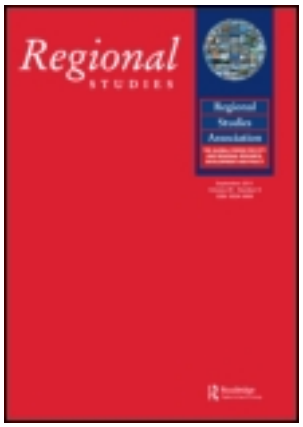

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Stefanie Dühr [a] & André Müller [b c]

[a] Department of Geography, Spatial Planning and Environment, Nijmegen School of Management, Radboud University Nijmegen, PO Box 9108, NL-6500, HK, Nijmegen, the Netherlands

[b] Federal Institute for Research on Building, Urban Affairs and Spatial Development/BBSR (Berlin, Bonn), Deichmanns Aue 31-37, D-53179, Bonn, Germany

[c] Sciences Po (Paris), 27 rue Saint-Guillaume, F-75337, Paris Cedex 07, France

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The Role of Spatial Data and Spatial Information in Strategic Spatial Planning

STEFANIE DÜHR* and ANDRÉ MÜLLER†‡
*Department of Geography, Spatial Planning and Environment, Nijmegen School of Management, Radboud University Nijmegen, PO Box 9108, NL-6500 HK Nijmegen, the Netherlands. Email: s.duhr@fm.ru.nl
†Federal Institute for Research on Building, Urban Affairs and Spatial Development/BBSR (Berlin, Bonn), Deichmanns Aue 31–37, D-53179 Bonn, Germany
‡Sciences Po (Paris), 27 rue Saint-Guillaume, F-75337 Paris Cedex 07, France. Email: andre.mueller@sciences-po.org

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INTRODUCTION

In spatial planning debates in Europe much attention has been given over recent years to the need for 'evidence' to inform policy-making. In many Western European countries, such as Germany, the Netherlands and France, spatial observatories are in place to monitor spatial development trends and provide input for spatial policy-making. In many Central and Eastern European countries such monitoring systems are being set up, following the transition to democratic regimes, with approaches to data collection and handling being established. There are numerous European Union (EU) initiatives seeking to improve the availability of spatial data for policy-making and to make existing spatial datasets more compatible. Some of the more recent initiatives begin to depart from the dominant focus on quantitative data and include qualitative spatial information, as, for example, in the EU's Urban Audit. EU policy shifts to different territorial categorizations, such as maritime spaces, have prompted the demand for spatial data on previously under-researched parts of the territory. New policy initiatives can also challenge hegemonic views on spatial structures, such as mountains being clearly defined physical entities, highlighting the need to understand better the values underlying certain landscape contexts within national territories and in pan-European comparisons. Understanding space as a network prompts the collection of flow data to represent functional territorial relations, which departs from traditional approaches of collecting data for bounded places or territories. Such developments in spatial data availability and compatibility in and for the EU go far beyond technical considerations, as they question underlying assumptions about space and spatial policy-making and focus attention on the roles that spatial data and spatial information perform in strategic spatial planning processes.

SPATIAL DATA AND SPATIAL INFORMATION FOR EUROPEAN UNION POLICY-MAKING

The EU's influence on spatial development and policy-making is considerable. The EU covers a wide range of policy areas, many of which – such as environmental policy, regional policy, transport and agricultural policy – have spatial impacts. A diverse range of actors with different interests is involved in policy-making in the EU's system of multilevel governance. Thus, planners and policy-makers in the EU operate in a multilevel, multi-scale and multi-sector context with increasing demands for different types of spatial data and spatial information, for different types of territories, and for different purposes in the policy process.

Data are commonly defined as the lowest level of abstraction from which information and knowledge are derived. Data that are interpreted become information, which then can be turned into knowledge (as understanding derived from information) (STEPHENSON, 1999; HILLS, 2002). In many areas of EU policy-making, such as environmental policy and regional policy, concerns over a fragmentation of datasets and sources, gaps in the availability of data, and lack of harmonization between datasets at different geographical scales have been identified as barriers for EU policy processes. Such concerns, within the complex context of policy-making in the EU, can explain the numerous recent EU initiatives to provide more comprehensive spatial data and to coordinate better spatial information across Europe to provide an 'evidence base' for policy-making in the EU (for an overview, see DÜHR *et al.*, 2010).

