Research Concept – Medium-term research priorities for 2026-2028

1. Introduction

The starting point for this research framework is the ARL's working method, which is based on collaboration between the Academy's elected members and other contributors from academia and professional practice. The ARL Headquarters provides expert guidance for this work, offers organisational support and ensures that appropriate structures, procedures and formats are in place on an ongoing basis, so that original insights into issues of spatial development can be generated.

As a regular update to the 2023–2028 research concept 'Spatial Transformation in Times of Multiple Crises', this document sets out the key areas of focus for collaboration in the years 2026–2028 and updates the medium-term research priorities. The specific research questions are defined by members and contributors within the framework of the Academy model in the spirit of co-design; knowledge production takes place in the ARL's working groups and forums.

Since 2023, the ARL's thematic priorities have been organised into four research areas:

- Research Area I: Society and Economy in Transition
- Research Area II: Conservation and Use of Natural Resources, Energy Transition
- Research Area III: Theories and Practice of Spatial Planning
- Research Area IV: Reflection on Spatial Research and Spatial Development

Across these four research areas, the research concept provides a framework for addressing the spatially significant interplay of various processes and phenomena, such as climate change, the energy transition, socio-spatial inequality and advancing digitalisation. In doing so, the ARL focuses on existing and emerging spatial impacts that increase pressure on limited land resources and call for policy and planning responses. The thematic priorities within the three content-oriented research areas demonstrate that issues of land use and competition for land are of paramount relevance and urgency. This is not surprising insofar as spatial planning, by definition, deals with the distribution, use and regulation of the limited resource of space. Whether the focus is on processes of transformation in society and the economy, the protection and use of natural resources, or the further development of planning theory and practice – the negotiation of competing claims on land is always at the centre. The land use issue in the context of transformation thus serves as a unifying analytical element of the entire research framework: it highlights the need to reconcile political objectives, ecological limits and societal needs, and reveals that virtually all spatially significant developments converge on conflicts over scarcity, prioritisation and distribution.

The update to the research concept takes account of the ARL's ongoing development in terms of content. The aim is to ensure the generation of relevant, original knowledge within the defined research areas, whilst also providing guidance for future research topics. A key change during the term of the previous research concept is the introduction of 'missions', which serve to strategically focus and consolidate the ARL's activities. Missions enable greater control over the content of the network-based working methods, for example by calling for collaboration on current topics. Furthermore, activities are to be consolidated under the umbrella of missions, and synergies are to be established between the research areas and across various working and transfer formats.

2. How the ARL operates

The ARL's substantive work is carried out primarily by its volunteer members and contributors, whose diversity and plurality of perspectives represent both an asset and a responsibility for the ARL. Content-wise and organisationally, the work is supported by the full-time Headquarters. As the elected representatives of the Academy's members, four honorary members of the Executive Committee, together with the full-time Secretary General, direct the Academy's substantive work and strategic direction and represent it externally. The Headquarters provides professional support for the network's day-to-day work, acts as a source of academic inspiration, and serves as a service and infrastructure provider. The Headquarters is headed by the Secretary General.

The ARL operates at the interface between academia, planning practice and public administration, focusing on fundamental issues of spatial development and spatial planning – fields in which key societal challenges converge in concrete and often contentious ways. With its application- and problem-oriented questions, the ARL addresses various political and administrative levels: from the international, European and national levels, through federal states and regions, to cities and municipalities. In doing so, it is guided by the principles of sustainable spatial development (in accordance with section 1(2) of the German Spatial Planning Act) and sustainable urban development (in accordance with section 1(5) of the German Building code)), to which planning practice is bound. In its research on spatial development, it inevitably addresses normative questions, as spatial arrangements, uses and directions of development are always linked to value judgements. At the same time, they are embedded within a network of legal objectives – for example, in the Spatial Planning Act, in climate protection and energy legislation, in building and planning law, and in relevant EU strategies and regulations (e.g. on climate and biodiversity policy, cohesion policy and transport policy). These frameworks articulate political principles such as public services, equal living conditions, climate neutrality or resilience, and thereby shape what is considered 'desirable' or 'undesirable' spatial development. Research on spatial development must therefore explicitly take these normative and legal frameworks into account: they shape problem definitions, goal conflicts, and governance options, and are essential for adequately analysing and evaluating the societal impacts of spatially related decisions. In its approach, the ARL relies on the co-production of knowledge through collaboration between different academic disciplines and practitioners in working groups and forums. This generates original knowledge, even without conducting its own empirical research. This original knowledge is derived from the systematic synthesis and reflection on different types of knowledge. In particular, it includes:

1. Synthesised and reference knowledge, which arises from the structured processing, contextualisation and consolidation of existing empirical findings and spatial developments and serves as a shared basis for orientation.
2. Discursive expert knowledge, which is generated through the inter- and transdisciplinary examination of different areas of expertise and leads to conceptual clarifications, new problem formulations and theoretical-analytical developments.
3. Practical knowledge, which arises through exchange with experts from planning practice and administration and aims to address real spatial challenges and jointly develop actionable solutions.

