrative fragmentation, where private-law-based governance bodies in the metropolitan region are more able to implement collective actions within federal states. In those public areas where formal (enforcement) enforcement is required, such as land management, settlement planning, and regional transport [18], the governance model of the HL situation appears to be less involved.
- Low–High (LH) Situation: LH situation contains a cluster of EMRs with practically opposing characteristics (e.g., Ruhr, Berlin–Brandenburg, Frankfurt/Rhine–Main, and Stuttgart) compared to the previous two groups. Dominated by public institutions (such as *Verband*, or joint departments), the private actors rarely participate in governance activities. By contrast, public actors are often activated by integrating formal instruments and contribute substantially to public fields, such as land management, infrastructure construction and open space protection [18]. Even in those EMRs facing challenges with respect to supra-regional governance, such as Berlin–Brandenburg and Rhine–Main, regional governance structures under public law have been shown to have advantages in promoting regional plans, at least in regional cores, and other cross-state cooperation [59].
- High–High (HH) Situation: Diller and Eichhorn [15] (p. 21) explained why the MRN could be justified as a separate situation, HH. Because this polycentric cross-state region is not only the first metropolitan region in Germany to form a direct link with spatial planning [60], but also the first region where important companies (e.g., BASF and SAP) have directly and permanently participated in strategic regional development [15]. Through our follow-up survey, it can be argued that these achievements are partly the result of the unique governmental setting. In Table 1 and the subsequent sections, the term "public–private partnership" is adopted in order to label the attributes of HH situation—the MRN—since associations under public law (*Verband*) and private law (*Verein* and *GmbH*) can be found in this region simultaneously and interactively [15]. Various regional collaborations in socio-economic and other fields also benefit from such a multi-actor governance structure, especially in public good management such as land, open space, and regional transport.

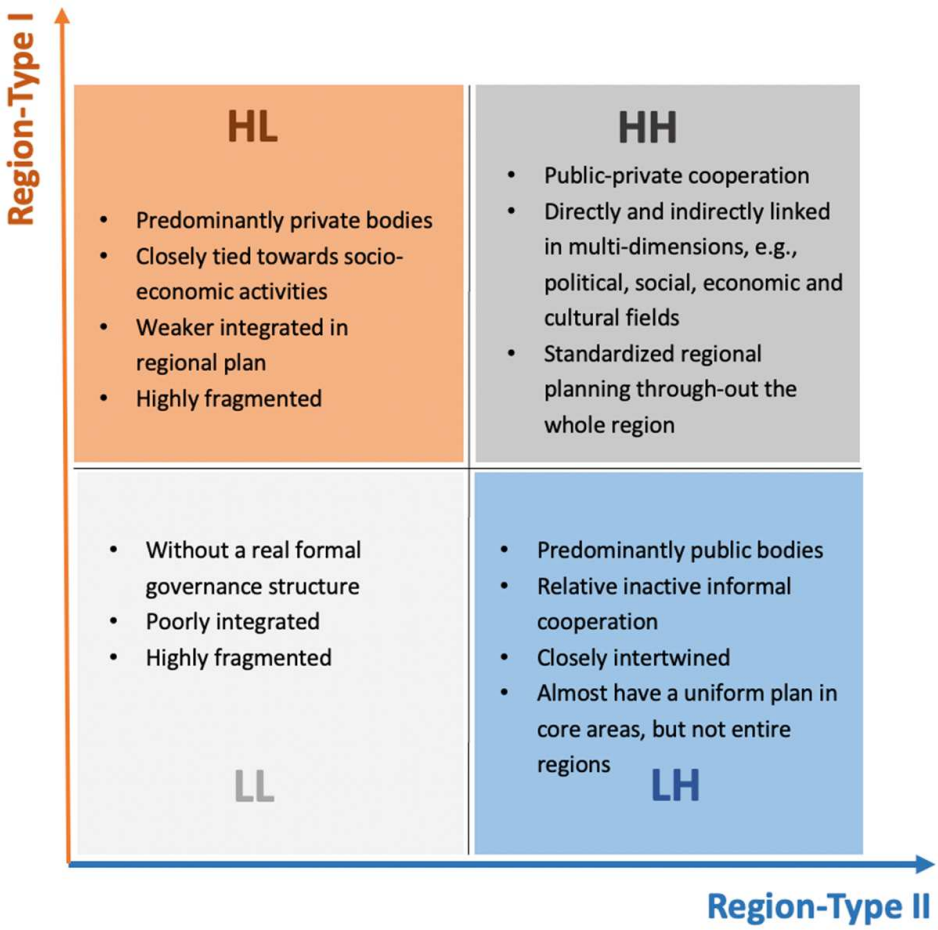


Figure 2. Situations of the governance structure of European Metropolitan Regions (EMRs) in Germany. Source: the authors, based on Diller and Eichhorn [15] (p. 18).

2.3. The Case of the Rhine–Neckar Metropolitan Region

Following the classification in Section 2.2, the Rhine–Neckar Metropolitan Region is the only representative of the unique and mature governance structure—HH situation (see Table 1). Regarding geospatial distribution, the MRN, which situated at the intersection of the three federal states, can also represent one of those administratively fragmented urban agglomerations [58] (p. 50). Despite covering the smallest area (5637 km^2) and carrying the smallest population (about 2.4 million inhabitants in 2019) among all 11 EMRs in Germany, the MRN has become the second most densely populated (at 429 inhabitants/km^2 in 2018), the third most efficient in terms of land output (at 18.18 Mio. Euro pro km^2 in 2019) EMRs in Germany, and with its above-average GDP per person employed achievement (at EUR 2622 above the national level, 2019) (Figure 3). To enhance its strengths and minimize its weaknesses, this smallest EMR has been actively promoting cross-boundaries cooperation. "Together we are stronger" [2] has been regarded as the credo and recipe for their regional cooperation. Therefore, how can such a comprehensive model of metropolitan governance be developed in this polycentric, interstate region despite facing numerous challenges, such as a strong autonomy of local administration, geospatial division, and national competition in the German federal system (cf. [58,61,62])? It is a question that deserves an in-depth analysis.

Table 1. Explanation of the four groups of EMRs in Germany—participant attributes, integration of formal instruments, status of regional planning, and their governance structure.

Formalized Situation	The Attributes of Actors	The Integration of Formal Instrument	The Variety of Cooperation Contents	The Complexity of Governance Structure	EMR Names	Number of Federal States	Is There a Regional Plan?	Type of Governance Association in EMRs (Actor–Structure)			
								GmbH [7]	Verein [8]	Verband [9]	Admin. [10]
LL	A public-led company	•[1] Poorly integrated Highly fragmented	◆[2] Through specific projects	★[3]	Hamburg	4	No	✓			
					Central Germany	3	No	✓			
HL	Predominantly private bodies	•• Slightly integrated Powerful regional planning in some core areas	◆◆◆ Economic, social, and cultural fields, but lacks involvement in public fields	★★	Northwest	2	No		✓		
					Rhineland [4]	1	No		✓		
					Munich	1	No		✓		
					H/BS/GÖ/WOB [6]	1	No	✓	✓		
					Nuremberg	2	No		✓		
LH	Predominantly public bodies	••• Closely intertwined Almost uniform in core areas, but not entire regions	◆◆ Directly managing public goods (e.g., land, transportation, open space) and less attention to market sector.	★★	Ruhr [5]	1	Not entirely			✓	
					Stuttgart	1	Not entirely			✓	
					Berlin–Brandenburg	2	Not exactly				✓ [5]
					Frankfurt/Rhine–Main	3	Not entirely			✓	
HH	Public–private cooperation	•••• Directly linked Standardized regional planning	◆◆◆◆ Economic, social, cultural, and public spheres	★★★	Rhine–Neckar	3	Yes	✓	✓	✓	