For example, the INSPIRE Directive seeks to establish an 'Infrastructure for Spatial Information in the European Community', which will allow an overview of existing datasets within member states and improve

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their compatibility for use at the EU level (COUNCIL OF THE EUROPEAN UNION, 2007). The European Observation Network for Territorial Development and Cohesion (ESPON) programme, funded under the European Territorial Cooperation objective of EU Cohesion Policy, foresees the setting up of 'a Territorial Monitoring System at European level for the continuing assessment of territorial dynamics in relation to territorial policy objectives' (COMMISSION OF THE EUROPEAN COMMUNITIES (CEC), 2007a, p. 44). The Directorate-General for Regional Policy of the European Commission uses its in-house monitoring system, supplemented by data from other sources, such as the Organisation for Economic Co-operation and Development (OECD), to inform key reports such as the *Green Paper on Territorial Cohesion* (CEC, 2008) and the *Fifth Report on Economic, Social and Territorial Cohesion. Investing in Europe's Future* (CEC, 2010).

Much emphasis in EU policy-making and monitoring has been on data of a quantitative nature, reflecting a positivist understanding of statistics as providing 'hard' evidence on the basis of which policy options can be developed. In the traditional instrumental view of policy processes, data and information are conceptualized as allowing decision-makers to select the best or optimum course of action among a range of alternatives. Data and information in policy processes are considered value free and an objective basis for making well-informed choices. In a social–constructivist understanding, on the other hand, data and information are never objective and unbiased inputs into planning processes. Rather, this seemingly neutral input is accepted as being framed by certain interests within particular socio-political contexts. What is considered valid information and knowledge is dependent on the circumstances within which policy- and decision-making take place.

In some recent EU initiatives, such as the EU Urban Audit (CEC, 2007b, 2007c), attempts have been made to complement quantitative data with qualitative information, acknowledging that capturing the quality of life of EU citizens implies the need to reflect on the context of individual experiences and perceptions. However, recognizing the value of qualitative information and subjective perceptions as one of the inputs for EU policy-making does not necessarily indicate a paradigm shift towards a social–constructivist understanding of spatial information and policy-making. Rather, as DAVOUDI (2006) has argued, the focus on providing an 'evidence base' for EU policy-making points at the continuing dominance of positivist assumptions in EU policy processes. The emphasis on evidence-based policy-making is thus increasingly at odds with the political nature of EU policy processes. For example, the policy priorities of the intergovernmental territorial strategy for the EU-27, the 'Territorial Agenda of the European Union' (TAEU) (COUNCIL OF THE EUROPEAN UNION, GERMAN PRESIDENCY, 2007a; COUNCIL OF THE EUROPEAN UNION, HUNGARIAN PRESIDENCY, 2011a), have been presented as being derived from evidence as synthesized in the 'Territorial State and Perspectives of the European Union' (TSP) documents (COUNCIL OF THE EUROPEAN UNION, GERMAN PRESIDENCY, 2007b; COUNCIL OF THE EUROPEAN UNION, HUNGARIAN PRESIDENCY, 2011b), which themselves were based largely on reports prepared for the ESPON programme. Reportedly, however, the TSP and TAEU documents were in practice developed in parallel, mutually informing each other (BÖHME and SCHÖN, 2006) and thus highlighting the political context within which spatial policy-making takes place and the role of information in framing the debate. Rather than providing evidence for policy choices, available information has instead played a more communicative role of justifying such choices.