In this way, the formats – even without collecting their own data – make an independent contribution to knowledge: by generating new synthesised knowledge that goes beyond the sum of the individual perspectives contributed, they strengthen the ARL in its role as a scientific academy.

The ARL's substantive work takes place in three different formats:

- **Working groups**: These include national and international working groups, ad hoc working groups, and working groups within the regional ARL forums.
- **ARL forums**: The ARL forums include the regional and specialist ARL forums.
- **Transfer formats**: The transfer formats include online, audio and video formats, as well as various event formats.

The formats are established by the Executive Committee upon application from members of the Academy and active contributors who apply through a transparent, competitive and quality-assured process, either within the scope of the advertised mission or with a topic independent of it, provided it is consistent with the research concept. The submitted applications are assessed by an evaluation committee established in 2025, which formulates a recommendation for a decision to the Executive Committee based on pre-defined criteria.

Mission-oriented research

The concept of 'thematic clusters' set out in the Future Concept and the Research Concept 2023–2028 has been further developed into *missions* in order to enable greater control over research content. *Missions* complement the ARL's existing working methods. In keeping with the self-organisation typical of an academy, these methods are primarily geared towards identifying key topics within research areas, on which members and contributors can submit proposals for working groups and knowledge transfer formats. The aim of the missions is to provide substantive impetus for the Academy's activities, to be able to respond appropriately to relevant socio-political developments and, at the same time, achieve greater visibility, resonance and impact within the scientific community and in policy-making practice.

Through these missions, the ARL is creating a tool that enables working groups and knowledge transfer initiatives to be specifically tailored to pressing societal challenges, with a view to shaping spatial transformation in a knowledge-based manner. In addition, working groups and knowledge transfer initiatives can still be launched within the framework of existing research areas. Overall, the ARL thus contributes to the development of sustainable, resilient and equitable solutions.

Missions are formally assigned to one of the four research areas; however, in terms of content, they are oriented toward cross-cutting topics with high scientific and practical relevance, thereby strengthening the connections between the research areas.

In 2025 and 2026, the initial focus will be on the missions 'Promoting sustainable, resilient and equitable water management' and 'Planning sustainable infrastructures'.

3. Key Research Areas (detailed plans up to 2028)

The key research areas, which were defined for the period 2023–2028 and updated in 2025, address current, original topics at the interface between academia and practice. They are embedded in current academic discourse and contribute to its further development. The research priorities structure the ARL's activities and thus provide, amongst other things, the basis for establishing new or discontinuing existing working formats.

The four research areas, described in detail in the Research Concept 2023–2028 (Society and Economy in Transition, Protection and Use of Natural Resources, Energy Transitions, Theories and Practice of Spatial Planning, and Reflection on Spatial Research and Spatial Development), form the basis for the thematic focus of the work in the working groups and ARL forums, as well as in knowledge transfer formats.

The following outlines the medium-term research planning across the four research areas. Within these areas, thematic corridors are deliberately defined to provide a framework for content whilst ensuring openness to ideas from the academic community and the network.

3.1. Research Area I: Society and Economy in Transition

Overlook

Thematic focus
Until 2028, the working and knowledge transfer formats in Research Area I will focus primarily on social and economic issues from a spatial perspective. At the operational level, approaches for sustainable, resilient and socially just spatial transformation will be developed.

Key themes until 2028
1. Public health in spatial planning
2. Sustainable transport infrastructure in the context of the mobility transition
3. The economy in spatial transformation

Contribution of the research area to sustainable spatial development
The activities aim to address issues relating to public services, socially just spatial structures and sustainable economic practices. These include the creation of healthy living conditions, access to infrastructure, social participation and the creation of sustainable mobility systems.

Thematic focus and activities since 2023

Research Area I focuses on current spatial challenges facing society and the economy in the context of social cohesion and socio-spatial justice. Since 2023, the following key areas have emerged: public health in spatial planning, sustainable transport infrastructure in the context of the mobility transition, and the economy in spatial transformation. These thematic areas are to be further developed and explored in greater depth. Compared to the 2023–2028 Research Concept, the central theme with an economic focus has also been renamed as part of its further development. The themes additionally designated as central in the 2023–2028 Research Concept – 'social cohesion and socio-spatial justice' and 'availability and accessibility of social infrastructure for public services' – remain cross-cutting themes of central importance and may also be explicitly addressed later through specific thematic proposals from members.