[1] •—Degree of integration of formal instruments, when there are more dots, the higher the degree of integration in this EMR. [2] ◆—The variety of cooperation contents, when there are more rhombuses, the more diverse the content of regional cooperation in this EMR. [3] ★—The complexity of governance structure, when there are more stars, the more complex the content of regional cooperation in this EMR. [4,5] In the official MRKO publication, the number of EMRs is 11, but the Rhine–Ruhr Metropolitan Region are separated to two metropolitan regions—Ruhr and Rhineland—and formulate different governance structures in practice, check the official website: https://deutsche-metropolregionen.org/metropolregion/rhein-ruhr/ (accessed on 11 October 2022). So, in this table, we illustrated them separately. [6] H/BS/GÖ/WOB—Hannover–Braunschweig–Göttingen–Wolfsburg EMR. [7] *GmbH*—A form of company under private law in Germany, such as a limited liability company, usually existing in the form of a metropolitan corporation (i.e., a *GmbH*) and often funded by chambers of commerce and municipalities in EMRs and dedicated to promoting regional cooperation projects. The directors of the corporation are usually the leaders of cities or counties in the region. [8] *Verein*—A form of organization under private law. An association based on a (voluntary) cooperative partnership between all members, including from municipalities, and the science, culture, or business communities, generally dedicated to regional negotiations, event organization, and cultural exchange.[9] *Verband*—A form of organization under public law. An independent, representative public-sector body (or part of the public administration) that plays a central role in regional governance, often with functions such as regional planning, project allocation, and location marketing. [10] Admin.—Public administration here means an official department or joint department, such as the Joint Berlin–Brandenburg State Planning Department (Gemeinsame Landesplanungsabteilung Berlin–Brandenburg). Source: the authors, based on Yan et. al. [41] (p. 6), OECD report [57] (pp. 32, 74), Diller and Eichhorn [15] (p. 18), and Evers and de Vries [18] (p. 540).

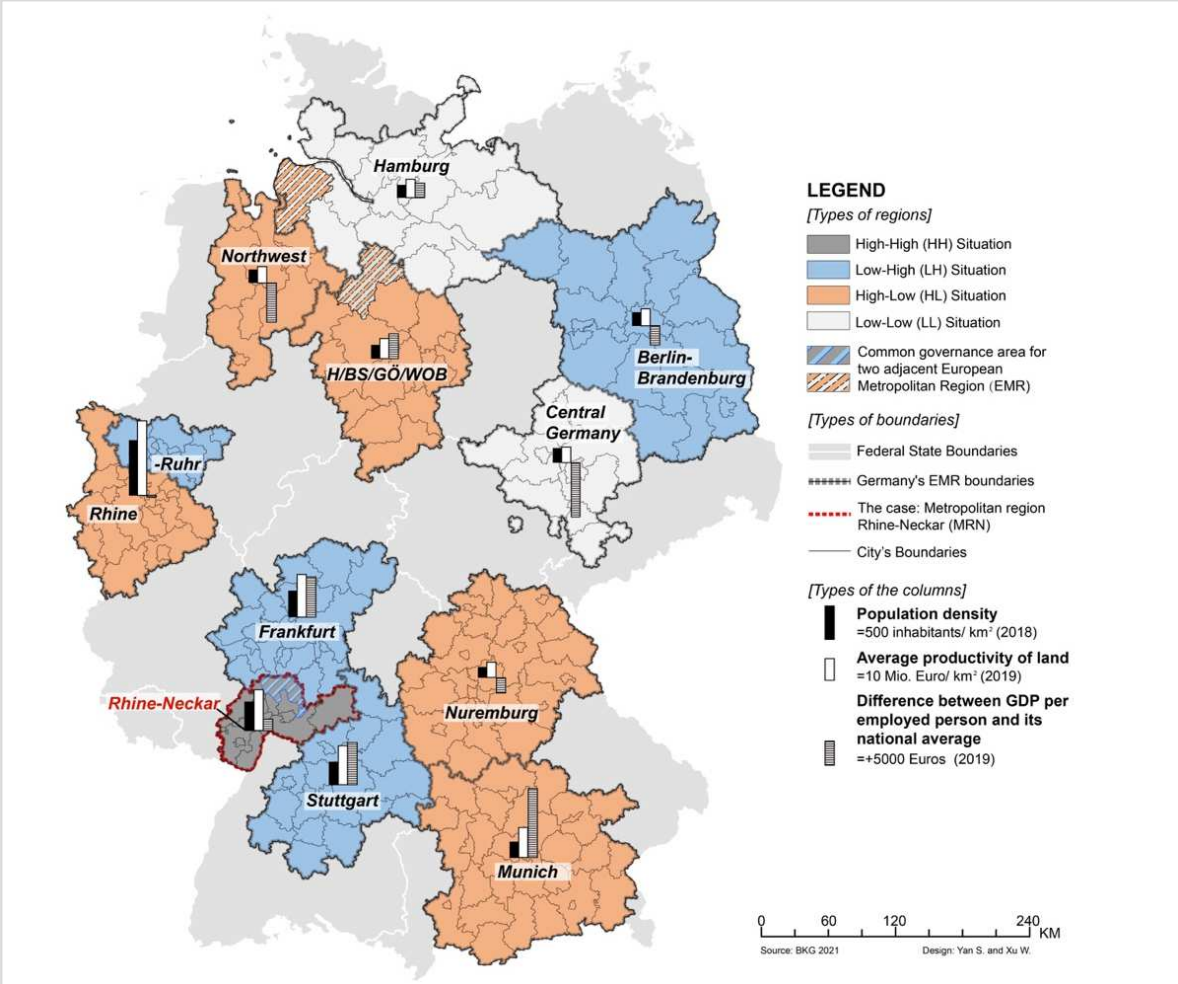


Figure 3. Spatial distribution of four types of governance situations and the comparison of EMRs in Germany. Source: Amended by authors based on GeoBasis-DE/BKG 2021 and 2022 Regional Monitoring of *Initiativkreis Europäische Metropolregionen in Deutschland* (https://deutsche-metropolregionen.org/ (accessed on 11 October 2022)).

However, the detailed cross-boundaries cooperation and planning processes in the MRN have not been well documented and discussed in the English literature, except for Federwisch [58] and a few paragraphs in Lackowaska and Zimmermann [34]. Following the analysis framework, presented here in Section 2.2, this study intended, first, to echo the question, "what and who drives metropolitan reforms?" [14] (p. 17) through an empirical case study and, second, to sharpen our focus on classical collective action, such as regional planning and land-use management, in a particular political setting and regional context.

The Rhine–Neckar region is situated in south-western Germany and spans three states—Baden–Württemberg, Hesse, and Rhineland–Palatinate. It consists of 15 districts (more than 200 municipalities) [34]. Core cities in this region are Mannheim, Heidelberg, and Ludwigshafen (Figure 4).

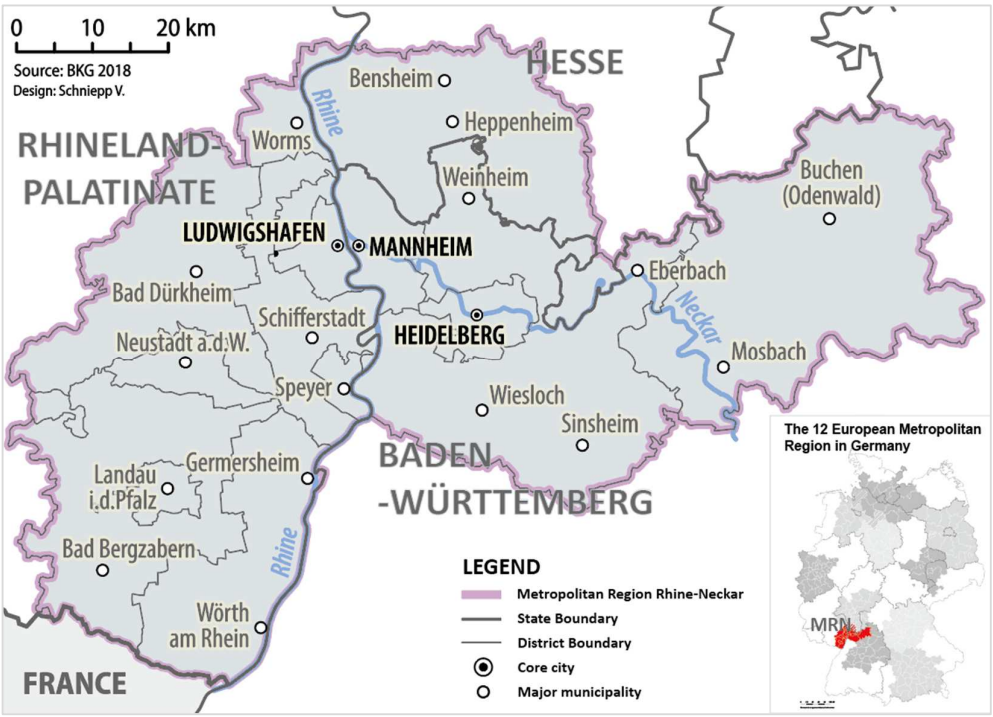


Figure 4. The map of Rhine–Neckar Metropolitan Region. Source: the authors, based on Bundesamt für Kartographie und Geodäsie (BKG) database.