Instead of speaking of evidence-*based* policy, the term 'evidence-*informed*' policy might thus be more appropriate (DAVOUDI, 2006). In this understanding, 'evidence' is but one of several inputs into the policy-making process, and in itself exercises power. This focuses attention on the context within which policy processes occur. Acknowledging that the context within which planning policy processes take place is shaped by dominant interests places the spotlight also on how data and information are used, and by whom, in such communicative processes. Theoretical perspectives on maps (as a medium for the representation of spatial information) as being social constructions, rather than neutral representations of reality, commonly conceptualize maps as consisting of two interrelated power structures. This approach allows one to reflect on the socio-political context within which spatial information is produced and used, and is therefore helpful to understand the roles that spatial data and spatial information perform in strategic policy processes (CRAMPTON, 2001; HARLEY, 1989; PICKLES, 1992). The 'internal' power of spatial information, thus, can be conceptualized as relating to the translation from a complex reality into data, information and knowledge. The external power refers to the communicative function of spatial data and spatial information, their persuasive power in debates, and their capacity to win over other interests and the public opinion (SÖDERSTRÖM, 1996). Both power structures are intrinsically linked, and the 'technical' procedures that determine how spatial data and spatial information are derived are deeply intertwined with their use in the policy process (SÖDERSTRÖM, 1996).

Recent EU initiatives that focus on the 'technical' aspects of data collection and harmonization should thus not distract from the political dimension of such processes and how they affect the internal power of spatial information. Already the search for evidence, that is, identifying funding priorities for research programmes, is a political choice (FALUDI and

WATERHOUT, 2006). Political choices, as expressed in new policy agendas, prompt the demand for new data and frame the search for 'suitable' evidence within a particular perspective and epistemology. RICHARDSON (2006) has argued that there is

> a politics tied up in spatial analysis, particularly where the aim of the analysis is to generate or legitimize common action among powerful interests.
>
> (p. 208)

Where spatial information is presented as maps, cartographic processes of selecting, generalizing and schematizing data imply numerous additional choices. Such a 'visual filter' determines what can be mapped and how it is represented (DÜHR, 2007). It has been argued that many of the techniques of spatial analysis and cartographic representation carry forward the positivist assumptions that were dominant in the 1960s and 1970s when geo-information systems (GIS) were developed, with their emphasis on categorizing space neatly into point, line and area symbols (VEREGIN, 1995; PICKLES, 1995). The filter that available technologies and cartographic software present leads to representations that focus on static and material objects within bounded places, whereas 'flow mapping and geodynamics are not particularly well represented' (RAE, 2009, p. 161).

All of these aspects influence the internal power of spatial data and spatial information, but they also have an effect on their external power as they provide the input for communication among different actor groups in the planning process. In order to gain support, policy actors use spatial data and spatial information to frame their preferred choices within the process by highlighting certain issues or suppressing others, as well as to justify policy choices to a wider audience (FORESTER, 1989; HILLS, 2002). A certain code of representation can support these agendas by communicating to the public and other interests the seriousness of a proposal, or by persuading non-professionals of the legitimacy of the policies or intended actions (SÖDERSTRÖM, 1996).

CONTRIBUTIONS TO THIS SPECIAL ISSUE AND ONGOING RESEARCH CHALLENGES

The papers in this issue seek to contribute to a better understanding of the roles that data and information perform in spatial policy processes and how they exercise power.

Simin Davoudi ('The legacy of positivism and the emergence of interpretive tradition in spatial planning') emphasizes the struggles in planning theory and practice to move from its positivist roots to a more interpretive understanding. She shows that, despite the now widely accepted discourse emphasizing the relational nature of space, planners are limited in implementing a more interpretive conceptualization of space, place, scale, and time due to the inherent positivist underpinnings of available methods and techniques. Davoudi gives examples from the United Kingdom of where planners have sought for ways to address this ontological and epistemological shift in their policies and plans. Recognizing that planners may not be able to reconcile their 'desire to order' space and time with the multiple dimensions, viewpoints and uncertainties implied in the shift from a 'conceived space' to a 'perceived space' raises numerous questions about the future of planning and the need to consider the planning process not as linear but as iterative. It also highlights that planning needs to move towards a recognition that data and information influence policy-making, but that other factors – of a practical, institutional, ideological, political and cultural nature – also play a role. If both 'objective' analysis as well as 'subjective' experiences and perceptions are seen as equally valid inputs into planning processes, this raises questions of how such experiences and perceptions would be 'recorded', and ultimately whose views are considered when trying to capture the subjective daily experience of people. Davoudi argues that the purpose of interpretive planning would be twofold:

> to draw on intellectually conceived and culturally perceived spaces to shape physically lived spaces [and] to draw on past memories and present experiences to shape future expectations.
>
> (p. 439)

How exactly planners can respond to these expectations and how this would affect the search for new methods to represent appropriately subjective perspectives of every person, but in different constellations of territories in an understanding of relational space, will require more research, and a significant shift in the prevailing understanding of data as providing 'evidence' for policy processes.