In doing so, the ARL engages with current debates on the sustainability of modern societies and contributes its own perspectives. The convergence of multiple crises – the financial and economic crisis, the energy crisis, geopolitical conflicts and the COVID-19 pandemic – poses enormous challenges for social and economic systems. At the same time, issues relating to land requirements and competition for land in connection with the 30-hectare target and the net-zero target are becoming increasingly significant (see also Research Areas II and III). These targets require economically viable and socially balanced land use that takes into account conflicts of interest between housing, the economy, agriculture and nature conservation, and necessitates new forms of balancing these interests. The ARL addresses these challenges and explores ways of shaping spatial transformation processes to create resilient spatial structures.

Medium-term research agenda until 2028

Missions

The Mission 'Infrastructures' is a key focus of Research Area I.

In light of current geopolitical conflicts and the dangers associated with hybrid warfare, Research Area I is focusing on issues relating to resilient spatial structures against the backdrop of potential armed conflicts in Germany. To this end, the ad-hoc working group

“Resilient Spatial Structures – Preparing for the Effects of Sabotage and a Potential Armed Conflict in Germany” has been established.

Healthcare and transport infrastructure are also recognised as being of central importance to Research Area I and as essential for medium-term research needs. Issues relating to access to healthcare infrastructure (public services in the health sector in rural areas) and health-promoting urban structures, including within a European context, are of particular relevance. In this regard, issues of spatial equity, access and resilience in stressful situations will continue to be of particular importance in the future, which requires a closer integration of spatial and health planning instruments at all scales.

Sustainable transport infrastructure, with a focus on railways, has been a key topic in Research Area I for many years and remains a priority in the medium-term research agenda.

Public Health in Spatial Planning

Over the next three years, Research Area I also plans to place further emphasis on the topic of ‘Public Health in Spatial Planning’. A first step in this direction is the ARL’s participation in the Leibniz Lab Leibniz-Lab „Pandemic Preparedness". This topic, which has formed a distinct focus of this research area since the Covid-19 pandemic, will thus be explored in greater depth, with the aim of drawing lessons from the coronavirus pandemic for future pandemics and preparing for them today on an evidence-based basis.

Furthermore, the activities within this thematic focus address structural challenges to health-related quality of life – such as noise and particulate matter pollution – as well as the climate change-induced increase in heat stress, treating these as key areas for action in spatial planning, with the aim of developing solutions for municipal planning practice. There are strong thematic links to the work in Research Area II on adaptation to climate change and the promotion of green-blue infrastructure, as these measures can serve both to protect and to promote health.

This thematic focus places particular emphasis on bringing together different bodies of knowledge and addressing issues relating to health promotion, pandemic resilience and infrastructure provision from an interdisciplinary perspective. To this end, the ARL network has been and continues to be expanded to include expertise from the fields of health sciences, public health, epidemiology, economics and social sciences, as well as geography, urban planning and landscape architecture.

Through various forms of collaboration, the ARL aims in particular to develop new approaches to analysing and visualising health inequalities and to enhancing pandemic resilience, as well as to draw up proposals for adapting urban planning and development tools, for example in the form of guidelines, checklists and practical guides.

Sustainable transport infrastructure in the context of the mobility transition

The topic of **sustainable transport infrastructure in the context of the mobility transition**, as a key area of action for spatial development and planning, will continue to be addressed in various formats, both in terms of the challenges of participation, equity and accessibility, and with an explicit focus on transport infrastructure (particularly rail lines). The activities in Research Area I primarily address the local authority level.

The reactivation of railway lines is regarded as a key tool in spatial and transport planning for integrated spatial development, and thus as a foundation for sustainable mobility. In this way, the reactivation of railway lines is intended to contribute to equal living conditions and, furthermore, to support the transition to sustainable rail transport.

At **local authority level**, developments relating to reactivated rail lines are being addressed. In this context, the topic of ‘transit-oriented development in existing urban areas’ is on the agenda. From a local authority perspective, the development of urban neighbourhoods along

rail-based transport infrastructure is being examined: against the backdrop of concepts such as the ‘city of short distances’ or the ‘15-minute city’, the focus is explicitly on stations, stops and the wider areas surrounding public rail transport stations.

Alongside rail networks, private transport is also a key focus of the mobility transition within Research Area I. Following recent amendments to the Road Traffic Act (2025), local authorities now have the means to tackle the dominance of motor vehicle traffic on the roads and the resulting problems. Furthermore, the Federal Administrative Court has taken a stance against illegal parking on pavements. What potential emerges from these traffic law decisions, and how a new impetus for the municipal mobility transition can arise from them through corresponding “windows of opportunity” for municipalities, will be further developed by the ARL primarily with regard to practical application (see position paper on current traffic law decisions; in German).