Over a decades-long quest for regional cooperation and planning, the biggest problem that has plagued this polycentric region is its highly unfavorable cross-state condition [34,63]. Based on Schmitz [56], Yan et al., [41] and the interviews, we identified three phases of progress for regional interventions in Rhine-Neckar region (see Figure 5). The earliest attempts at cross-state cooperation in the Rhine–Neckar region date back to the 1950s, when a working group (*Kommunale Arbeitsgemeinschaft Rhein–Neckar*) based on cooperation among core cities, such as Mannheim, Ludwigshafen, Heidelberg, Viernheim, LK Ludwigshafen, and Heidelberg, was set up to promote interregional waste management and public transport in this region [1]. In 1969, the three federal states signed the first State Treaty to collaborate in spatial planning, which then led to the establishment of the regional planning association known as the *Raumordnungsverband* (ROV) *Rhein–Neckar*. However, this agency was not fully authorized because it did not have the autonomy to make and approve regional plans. Scholars therefore refer to this phase of regional planning as a two-stage system [64]. It was not until 2005 that this administrative fragmentation came to an end, with the acknowledgement of the EMR by the MRKO and a cooperative treaty signed jointly by the three neighboring states. Currently, it has achieved the innovation of a three-pillar partnership, the implementation of a unified regional plan, the establishment of a land-use information platform, and a comprehensive governance structure. For this reason, the MRN is also regarded as a pioneer for cooperative federalism in Germany [15,63], and the status quo is known as a single-stage system [64].

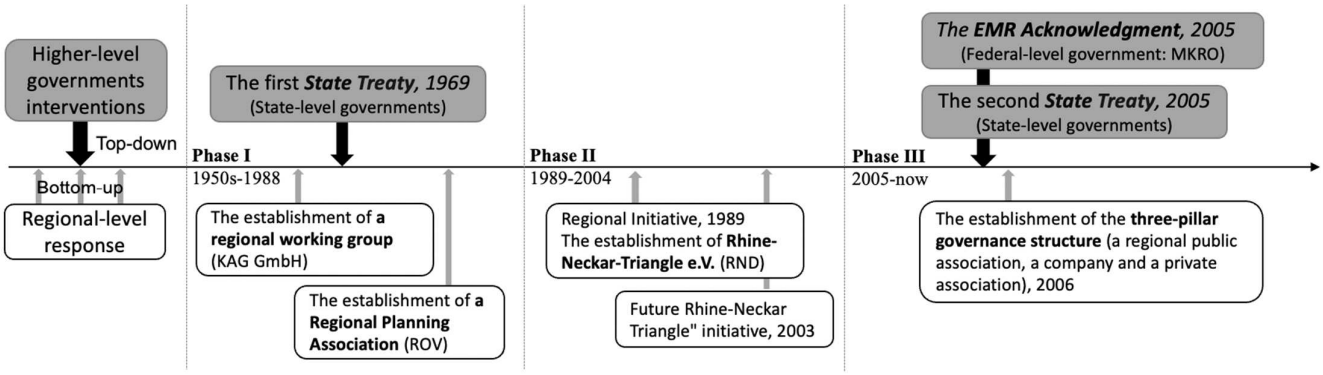


Figure 5. Historical regional interventions in the Rhine–Neckar Metropolitan Region (MRN). Source: the authors.

3. Methods and Data Collection

Two main phases of analysis are conducted in this study, corresponding to respective research methods showing in Figure 6.

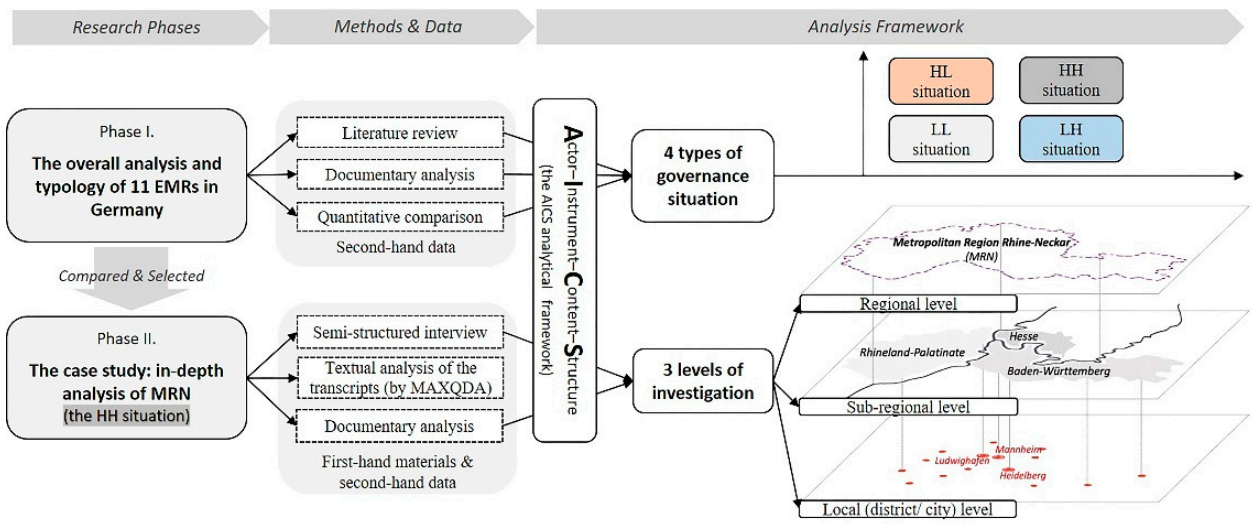


Figure 6. A flow chart of main phases of the research design–method, data and analysis framework). Source: the authors.

- The first step is a documentary analysis and quantitative comparison of all German EMRs based on second-hand data sources. By reviewing the information scattered in the introduction of individual web pages [3] and combing them with the relevant literature, policy document, and reports. Governance actors, instruments, contents, and structural characteristics have been identified in this process. Four existing governance types, LL, HL, LH, and HH were clarified in Section 2.2 and one stand-out case, Rhine–Neckar, was chosen for the in-depth analysis phase.
- To gather detailed information in the empirical study, in-depth semi-structured interviews were carried out with key insiders in the case studies' governance process. Rather than the two well-documented levels of analysis in metropolitan governance (i.e., the regional and local levels), three levels (regional, sub-regional, and local levels) are distinguished here. The interviews and analyses at the sub-regional level were conducted to reflect one of the most important features that shaped Rhine–Neckar—crossing state boundaries.