How policy choices affect the demand for spatial information and different types of spatial data is explored by Erik Gløersen ('Renewing the theory and practice of European applied territorial research on mountains, islands and sparsely populated areas'). Gløersen shows how the EU's objective of territorial cohesion has prompted the consideration of mountains, islands and sparsely populated regions as important categories for territorial policy. Attempts to develop EU-wide categorizations of areas of 'geographic specificities' illustrate the shortcomings of the prevailing reliance on quantitative analyses for what are not physical (and thus quantitatively measurable) but socially and culturally constructed objects. This is because

> the object of statistical analysis is not the territory as such, but the mental categories structuring the perception of European space.
>
> (p. 455)

Such rational approaches, Gløersen shows, lead to major tensions between the search for uniform EU-wide approaches to provide a basis for the allocation of funds versus the need to consider local and regional contexts that build on national traditions and perceptions. Gløersen argues that a shift is needed towards a more social constructivist understanding of territories which would allow the consideration of qualitative information, including local perceptions and regional values, and the institutional and governance context, in the design of EU territorial policy. Rather than striving for comprehensive indicators of development in geographically specific areas, which – as they require a combination of detailed quantitative data with qualitative data and local knowledge – are difficult (if not impossible) to construct, he suggests a framework for the analysis of the relationship between the geographical specificities of each territory with their development opportunities and challenges as a more realistic ambition. How quantitative and qualitative data and information can be most effectively combined will depend on the territorial policy to be developed, but further research is needed to explore more closely the ontological and epistemological underpinnings that may challenge the pursuit of such more comprehensive models.

Jacek Zaucha ('Off-shore spatial information – maritime spatial planning in Poland') reports on the process of creating a database for maritime spatial planning in Poland, in response to the EU's Integrated Maritime Policy. He shows that policy initiatives for the previously 'unexplored' territory of maritime areas present considerable challenges for spatial planners because there are significant gaps in data and information. Presenting an insider's view on the process of developing maritime plans for Poland, Zaucha shows how actors used data and information in the policy process to frame the discussion and to reflect their interests. Moreover, he emphasizes the weak institutional and governance framework for maritime spatial planning in Poland which affected the debate on the information needed and how the available data were used. Existing methods were transplanted into the new policy context, although the shortcomings of relying on quantitative data are also being debated for land-based policy-making, when maritime spatial planning could have provided an opportunity to consider new approaches to policy development. Besides there being a shift in the epistemological perspective, however, grasping such opportunities would require having institutional capacity to collect and collate relevant information of both a quantitative and a qualitative nature. Future research could focus on how such windows of opportunity that new EU policy initiatives present could be used more effectively as a lever to affect institutional innovation, beyond the more narrow focus on data and monitoring requirements to inform and evaluate new policy.

Moving on to questions related to the external power of spatial information, Arnoud Lagendijk and Barrie Needham ('The short lifespan of the Netherlands Institute for Spatial Research. On the framing practices of a think tank for spatial development and planning') reflect on the relationship between research produced by a Dutch government think tank and the use of that information for spatial policy-making in the Netherlands. Their analysis focuses on the policy–science interface and the framing strategy of the Netherlands Institute for Spatial Research (Ruimtelijk Planbureau – RPB) within the broader governance and institutional context. They raise important questions about the complex relationship between research and policy-making. While research too closely focused on policy application may be criticized as a politicization of science, research that is prepared autonomously requires subsequent interpretation for the policy community. Lagendijk and Needham propose a conceptual model of the policy–science nexus, which allows an analysis of the distance between science and policy, on the one hand, and the societal drivers of knowledge production, on the other hand. They conclude that a constructivist view of knowledge production and use, which allows shared policy beliefs to be developed through learning and reflective action, is the most promising route to contribute to 'solutions that are of a better quality and socially well supported' (p. 480). Lagendijk and Needham, moreover, focus attention on the importance of discursive performance, rather than solely academic findings or the intellectual reputation of a think tank, in influencing policy. Thus, the reputation of a think tank largely depends on how effectively it communicates new ideas to the policy community, rather than the academic quality or soundness of those ideas. On the basis of their analysis of the RPB, Lagendijk and Needham conclude that there should be a match between a government think tank's research practices and its perspective on the policy–science nexus, on the one hand, and its framing practices, on the other, to achieve a constructive relationship between knowledge creation and policy design. Applying such insights to the processes of knowledge creation and communication in EU policy arenas presents a promising avenue for further research.