The Economy in Spatial Transformation

The economy in spatial transformation is a third thematic area within Research Area I. Research is conducted against the backdrop of heated debates concerning the common good, social participation and the management of scarce resources. This involves engaging with economic discourses and analysing, critically reflecting upon and further developing them with a view to spatially-oriented approaches. Furthermore, the ‘social turn’ taking place within economic debates will be addressed more intensively within the ARL network in future. To this end, the ARL aims to bring together contrasting positions on the post-growth economy and green growth, and to facilitate a critical examination of current economic perspectives and proposed solutions. In addition, the aim is to explore how economic development interests, social needs and ecological objectives can be reconciled within the framework of land protection, in order to manage competition for land in a socially balanced and economically viable manner. In particular, the project will examine suitable policy instruments and governance models, the acceptance of land-saving strategies, and the impact of changing social and economic conditions on land-use decisions.

Another new topic within Research Area I will be adaptation to climate change in the economy. In future, the focus here will be particularly on the spatial dimensions of adaptation strategies involving laws, regulations and practices designed to address the changing impacts of climate change. This work will not only examine questions of resilience and risk exposure in selected economic sectors (e.g. with regard to heatwaves and flooding), but also various dimensions and areas of action, for example in the fields of work/health, production and logistics.

The local government level is coming into focus in this field of research through its examination of the future of local government finances. This has a direct impact on spatial development and vice versa: against the backdrop of an unprecedented local government funding shortfall of €24.8 billion (see Finanzreport2025.pdf; in German), this topic aims to address the necessary reform of local government finances. It concerns infrastructure investment, land use development and revenue policy, as well as social space analyses, resource allocation and funding programmes. Of particular importance here is the question of how climate-adapted and integrated sustainable development can be financed and managed at the local level. This is where spatial sciences come into play, as sound finances are a fundamental prerequisite for sustainable spatial development strategies. Based on a comprehensive analysis of the current situation, practical proposals for structural reform of the municipal system of responsibilities, expenditure and revenue are to be developed. In doing so, structural policy and structural change are taken into account as guiding framework conditions: the focus is on the normative question of how local financial and economic structures can be designed to be more resilient, regionally balanced and better equipped to facilitate sustainable change. The integration of economic analysis with approaches from regional planning, environmental and social research, and the legal sciences is to be further developed for this purpose. The findings are to be presented in a way that is both theoretically sound and practical for policy advice.

The focus will be on the European level, with particular attention to changes in EU cohesion policy. European regional policy will be examined alongside national and federal structural policies in Germany. This will enable local government financial reform and structural support policy to be considered within a shared transformative framework, supported by national and international forums.

3.2. Research Area II: Protection and Use of Natural Resources, Energy Transition

Overlook

Thematic focus
Research Area II will, until 2028, address key issues in socio-ecological spatial development in the context of climate change and the energy transition. It will also focus on integrated approaches to safeguarding open spaces, biodiversity and ecosystem conservation, as well as practical concepts for circularity, multiple land uses and climate-resilient development. Priorities include the protection and siting of critical infrastructure, nature-based solutions for the protection of open spaces, political and societal implementation requirements for greater ecosystem protection, and the sustainable management of water in urban and rural regions.

Key themes until 2028:
1. Green and blue infrastructure and the protection of ecosystems
2. The expansion of renewable energy and its spatial impacts
3. Agriculture and nourishment in the transition

Contribution of this research area to sustainable spatial development:
Addressing climate change and the need to protect and develop natural resources are fundamental and complex challenges for spatial development. Interdisciplinary and transdisciplinary approaches are required to adequately address the resulting demands. The substantive issues arise from the politically formulated objectives of climate protection (decarbonisation), climate adaptation and the management of climate impacts. To this end, the focus is on addressing the land-use changes and conflicts associated with climate protection and biodiversity, which arise from the spatially unequal distribution of the impacts of climate and land-use policies.

Thematic focus and activities since 2023

Since 2023, the work in Research Area II has focused on risk-based planning processes in climate-adapted urban and regional development, such as flood risk management.

Managing critical infrastructure is central to climate-resilient urban and regional development; the focus has been on vulnerabilities and planning- and economic-based assessments of climate risks. As the protection of open space appears difficult to implement despite long-standing land-saving targets (30 ha, net-zero target), the issue of safeguarding open space was addressed in a methodologically sound and practice-oriented manner. With regard to the energy transition, the expansion of wind energy – which is increasingly encountering problems relating to acceptance, participation and land use – was addressed.