By approaching three key interviewees from each level of the governing bodies, we conducted interviews between November 2021 and January 2022, one interview on each of

the identified levels (regional, sub-regional, and local level). In particular, the interviewee at the regional level was a senior leader in the regional governance core—the *Verband Region Rhein–Neckar.* The interviewee at the sub-regional level was an experienced specialist responsible for regional planning, the environment, and open space in two of the three sub-regions. The interviewee at the local level worked for a municipal government in the region and was an insider responsible for regional planning and land development in the city. The interviews comprised a mixture of face-to-face and online formats and were conducted jointly by both authors, each lasting a total of 220 min. Because these conversations were audio-recorded and transcribed with the permission of our interviewees, we obtained valuable and solid first-hand information and were able to analyze the textual content using MAXQDA 2022 software [65].

In addition to obtaining primary interview data, secondary data were collected from multiple sources, including, but not limited to, publications, protocols, government documents, press releases, regional plans and, most importantly, internal speech slides authorized by the *Verband Region Rhein–Neckar* for use in this study (cf. [66–69]). Combining these second-hand materials and first-hand data, a review of evidence for the governance process in MRN are presented in the next section.

4. A Review of the Evidence

In light of our four novel criteria—actor (who/what), instrument (by what means), content (what), and structure (how) (i.e., AICS analysis framework)—of governance in the MRN, a way of organizing the interviews, presenting our findings is constructed in this section.

4.1. Actors of Governance: Diversified Participants under the Public Sector's Lead

As introduced in Section 2, the current governance actors in the German metropolitan areas are different. We summarized the main actors and their characteristics and members' composition based on information from the official MRN website and the new State Treaty [66] (see Table 2). In particular, a cluster of participants can be found in the governance of the MRN. In 2005, with the recognition of the MRKO, a new State Treaty, concerning cooperation in spatial planning and further development in the Rhine–Neckar region, was signed by the presidents of three federal states—Baden–Württemberg, Hesse, and Rhineland–Palatinate. Since then, a stable and pluralistic governing body has been established, and the tasks of regional planning, local area marketing, and strategy-making have been mainly redistributed to three institutions—the Rhine–Neckar Regional Association (*Verband Regional Rhein–Neckar* [VVRN], hereafter the *Verband*), the Future MRN Organization (*Verein Zukunft Metropolregion Rhein–Neckar* [ZMRN e.V.], hereafter the *Verein*), and the MRN Company, (*Metropolregion Rhein–Neckar GmbH*, hereafter the *GmbH*)—instead of one.

Table 2. Key actors in governing the MRN and their characteristics and members.

Main Actors	Characteristics	Members
① Rhine–Neckar Regional Association (the *Verband*)	Organization under public law	• Association Assembly—the administrators of the districts and the lord mayors and mayors of those cities with more than 25,000 inhabitants, as well as other representatives • Administrative Board—all mayors, all district councilors, and all lord mayors in the MRN • Association—civil servants and hired planners
② Future MRN (the *Verein*)	Organization under private law	Members from the political, business, educational, and scientific fields (with a board of directors composed of representatives from each field)
③ MRN Company (the *GmbH*)	Public–private cooperation (public-led)	Co-owned by the *Verband*, the *Verein*, and other regional chambers of commerce and the *Fernwärme Rhein—Neckar GmbH* (FRN)

Source: the authors.

Firstly, the *Verband* is the regional representative of the public sector based on public law. Assigned by the new State Treaty (*Staatsvertrag*), the *Verband* inherited and integrated the basic functions of the existing planning associations, such as the regional planning association (*ROV Rhein–Neckar*), established in 1970, and several local planning associations (e.g., the *Regionalverband Rhein–Neckar–Odenwald* and the *Planungsgemeinschaft Rheinpfalz*). Notably, the newly formed *Verband* could independently prepare, review, and publicize statutory plans; that is, a single-stage system was established, and the two-stage system that used to require approval by the federal government's planning department and integration after preparation by local planning groups was ended. The interviews revealed the limitations of the previous regional actor:

> "*There was a predecessor, namely the 'Rhine–Neckar Regional Planning Association' . . . It had its own committee but was only allowed to plan informally . . . That was the starting point I was aiming for*" (Mr. Trinemeier_Regional level, Pos. 5 and Pos. 13).

Therefore, one important contribution of this integration was the scalar leap in regional plan-making powers and the scalar decentralization of planning-approval powers. The formerly scattered, independent public entities were merged into the regional governance association. In addition, the board of the *Verband* includes the main leaders from 15 municipalities in the region, which ensures the equity of regional decision-making benefits in a political–constitutional way because each part (rural and urban) is represented on the board:

> "*With the Association Assembly, with the corresponding committees, with the fact that all District Councilors, all Lord Mayors, are born members . . .* " (Mr. Trinemeier_Regional level, Pos. 25).

Secondly, in contrast to the *Verband*, the private-law-based *Verein* has also evolved into an important player in metropolitan governance. The *Verein* developed out of a regional initiative spearheaded by local entrepreneurial and planning associations in 1989. Its predecessor was a non-profit organization—the Rhine–Neckar-Triangle organization (*Rhine–Neckar-Dreieck e.V., RND e.V.*), which was aimed at strengthening multi-party cooperation and building an integrated cross-state governance model [53,58]. After the *Verein* officially became one of the pillars of the Rhine–Neckar governance group, it adjusted and repositioned its focus on regional strategy development, which not only complemented and cooperated closely with the *Verband*, but also made the MRN the first EMR in which local leading companies (e.g., BASF and SAP) committed themselves to being regional strategy-makers on an ongoing basis. The new *Verein* has brought together more than 750 members and spfrom the business, political, and scientific worlds, allowing for a greater involvement of private actors representing market needs in interregional cooperation:

> "*The board of the association 'Zukunft Metropolregion Rhein–Neckar e.V.' is always a representative of the economy and the deputy chairman is always the chairman of the Rhine–Neckar Association. So there, again, this interlocking of politics and business is deliberate . . . Then represented are the three mayors of the three regional centers... Research and education are represented by the University of Heidelberg. The Chambers of Commerce and Industry are represented . . . Also at the presidential level. Then there are representatives of media, small and medium-sized towns, respectively*" (Mr. Trinemeier_Regional level, Pos. 63).

Last but not least, the *Verband* was authorized in 2005 to set up a regional company—the *GmbH*—a "limited company", which is responsible for the implementation of specific planning projects and regional marketing:

> "*In this State Treaty, we were also given permission to find our own institutions, which is why there is the Metropolregion Rhein–Neckar GmbH. It is also located here in the building, two floors below*" (Mr. Trinemeier_Regional level, Pos. 13).

Clustering in the office space greatly reduced the barriers to communication and exchange between the three bodies. Simultaneously, the concentration of decision-making

power, reflected in the distribution of shares in the *GmbH*, proved that the public sector holds the dominant position at the operational level:

> "*It is 50% owned by the association, the other 50% is distributed among the region's chambers of commerce and industry, the region's chambers of handicrafts, and a small part belongs to the organization 'Zukunft Metropolregion Rhein–Neckar'*" (Mr. Trinemeier_Regional level, Pos. 13).

In this way, the *Verband*, *Verein*, and *GmbH* form the three pillars of Rhine–Neckar's governance and encompass almost all stakeholders in all areas, which creates the conditions for orderly cross-state cooperation. Such a governance model is also known as a public–private partnership, and this diverse governance engagement has a distinctly public-sector-led character. Based on our previous study [41] and interviews, the changes in governance actors of this region are abstracted in Figure 7.