Eastern EU member states, such as Estonia, are faced with different planning challenges than many of their Western counterparts due to the dynamics of a transforming society, considerable development pressures following independence and an ongoing process of establishing a decentralized planning system. Within this context, Antti Roose and Ain Kull ('Empowering spatial information in the evolution of planning systems: lessons of ad-hoc plans in Estonia') report on the evolution of the Estonian planning system over the past years and the emergence of a development-oriented approach to planning alongside the statutory plan-led system as a more flexible and pragmatic

response to pressing demands for spatial development and growth-management issues. They emphasize the challenges of the availability and suitability of spatial data and spatial information for such ad hoc planning with its emphasis on fast and lean decision-making. The flexibility of more responsive planning approaches, however, also implies that in a context of a – as yet – fragmented planning community there is a real risk that powerful actors use data, information and knowledge to their own advantage, without having appropriate governance structure to strive for a more balanced representation of different societal interests. On the other hand, ad hoc planning may offer opportunities for communities to represent their interests better, which a more rigid planning framework may not support. More research would be needed to understand better the role of spatial information in pro-development and project-based planning contexts, and within different types of planning systems across Europe.

Taken together, the papers in this special issue provide new insights into the complex relationship of spatial information and policy-making. They also point to ongoing research challenges to explore further the implications of a social–constructivist understanding of spatial information and policy-making. Accepting that a more interpretive understanding of planning is needed is an important step, but building this into data collection, interpretation and representation procedures as well as complex spatial policy-making processes requires a comprehensive review of existing approaches and procedures.

Future research is needed to explore how far the adaptation of institutional, technical and political structures is possible or desirable in response to an understanding of space as being relational and socially constructed, or whether outdated assumptions about the neutrality of data and information risk to be carried forward by building on existing approaches and modifying established techniques. For example, existing monitoring systems and GISs reportedly struggle with the recording and representation of qualitative, dynamic and relational data, and it could be explored whether a more radical redesign of their underlying principles and techniques is required in response to shifts in the understanding of space as being relational and socially constructed.

Local perceptions may not be easily aligned with EU-wide policy responses, but confronting local actors with European comparisons could perhaps even foster European integration by contributing to a better understanding of cultural diversity and the relevance for policy-making. New policy initiatives may offer windows of opportunities to experiment with new approaches and methods that are based on an interpretive understanding, and future research could explore how far such opportunities are being recognized and taken up both at EU level as well as within the member states. Changes to the mindsets of actors are needed to grasp such opportunities, but a better understanding of the practical, institutional, and technical barriers to the collection of different types of data and information and how they are used in planning processes need to accompany them. A comparative approach may be fruitful to explore how different types of planning cultures are reconsidering the role of spatial data and spatial information in planning processes and the institutional adaptations or innovations this may require.

While much is thus still to be researched to understand better the internal power of spatial data and spatial information, there is also a promising research agenda to explore further their external power. How information is framed and communicated in complex planning processes needs to be better understood, as the power of argumentation gains in importance in a social–constructivist perspective. Ensuring fairness and a balanced consideration of diverse interests in spatial policy processes based on interpretive approaches will present challenges, as some actors more than others may be able to use the power of spatial data and information to communicate their interests and pursue their agendas. Future research could focus on how local communities and other actor groups might be empowered (or disadvantaged) if perception data and relational information are given more attention in planning processes, and how this might affect their communicative strategies. Ultimately, it would be valuable to explore whether a changing understanding of the role of spatial data and spatial information in policy processes also affects the roles that spatial planners in different EU member states perform, and how planning education may have to respond to such new challenges.

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