Medium-term research agenda until 2028

Missions

This research area is home to the Mission Water – “promoting sustainable, resilient and equitable water management”. It has initiated knowledge transfer initiatives on climate adaptation, infrastructure protection and nature-based solutions for flood protection. The

discussion on urban climate adaptation is being further refined through the 'sponge city' principle to strengthen the political legitimacy and planning feasibility of climate adaptation at the local level. The externally funded POUNDER project (2024–2027), for example, explores possibilities for the sustainable management of small urban water bodies; this can be built upon with regard to transferability to regional planning contexts. The topic of peatland conservation and the rewetting of peatland sites will also be explicitly addressed in the coming years, with a particular focus on discussing concrete planning linkages. Synergies between water retention and CO_2 sinks (wetlands, forests or adapted agricultural land) and the planning-based management of their development also play an important role. Furthermore, through the Leibniz Research Network 'Biodiversity' and other channels, current potential for conflict and synergy arising from the management of the biodiversity and climate crises will be assessed (resilience vs. nature conservation).

Furthermore, in the medium-term, Research Area II plans to continue pursuing the themes already identified as central in the research concept from 2023 onwards. As part of the adjustment to research needs, the two central themes from the research concept – 'Land use transformation, safeguarding open spaces and protecting ecosystems' and 'Green-blue infrastructures' – have been refined in terms of content and combined into a single theme under the heading 'Green-blue infrastructures and protection of ecosystems'.

Green and blue infrastructures and the protection of ecosystems

The challenges of the energy transition and approaches to climate adaptation (vulnerability and resilience), as well as the topics of green-blue infrastructure and ecosystem protection, are explicitly addressed. The focus is on practical concepts for example, for circular systems and multiple uses, as well as climate-resilient developments against the backdrop of current legal and planning requirements. On the topic of 'ecosystem protection', the ARL Headquarters is involved in the Leibniz Research Network 'Biodiversity' and will continue to address, in particular, the political and societal requirements for implementation.

The expansion of renewable energy and its spatial impacts

Research Area II focuses on the expansion of renewable energies and the spatial implications of energy policy priorities at various political levels. A key aspect of this is the analysis of spatial conflicts of interest and land-use conflicts, linked to the question of the extent to which these influence political decision-making processes in the context of the expansion of renewable energies.

Agriculture and Food in Times of Change

As part of the adjustment to medium-term research needs, the nexus between agriculture and food will form a key focus area as a field of transformation, in the sense of an 'agricultural transition' combined with concrete approaches (such as agroforestry). The topic is becoming increasingly relevant both in the context of resource conservation and in relation to issues of equity. Given its international significance, this thematic focus also opens up opportunities to enhance the ARL's international visibility. Synergies with the corresponding thematic focus in Research Area I – here in the context of equity, participation and alternative economic models – will be addressed in the emerging working groups and knowledge transfer formats on a topic-specific basis.

3.3. Research Area III: Theories and Practice of Spatial Planning

Overlook

Thematic Focus
Research Area III focuses on the theoretical and conceptual foundations of spatial planning, as well as on the implementation and impact of practical planning approaches and methods, and centres on the spatial implications of transformation processes and the capacity of spatial planning to steer processes of sustainable spatial development. Conceptually, a distinction is made between planning-relevant knowledge of systems, objectives and transformation for spatial transformation planning and for transformative planning. Analytically, theories and practice of spatial planning are linked with power-critical perspectives (e.g. intersectionality, gender) in order to address questions of spatial justice in socio-ecological transformation processes.

Key themes until 2028:
1. Accelerated planning processes and current planning law
2. Planning systems and cultures
3. Innovative tools, procedures and strategies for spatial development
4. Democratic spatial planning and equity considerations in spatial transformations
5. Contribution from planning theory to a reflexive planning practice

Contribution of this research area to sustainable spatial development:
The aim of strategic spatial planning is to achieve a sound spatial condition by coordinating diverse, and in some cases competing, demands for land use. It is based on the principle of democratic reconciliation of interests and the goal of sustainable spatial development; however, it is increasingly being called into question in light of growing demands for transformation and land use, as well as debates on the need for acceleration. Against the backdrop of calls for greater deregulation to accelerate the achievement of objectives and speed up planning processes – for instance in infrastructure expansion or housing construction – Research Area III focuses on reflexive perspectives regarding the added value of spatial coordination, sectoral integration and democratic participation. By critically analysing planning processes, such as those involved in wind energy expansion, and developing recommendations regarding the increasing conflicts over land use, the activities in this research area contribute to a reflection on the governability of planning. Thematically, the research addresses key future challenges of sustainable spatial development, such as the design of spatial resilience, water-sensitive planning and infrastructure expansion, which, as planning subjects, have close thematic links to the topics of Research Areas I and II and are examined within an analysis that is also internationally oriented.
In addition, this research area examines the transformative potential of key stakeholders in the context of sustainable spatial development. It also explores digitalisation and the use of artificial intelligence, as well as their relevance as tools for transformative planning practice.