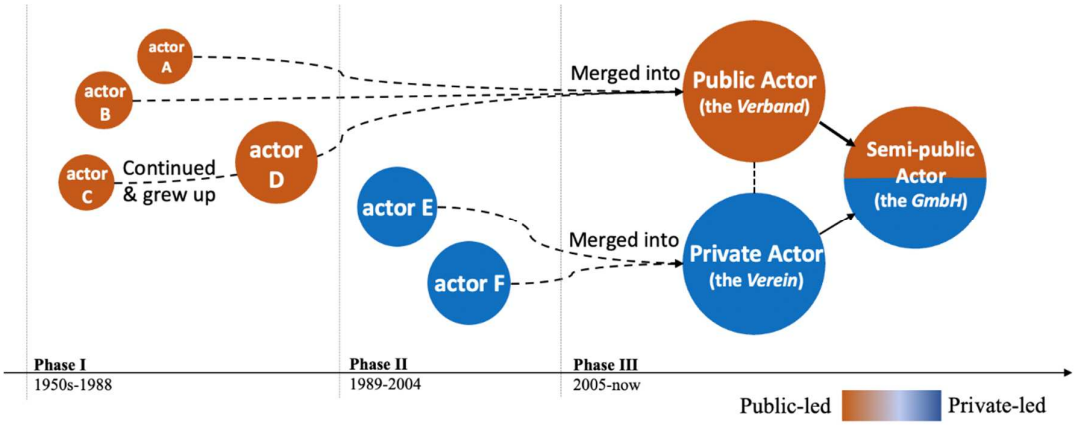


Figure 7. Changes in governance actors in MRN. Source: the authors.

4.2. Instruments of Governance: Combined Formal and Informal Tools Based on the State Treaty

If one traces the cooperation process in the MRN, a variety of formal and informal governance instruments can be found there, such as the establishment of the Working Group in the 1950s, the attempts to collaborate on regional planning in the 1970s, and the launch of the Regional Futures Initiative in 2003 [41]. However, these instruments have not been effectively combined, to the extent that cross-sectoral consultations and collaborative projects have often struggled to move forward. In 2005, official recognition beyond the regional level—the acknowledgment of the EMR by the MKRO—boosted the regional identity and increased the visibility of the MRN in Europe as well as in international society (the *Verband* interview, 2021). Although this recognition has not resulted in additional financial or personnel expenditures directly from the federal government [70], it has raised confidence and interest from the political and economic social levels, which have strengthened its regional competitiveness.

Right after that recognition, the interstate cooperation treaty (Staatsvertrag, [66] (p. 2)) was signed and kicked off with the following statement:

> "*Article 1: All regional policy areas, including regional planning, that extend directly or indirectly beyond the boundaries of one of the contracting States, and all regional development activities shall be carried out in a process of constant collaboration and in line with the interests of neighboring areas*".

The extent of the Rhine–Neckar region referred to here is further clarified in the following text:

> "*1. in Baden-Württemberg the territory of the city districts of Heidelberg and Mannheim, the Rhine-Neckar district and the Neckar-Odenwald district, 2. in Hesse the territory of the Bergstrasse district, 3. in Rhineland-Palatinate the territory of the independent cities of Frankenthal, Landau, Ludwigshafen am Rhein, Neustadt an der Weinstrasse,*

Speyer and Worms and the districts of Bad Dürkheim, Germersheim, Rhein-Pfalz district and Südliche Weinstrasse". These provide a legal basis for subsequent regional cooperation and planning led by the public-law-based regional association, the Verband [4].

Over the last decade or so, two major toolkits were developed in the MRN, which are abstracted in Figure 8 from previous studies [41,53]. First, the administrative and legal instruments were combined to form a significant formal tool in transregional governance—a unified regional plan [41]. In 2004, the standardized Rhine–Neckar regional plan (*Einheitliche Regionalplan* [ERP] *Rhein–Neckar*), prepared by the *Verband*, was officially implemented. This was the first statutory regional plan in the EMR to cover the entire area. Simultaneously, this version of the plan also released several (sub-)regional plans from legal effect, so as to avoid ambiguities arising from the parallelism and overlapping of multiple plans after the unification. This also helped to ensure the consistency and binding nature of the ERP.

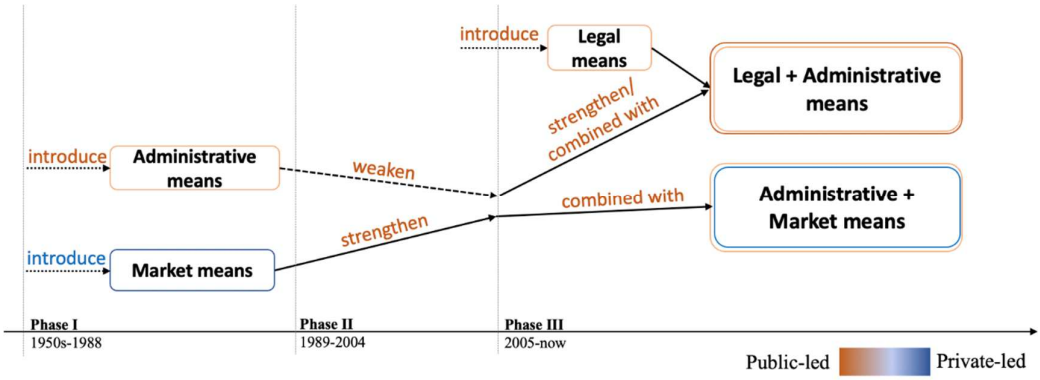
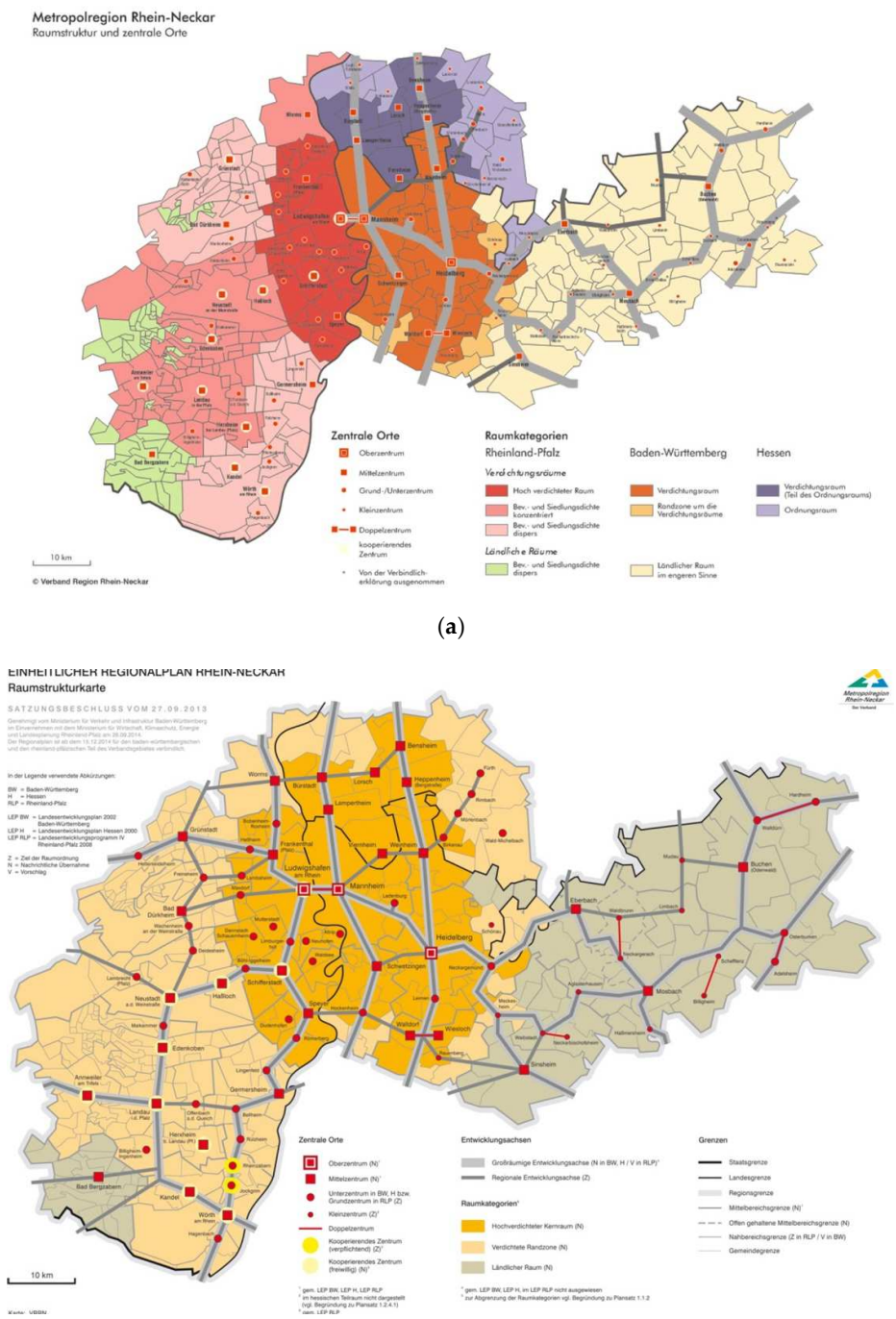


Figure 8. Changes of governance instruments in the MRN. Source: the authors.

Figure 9 [5] shows two maps of spatial structure before and after in different regional planning system in MRN: (a) presents the clear variation in planning styles between three sub-regions during the two-stage planning system before 2005, for example, in the Rhineland–Palatinate part, which does not show a clear central place system (red dots) and settlement axes (thick grey lines) such as those existing within the other two sub-regions. In the structural planning map (b) of the 2014 ERP, such differences are almost eliminated, and at least from the map, a more unified and balanced regional spatial structure can be detected. the central land system and development axes covering the whole region are legally binding. However, since the planning regulations, mapping methods, and approval procedures in the three states were very different, the sub-regions had to negotiate repeatedly for the sake of equity and common benefit:

" . . . *it was difficult enough, the consolidation of the different planning systems, the different planning instruments, and the different planning statuses...*" (Mr. T_Regional level, Pos. 67 and Pos. 68).



(**a**)

(**b**)

Figure 9. (**a**) the old spatial structure and central places map of MRN before 2014; (**b**) the new spatial structure map of MRN in the standardized Rhine-Neckar regional plan since 2014. Source: *Verband Region Rhein-Neckar*.

Therefore, three main tasks were concluded in the unification process. Firstly, a coordination of the different legal requirements in the federal states, secondly, a standardization of new and existing planning processes, and, thirdly, a harmonization of the different planning philosophies across state borders. Our interviewee from the regional level also shared with us an unavoidable "innovation" during the negotiation process. To facilitate this standardized version of the regional plan, the officials in Stuttgart, the capital of Baden–Württemberg, had to review the regional plan in light of the planning laws in Rhineland–Palatinate, so as to gain legal recognition on both sides. Now, in one district in

the Hesse part (the *Bergstrasse* in the north), the *Verband* still has no planning competences, only the right to make proposals. The *Verband* is currently consulting with stakeholders, such as the South Hesse Regional Council, on further statutory planning rights. Complaints about the planning negotiations was also noted in the interviews with the sub-regional planning director:

> " . . . *I notice a bit that there's a huge gap in it . . . that is, three different sub-areas, three methods*" (Mr. P_Sub-regional level, Pos. 19).

Second, the combination of administrative instruments and the market has resulted in an informal tool for cross-territorial governance—the public–private partnership project (also see Figure 8). On one hand, a semi-public and semi-private development company will take the lead in the development and operation of regional projects, while, on the other hand, local resources, such as higher education and research, are used to promote the concentration of related industries and investments in the region. Currently, the MRN is home to several leading international companies, as well as innovation and entrepreneurship parks, such as the Mannheim Technology Park and, the Heidelberg Technology Park as well as the Heidelberg Sino–German Technology Park. However, the autonomy and involvement of private subjects has also been questioned due to the current plethora of public roles and administrative interventions, especially at the local level:

> "*My field, in the sense of cross-border cooperation, is a bit limited. My impression is that the topics are mostly dealt with only through formal channels and less through informal working groups and contacts*" (Mr. S_City-level, Pos. 6).

4.3. Contents of Governance: Collaborative Attempts in Multiple Fields, Regional Land Monitoring and Revitalization Has been Strengthened and Promoted

In contrast to the specialized regional cooperation in the public sphere (e.g., interregional waste management and public transport) that took place in Rhine-Neckar in the 1950s, the content of intraregional work has been significantly expanded and subdivided into three main actors since 2005. The *Verband*, as the core of governance, plays a role primarily in public affairs. It has also taken on the most important and mandatory task—the development of regional planning. In the ERP, three components have been planned, i.e., regional spatial and settlement structure, regional open space structure/protection of natural resources, and regional infrastructure [67]. More extensive content (e.g., ecology, wind energy and land management, etc.) is proposed by the *Verband* through reports, model projects, platforms, or other forms (according to the interview in November 2021). The *Verein* is involved in broad rather than specific areas of regional strategy development, most importantly by using its diverse membership structure to create a platform for strategic dialogue. By hosting annual galas, conferences, or even pandemic-adapted online talks, the *Verein* promotes venues and sponsorship for connections and cooperation between business, science, politics, and administration. Finally, as a vehicle for project implementation and operation, the MRN company is active in a wide variety of fields, mainly in areas such as leisure, culture, and sports facilities, and supporting research and innovation networks (see Table 3). In addition, there is a tendency for increased overlap and diversification of collective (joint public and private) actions within the MRN, especially in the fields of regional location marketing, tourism and cultural activities (see Figure 10).

Table 3. Objectives and functions of the main actors in MRN governance.

Main Actors	Overall Roles	Objectives and Detailed Functions
① Rhine–Neckar Regional Association (the *Verband*)	Organizational core	• Formulating regional public policies and regional planning (mandatory tasks) • Providing sponsorship or coordination tasks for regional events (e.g., culture, sports, conferences) or specific sectors (e.g., tourism, transportation)
② Future MRN (the *Verein*)	Platform for strategic dialogue	• Building a strong, attractive, and self-confident region • Proposing strategies for regional development and sponsoring projects and events • Discovering and using their diverse potential
③ MRN Company (the *GmbH*)	Vehicle for project implementation and operation	• Active in areas such as leisure, culture, and sports facilities, and • Supporting research and innovation networks

Source: Authors' own summary from the official MRN website.

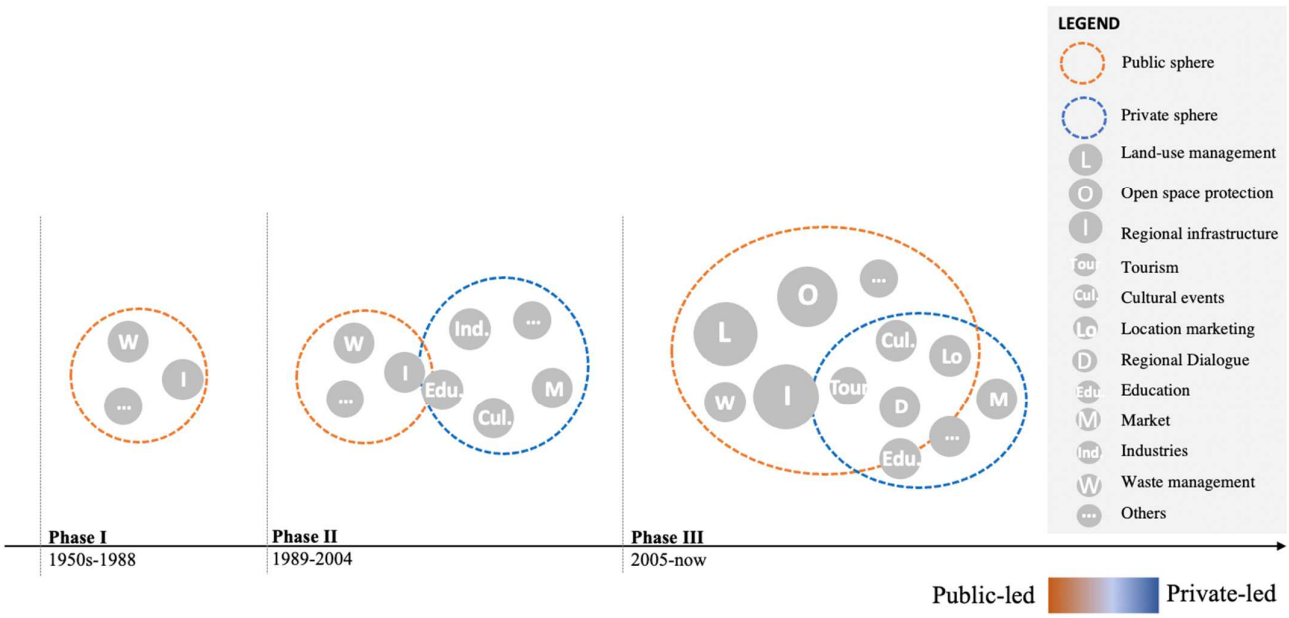


Figure 10. Changes of governance contents in the MRN. Source: the authors.