Thematic focus and activities since 2023

Since 2023, questions regarding the manageability of shaping socio-ecological transformations have been linked to the coordinating and cross-sectoral role of spatial planning. The focus was on questions regarding the acceleration of planning and implementation in the context of spatial transformation and the necessary expansion of infrastructure, which were explored in depth both from a planning law perspective (Planning Law Forum) and with regard to new dynamics arising from the increasing use of artificial intelligence in spatial planning (Working Group on the Use of Artificial Intelligence in Spatial Development). In addition, issues of equity and social

inequalities in the shaping of sustainable spatial development were addressed more extensively and specifically linked to international research perspectives in the Forum on *Gender and Spatial Transformation*. The intense debate surrounding increasing competition for land and the regulatory role of spatial planning was also taken up and addressed, among other things, through concrete policy recommendations (Regional Planning Forum) and through a comparative analysis of European land policies (International Working Group on *Land Policies in Europe*). Finally, through the systematic compilation of reference knowledge on planning systems, the German state profiles and the international *country profiles* have closed a key gap in comparative empirical spatial.

Medium-term research agenda until 2028

Missions

This research area makes a specific contribution to the ARL's cross-disciplinary *missions* by addressing, in particular, aspects of planning law, instruments, procedures and strategies, issues of equity, as well as aspects of planning systems and planning theory.

As a concrete contribution to the *mission* "promoting sustainable, resilient and equitable water management", this project addresses the need for research into the integration of specialist water-law planning with overarching spatial planning. The aim is to identify, from an equity-centred perspective, the necessary planning knowledge, practices and tools for water-equitable spatial planning in the context of the climate crisis.

Research Area III also makes a concrete contribution to the mission 'Infrastructures', focusing in particular on the significance of data centres. This builds on the findings of the working group 'The Use of Artificial Intelligence in Spatial Development' (2022–2025). These findings are further developed to foster a mutual understanding of technical, planning and legal frameworks, and are applied to broader questions regarding planning control requirements, for example with regard to the growing need for appropriate AI infrastructure (including data centres).

Beyond that, spatial planning faces major challenges in implementing sustainable spatial development in the face of profound changes such as climate change, the need to transform energy and transport systems, and the protection of biodiversity and natural resources. Examples from flood protection, the development of resilient settlement areas, or the large-scale network planning of renewable energy systems, on the one hand, highlight the steering capacity of coordinated, integrated spatial planning; they also demonstrate that spatial planning makes key contributions to economic efficiency, social justice and environmental sustainability as elements of future-proof spatial development. On the other hand, growing demands on land use and conflicts, the debates surrounding the acceleration of transformation, and the desire to reduce regulatory density and the degree of intervention (e.g. Bau-Turbo and WindBG) indicate that the coordination and steering capabilities of spatial planning must be critically examined. This also affects democratically constituted negotiation processes.

Against this backdrop, Research Area III in the medium-term research agenda until 2028 focuses its activities on examining questions relating to **the steering capacity and transformative potential of spatial planning**. The perspectives of the five key themes will be further explored, and their definition will be refined accordingly compared to the 2023–2028 research concept.

In order to further enhance the **interdisciplinary** and **international** relevance of the work in Research Area III, activities and findings will in future be systematically linked to current debates in sustainability and transformation research, including perspectives from political science. An analytical distinction is made between transformation planning (How can spatial planning identify transformation requirements at an early stage and steer and implement

spatially effective practices accordingly?) and transformative planning (How can innovative instruments, procedures and strategies of spatial development enhance the transformative capacities of spatial planning in order to initiate and promote transformation processes?). This distinction serves to situate spatial planning within the transformation debate, by explicating the contribution of planning processes to sustainable development and reflecting on it against the backdrop of conflicting objectives and decision-making logics. Furthermore, the distinction between spatially relevant system, objective and transformation knowledge, as well as the further operationalisation of power-critical research perspectives (e.g. gender studies) for the analysis of inequalities in spatially related transformations, will gain significance for the synthesis of knowledge in Research Area III.

Planning systems and cultures

With a focus on **transformation planning**, the following research needs will be addressed until 2028: Building on the analysis conducted by the 'Forum Regionalplanung' regarding the capacity for action in planning practice concerning **wind energy expansion** in Germany, the implementation process is to be further monitored empirically from a medium- and long-term perspective. The central question here is to what extent new approaches to transformation planning are developing, signalling the onset of change in the planning system, or whether the field of wind energy represents a special case. The analysis is to cover developments in all federal states and include the impact of current developments at EU level.

Innovative tools, procedures and strategies for spatial development

In the context of developing resilient spatial structures, **metropolitan regions** are considered to possess significant coordination and steering capabilities, as they can mobilise resources and facilitate strategic cooperation between public and private actors, as well as the coordination of measures. However, the necessary institutional frameworks and the effectiveness of the instruments for transformation planning aimed at creating resilient spatial structures have not yet been systematically examined. The aim is therefore to focus on fundamental strategic and instrumental transformation requirements for shaping resilient metropolitan regions and to develop perspectives for action.

Democratic spatial planning and equity considerations in spatial transformations

With a focus on **transformative planning**, the work in Research Area III will, up to 2028, engage with current debates on the **modernisation of the state and public administration**, in which spatial planning has so far received little attention. Particularly against the backdrop of current political developments and the associated anti-democratic tendencies, administrative actors are playing a changed role in planning processes. The focus here is on the capacity for action and design within administrative spatial planning for the implementation of spatial transformations, including in relation to vertical and horizontal coordination within a multi-level system. The aim is to contribute to addressing how existing motivations and dynamics, e.g. within networks of administrative pioneers, or successful innovations at local and regional levels, can be scaled up and accelerated. In this context, the study examines which institutional, organisational-administrative and political prerequisites are necessary for transversal structures within existing political and administrative frameworks to contribute effectively to transformation oriented towards the common good, and how these prerequisites can be grounded in democratic and planning theory.

Contributions from planning theory to a reflexive planning practice

With reference to **planning theory**, and building on the tensions between rational-instrumental, deliberative, and critical-transformative approaches, this research area analyses the function and limitations of theoretical concepts for spatial practice. The focus is on the operationalisation and normative orientation of theoretical approaches to critical areas of planning practice, as well as their respective gaps (e.g. regarding power relations and inequalities, their scalability or temporality). In doing so, there should always be a transdisciplinary reflection on the extent

to which these debates can contribute to a reflexive planning practice. Furthermore, the ARL contributes to adapting theories for planning practice by operationalising abstract theoretical knowledge (for example, regarding indicators for socially just spatial development) so that it can be applied in practice as transformative knowledge.

3.4. Research Area IV: Reflection on Spatial Research and Spatial Development

Overlook

Thematic Focus
Until 2028 the Research Area IV will examine the ARL's working methods, its academic contribution and its understanding of science within the broader context of spatial research and spatial development. A key focus is on documenting and evaluating the impact of the ARL's activities. In addition, the focus is on (methods of) knowledge generation and knowledge transfer, as well as the history of the Academy.

Key themes until 2028:
1. Impact analysis of the ARL´s working methods and outcomes
2. Knowledge integration and knowledge transfer
3. Reflection on the history of the ARL

Thematic focus and activities since 2023

Research Area IV, newly established as part of the 2023–2028 Research Concept, brings together historical, contemporary and reflexive perspectives, making them the subject of academic analysis and strategic development. In doing so, the research area draws on recent approaches to reflexive research – particularly in the context of transdisciplinarity – and contributes to the further development of its own academic practice. In the field of spatial planning, this research area is entering largely uncharted territory with this focus: a systematic examination of the impacts of planning, the conditions for its success and the obstacles to its implementation has so far only been carried out in isolated instances. At the same time, there is a lack of tried-and-tested methodological approaches from evaluation or impact research that could be applied to the complex nature of planning-related processes. Yet a transparent and evidence-based reflection on impacts is a central prerequisite for spatial planning that is capable of taking action and is socially legitimate.

Medium-term research agenda until 2028

Impact analysis of the ARL´s working methods and outcomes

The ARL's application- and problem-oriented approach brings the issue of impact into sharp focus. Consequently, reflection on our own working methods and the analysis of impacts are of central importance to Research Area IV. Compared to the original research concept, the updated medium-term research priorities place greater emphasis on this area. The central theme of the research concept to date has been transfer and impact research. In addressing this theme, it has become apparent that **impact analysis** represents a more appropriate heuristic approach. In the period up to 2028, the ARL will devote itself to further systematic data collection and evaluation, as well as to fine-tuning the methodology used in light of the findings already obtained. A central focus will continue to be on the (further) development and testing of specific indicators for analysing the ARL's working methods. Building on this, the establishment of the ARL's own impact research, or the derivation of universally applicable findings and their integration into the research system, is envisaged, with the aim of strengthening and expanding the ARL's role as a reference institution for impact measurement and analysis within the research system.

Knowledge integration and knowledge transfer

Now that the LeNa Shape research project, which shaped the central theme of 'research with social responsibility' within the research concept, has been successfully completed, Research Area IV is now focusing more strongly on **knowledge integration** and **knowledge transfer**. This is achieved primarily through the coordination of the Leibniz Labs Network for Inter- and Transdisciplinary Excellence, in collaboration with the IOER. The ARL contributes its expertise here to the (learning-based) exchange between the Leibniz Labs, including through transfer and reflection workshops. The focus is on topics such as different approaches to knowledge integration, where the ARL's expertise is just as much in demand as it is for the methodologically interactive design of formats to strengthen networking between the Labs. Beyond the Leibniz context, the reflection on the set of methods used for knowledge transfer and its further development towards general applicability to inter- and transdisciplinary projects or working groups will be a topic to be addressed.