It is worth mentioning that among the various regional collective actions, the classic issue of land use management has not been neglected in the MRN. On the contrary, the public sector has been actively trying and promoting regional initiatives in this regard, even seeking to collaborate beyond the regional level. For the preparation of the ERP, especially the Chapter 1, regional spatial and settlement structure, the internal development potentials started from the close cooperation within the municipalities in Baden-Württemberg part of the metropolitan region. It was "quantitatively determined and qualitatively assessed in 2007 as a part of Raum + model project" [69] (p. 49). In 2008/2009, the MRN, with the support of the three federal states, compiled an overview of the existing inner development potential in the transnational metropolitan region:

> "*We have also undertaken joint projects, for example . . . 'RAUM+'. In all parts of Baden-Württemberg, Rhineland-Palatinate and Hesse, we looked at where there is still potential for building land in the inner areas*" (Mr. P_Sub-regional level, Pos. 15).

Inspired by the initial positive experience in MRN, more states, cities and planning communities joined the project afterwards. First in Rhineland–Palatinate, Raum + MONITOR database was introduced state-wide for residential demand calculation. More functions have been explored and expanded at the request of many municipalities to create a building register in addition to the pure land potential survey, e.g., to assess the vacancy problem [71].

In addition to the regulation of land resources, another land revitalization project, namely "Raum + AKTIV" has been initiated by the *Verband*. In this project, the economic use of scarce resources, "land" is regarded as a central element of sustainable spatial development. Therefore, curbing land consumption while promoting internal development is particularly emphasized in the MRN [68]. Therefore, the Raum+ project, and in particular the Raum + AKTIV model project, provides municipalities with targeted information and tools to actively support and implement internal development. With the promotion and support of the state governments of Baden-Württemberg, Hesse and Rhineland–Palatinate, more than 2400 sites with inherent development potential have been identified in the first step of the "Raum + AKITIV" project within the pan-Rhine–Neckar metropolitan area, including the MRN, the Middle Upper Rhine region and the Northern Black Forest region, covering an area of 2890 hectares in total. It means that a large amount of potential land can be supplied for the future development of settlements without taking up additional open space. Based on specific areas and possible use concepts, nine municipalities, including Böchigen, Buchen and Durmersheim, have been selected as model municipalities for activating land potential, which are also co-financed by the three federal states and involved different levels of participation. [68].

Thus, a soft rather than rigid approach of promoting a common development ideology or selecting model sites is being applied at the regional land-use management level. For many years, the Associations involved in the "Raum+" project have been committed to the principle of "internal development before external development (*Innenentwicklung vor Außenentwicklung*)" as a regional planning objective [68] (p. 13). This is also a concept that was emphasized by our interviewees during the interviews, for example:

> "*The City of Mannheim has always been very consistent in its focus on internal development since the model spatial planning*" (Mr. S_City/District-level, Pos. 48).

The MRN has also applied such an approach to projects such as wind energy and smart parking. Successful practices in specific areas can even attract new regions and actors to join the collaboration, creating a "demonstration effect" (based on interviews with subregional representatives, 2022). In contrast, however, there are issues related to the open space sector, where the establishment of rigid and uniform regulations is considered necessary. For example, the three neighboring states have different forestry or agricultural development goals in their regional plans. A statutory and standardized regional plan is important for open space protection and coordination of development goals within cross-border areas, since there exist not the same "artificial borders" in our natural system.

> " . . . *another thing you notice about new territorial allocations and new tasks through this unified regional plan: you have to find a solution for each other. We have to offer some kind of solution, because we realize that the areas are so close to each other and must not fall apart just because the planning system is different.*" (Mr. P_Sub-regional level, Pos. 17).

4.4. Structure of Governance: A Flattened and Networked Governance Framework

Along with the diversification of the governing bodies and the means of governance, the governance structure of the Rhine–Neckar region changed accordingly. Based on our interviews and previous studies [41,53], we abstracted these changes as Figure 11. From

the 1950s to the end of the 1980s, the Rhine–Neckar Planning Association was only an "intermediate body", sent by the three state governments to coordinate regional affairs, but having no right to prepare and review regional plans on its own. After 1989, enterprises, universities, and research institutes promoted a series of interregional investment and financing projects by forming non-profit organizations. In the meantime, there was only limited cooperation between the private sector and the government in specific areas, and even competition for the right to speak. In 2005, the governance structure in the MRN was reorganized to create the current networked joint decision-making system. Together, in a forward-looking manner, representatives and decision-makers from municipalities, institutions, and companies meet here. They initiate plans and projects with the aim of making the region more attractive, livable, and economically even stronger.

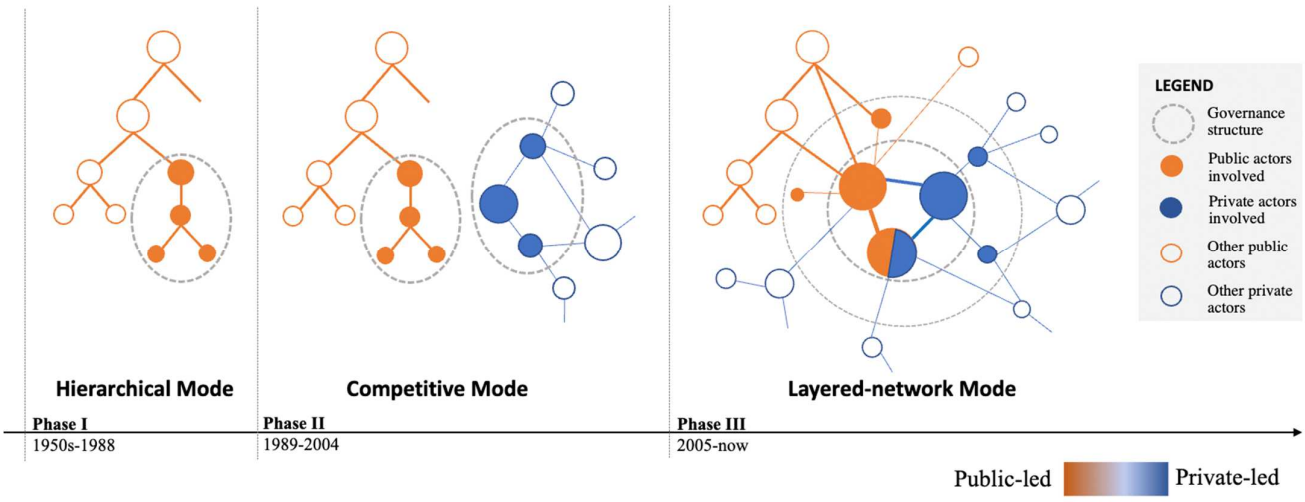


Figure 11. Changes of governance structures in the MRN. Source: the authors.