Reflection on the history of the ARL

Under the central theme of 'Reflecting on the History of the ARL', the focus in the coming years will be on a critical examination of our own past. In 2022, three interviews with eyewitnesses were already conducted as part of a pilot phase. Based on these findings, the 'ARL Eyewitness Videos' project was commissioned as a research project in 2024, with completion scheduled for early 2026. The main work of the eyewitness project will begin in 2026, thereby providing new insights into the historical development of the ARL "beyond the books" and, at the level of historical scholarship, offering opportunities to explore individual, as opposed to collective, perception and memory. Further insights are expected regarding personnel and conceptual continuities in the Academy's history and its predecessor institution, the *Reichsarbeitsgemeinschaft für Raumforschung*, as well as, potentially, regarding specific features of the power and governance structures identified, which suggest the need to consider gender-sensitive perspectives and questions. The study on honorary presidents and honorary members of the ARL, as already described in the research concept, is also scheduled to begin in 2026. In addition, publishing activities in this field are to be continued. Preparations are also underway to implement the findings of the ad hoc working group on 'Developing a research framework to preserve and analyse the practical knowledge of ARL members'.

As part of the research area's activities, the links between the three key thematic areas are to be strengthened. A potential future topic, in conjunction with the focus on 'Reflection on the history of the ARL', is the identification of long-term chains of effects or time series, followed by an analysis of the underlying pathways and logics of these effects, particularly against the backdrop of the prevailing (global) political situation and its impact on the ARL and its work on.

4. Outlook

The era of multiple crises in which the 2023–2028 research framework situates application- and problem-oriented research into spatial transformation also shapes its detailed plans for 2026–2028. In some areas, the dynamics of crises have changed, new ones have emerged, whilst others, such as climate change, appear to be sidelined in political discourse, without losing any of their factual urgency. These increasingly complex challenges have spatial implications and are simultaneously shaped by them. Competition for land and conflicts over land use are on the rise, leading to disputes that, in times of growing scepticism towards science and institutions, are conducted in a more contentious manner than before. The analysis and management of such conflict situations in the context of spatial transformation will gain in importance in times of multiple crises.

This makes it even more important to address issues of spatial transformation through interdisciplinary and transdisciplinary collaboration. The ARL brings together researchers and practitioners with their diverse areas of expertise. The knowledge generated in working groups

and ARL forums and disseminated through transfer formats creates added value for both academia and practice. To systematically build on this, analysing the impact of the ARL's work will be a particular priority in the coming years.

By embracing mission-oriented research, the ARL has embarked on a course that, on the one hand, allows it to continue developing forward-looking knowledge for the design of sustainable spaces, whilst, on the other hand, enabling it to prioritise current scientific questions and socially pressing issues, addressing them through interdisciplinary, transdisciplinary and cross-research-field approaches with varying emphases. In doing so, the ARL is increasing its visibility, sharpening its profile and delivering comprehensive, solution-oriented results for academia, public administration and policy advice.

As the ARL is not a traditional research institution but rather an academy that relies on the expertise of its members, the ARL (Executive Committee, Headquarters, and members of the Academy) does not plan to introduce a new research framework in its current form for the period from 2029 onwards. Instead, a 'research framework' (working title) is to be developed, identifying relevant and original research topics that are also characterised by a structural openness befitting the ARL's nature as a knowledge network. This includes, in particular, the recognition of thematic diversity, disciplinary/subject-matter breadth and methodological plurality – in both academia and practice. A research framework developed in this way therefore makes statements not only on research topics, but also on the specific working methods of the ARL. This illustrates how knowledge is generated through the collaboration of various academic and planning practitioners. Collaboration with practitioners, public administration and policymakers lies at the heart of knowledge production at the ARL. Consequently, such a framework should also describe how the ARL develops its content and themes – through dialogue (e.g. in regional and specialist ARL forums), through exchange processes, and through cooperation between academia and practitioners. The aim is to demonstrate that (and how) the ARL creates spaces for professional debate, rather than focusing exclusively on very specific content. The research framework is thus more than a content-based steering instrument; it is also an expression of the Academy's networked working methods. This further development is planned for 2028, so that a new research framework will be in place by the end of the validity period of the research concept for 2029.

This is an AI-assisted translation of the original German document "Forschungskonzept – mittelfristige Forschungsbedarfe für die Jahre 2026-2028". The original language version remains the authoritative source.