The horizontal and vertical embedding of rights' holders has changed. In terms of vertical reorganization, the three federal states have transferred some of their financial and administrative powers within the MRN, simplifying the vertical structure of cross-regional governance. In particular, the centralization of planning and approval powers has realized the vertical transmission of plans, policies, and major projects. In addition, the *Verband* directly represents the region in regional development programs at the European level. It has not only established a "European department" that is in regular contact with the European Commission and its representatives but has also launched a major EU cross-border cooperation project (Interreg CODE24). In 2015, it became the home of the first European grouping of territorial cooperation in Germany. In terms of horizontal power interactions, the MRN has innovatively adopted a "strategic-operative" two-tier governance network to coordinate joint decision-making between multiple actors. At the strategic level, the Future MRN (the Verein) is at the core of the network, which unites other associations and alliances in the region to create a long-term platform for strategic dialogue in the context of local policies, reducing government regulations, promoting friendly competition in economic development, and giving full play to the initiatives of the private sector. However, the pursuit of a balancing model at the regional level has been argued as producing inefficient decision-making processes and outcomes:

> "*A balancing model that the regional association follows . . . sometimes the whole thing is not so effective*" (Mr. S_City-level, Pos. 20).

and

> "*It is indeed... daily work to convince people that what is good for the core area is also good for the rural area and vice versa . . . So, the debate has to be permanent*" (Mr. T_Regional level, Pos. 23 and Pos. 25).

At the operational level, the Executive Representative is the Development Consortium Office (of the Verband), which coordinates and develops the Regional Plan, while considering local demands, and the Office of the Future MRN (*the Verein*), which focuses on communicating the Regional Plan from the Future MRN Board of Directors. The former coordinates and formulates the Regional Plan, while the latter focuses on communicating the regional development proposals of the Board of Directors and assigns the regional projects to the MRN company (the *GmbH*), which promotes, implements, and operates the specific tasks.

5. Conclusions and Discussion

Recently, more potential of the metropolitan scale—and indeed metropolitan bodies—in enhancing collaboration and effectiveness has been realized [3]. Drawing on the overview of EMR governance structure in Germany, the actors, instruments, content, and institutional structures of metropolitan governance have similarities in their governance dilemmas, including, but not limited to, administrative fragmentation, urban–rural disparities, and internal competition. From the case of Rhine–Neckar, a summary can be drawn that it has attracted diverse and active governance participants through a cross-state treaty. With the intervention of higher-level governments (federal states in the MRN case), administrative, legal, and market instruments have been combined to form two important (formal and informal) toolkits. Although this process took numerous debates and compromises, a standardized regional plan and other subsequent collective actions have been achieved. More importantly, it has formed a flattened, networked, and even growing governance structure since 2005. The core of the private–public structure, with its three pillars, is playing an essential role in shaping a more competitive and attractive Rhine–Neckar.

"Together, we are stronger" is both the motto of the alliance for the MRN and its recipe for success (the MRN website). However, it was not our goal, in this work, to portray Rhine–Neckar as an absolute one-size-fits-all (cf. [72]) success case, as this is unrealistic. First of all, each metropolitan area has different governance advantages and historical planning backgrounds, so that is why Diller and Eichhorn argued that, "it would be short-sighted to recommend the Rhine–Neckar Metropolitan Region in particular as a best practice of successful integration in the sense of an easy-to-copy model for other metropolitan regions" [15] (p. 21). Second, even with a supposedly well-established governance structure, Rhine–Neckar has been criticized for having an inadequate participation of private agents, an excessive pursuit of regional balance, and inefficient governance consultations.

Our main targets in, and contributions to, this work included an in-depth analysis of the details of a case of metropolitan governance, following the logical AICS framework, in order to present the achievements and problems. This analysis has allowed us to obtain a more comprehensive and structured understanding of the complex issue of metropolitan governance through empirical cases, while bringing to light several reflections: (1) the role of high-level government in complex regional governance issues, especially in promoting the legislative setting of governance bodies; (2) the irreplaceability of the public sector (associations based on public law in our case) in carrying out classical planning tasks; (3) the role of regional planning in shaping the region as a whole and enhancing regional cohesion, which is echoing "a demand for spatial planning" (cf. Waterhout et al. [51]) even in the neoliberal era; and (4) the contribution of land-use management to regional growth control and the urban–rural balance. Rhine–Neckar facilitated the land-information-sharing platform at an even large scale—the supra-regional level—where statutory regional planning is often hard to proceed.

Using the example of the Rhine–Neckar region, it could be shown that a systematic understanding of governance structures can be gained with the help of the AICS framework. Abstracting from the case study, it becomes clear that the functioning of governance structures in cross-border regions depends above all on the willingness of actors from different backgrounds to cooperate. In cross-border regions with a similar cultural background or a

common historical heritage, this willingness is easier to establish than in regions with very different cultural references [11].

Another aspect that can positively influence the willingness to cooperate is the expectation that the creation of a cross-border regional governance structure will bring about economic added value for regional development. This can go beyond direct support of investments and jobs and also include the development of a positive image and the creation of a supra-regionally known location.

The other aspects of the AICS framework, such as the modification and adaptation of instruments, the development of common content and a further development of governance structures, must be jointly negotiated and created by the actors involved. The actors involved must devote time and energy to creating the adaptation of all aspects of the AICS framework. Notably, although a four-dimension analytical framework has been used in this paper, it does not imply that every metropolitan region, once established or reorganized, must develop and cooperate in parallel with all parts. The easiest and first part should be the involvement of diverse actors in metropolitan governance. Greater emphasis needs to be placed on the strengths of the public sector in promoting formalized tools such as regional planning, as well as particular fields such as regional resource allocation and management. In particular, the adaptation of legal instruments requires special effort, as laws and contracts may have to be implemented at higher administrative levels, as in the case of the Rhine–Neckar region.

Notwithstanding, these reflections are hard to be fully explained by the single case of Rhine–Neckar. Therefore, a call for more relevant studies on the governance structure of metropolitan regions using the AICS analytical framework is also addressed here.

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Conflicts of Interest: The authors declare no conflict of interest.

Notes

1 In German planning and policy documents, metropolitan regions are referred to as European Metropolitan Regions (EMR). The term "European Metropolitan Regions" emphasizes that the agglomerations have a European significance—similar to the term "global cities", which focuses on the global significance of certain cities. Even though there is no EU definition of European Metropolitan Regions for the whole of Europe, the term European Metropolitan Regions and the associated abbreviation EMR are used in this article to correctly reflect the term used in German spatial policy. This is a note example.

2 See the official website of the Metropolitan region Rhine Neckar: https://www.m-r-n.com/ (accessed on 11 October 2022)

3 Relevant web pages: 1. https://deutsche-metropolregionen.org/ (accessed on 11 October 2022); 2. https://gl.berlin-brandenburg.de/ (accessed on 11 October 2022); 3. https://www.region-frankfurt.de/ (accessed on 11 October 2022); 4. https://metropolregion.hamburg.de/ (accessed on 11 October 2022); 5. https://metropolregion.de/ (accessed on 11 October 2022); 6. https://www.mitteldeutschland.com/de/metropolregion-mitteldeutschland/ (accessed on 11 October 2022); 7. https://www.metropolregion-muenchen.eu/ (accessed on 11 October 2022); 8. https://www.metropolregion-nordwest.de/ (accessed on 11 October 2022); 9. https://www.metropolregionnuernberg.de/ (accessed on 11 October 2022); 10. https://www.m-r-n.com/ (accessed on 11 October 2022); 11. https://metropolregion-rheinland.de/ (accessed on 11 October 2022); 12. https://www.rvr.ruhr/ (accessed on 11 October 2022); 13. https://www.region-stuttgart.org/ (accessed on 11 October 2022)

[4] The Law on Municipal Cooperation of Baden–Württemberg of September 16, 1974 (GBI. p. 408, ber. 1975, p. 460, 1976, p. 408), as last amended by the Law of December 14, 2004 (GBI. p. 884), shall apply mutatis mutandis to the Association, with the exception of its Section 13, Paragraph 2, Sentence 3 and Paragraph 5, insofar as this Agreement or the Association's Articles of Association do not contain any provisions [66] (p. 2)

[5] The specific details of the legends in the two maps are not relevant to the analysis. The focus of the comparison between the two maps is to present how the location of central places (red dots) and settlement axes (gray lines, axes in agglomerations formed by a close succession of settlements along the routes of existing or planned public-transport services) have changed in the two versions of regional plans.

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