

# Rey, S.J.; Franklin, R.S. (eds.) (2022): Handbook of Spatial Analysis in the Social Sciences

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For spatial planning, new and manifold opportunities are currently arising for analysing spatial structures and processes. The abundance of new geospatial data and methods, however, is also challenging researchers and practitioners. Data and methods need to be carefully selected to suit specific questions and communication needs. While these digital technologies are promising as they provide “greater intellectual heft to planning through rich information and more rigorous analysis” (Goodspeed 2016: 18), they are also perceived as black boxes and expert systems

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with limited capabilities to connect to the knowledge of others. Making digital technologies useful for planning requires a certain degree of transparency. In particular, it has to be clear whose knowledge the technologies contain and which new planning practices are needed to incorporate them (Goodspeed 2016). Hence, planning research requires discourse and capacity building to enhance geospatial data literacy and knowledge on the opportunities and limitations of available methods. Here, the “Handbook of Spatial Analysis in the Social Sciences”, edited by *Sergio J. Rey* and *Rachel S. Franklin*, should be considered a highly valuable contribution.

The Handbook’s editors introduce the topic of spatial analysis by referring to the two substantial turns in the social sciences, i.e. a spatial and a computational turn. The former involved Geographic Information Systems (GIS) and science introducing concepts of spatial connections, proximity or place to better understand social processes. The second turn is described as a revolution in which new subfields of social science emerged that employ computational methods and novel data. Given these dynamics, the editors argue for a need to enhance knowledge exchange between spatial and social scientists. Thus, they understand the aim of the Handbook as being to outline foundations and structure across the spectrum of spatial analytics and, equally important, to also deliver conversational entry points. The book aims to attract a readership of researchers in social sciences, including geography and geography-adjacent fields.

To allow for such a broad scope and readership, the book is structured into four parts on “Theoretical Foundations”, “Methods”, “Applications” and “Emerging Challenges”, uniting about 50 contributors. The first contribution introduces the science of geographic information (*Barbara Buttenfield*) starting with the roots of Geographic Information Systems in landscape architecture and cartography, leading to critical perspectives, e.g. on public participation

GIS, and current trends of dynamic geovisualisation, open source and spatial data sciences. In the following, analytical environments (*Roger Bivand*) are introduced and directly link this theoretical knowledge on the evolution of spatial analysis to practical applications in computational environments and information on relevant data formats. The method section starts with chapters on foundations in spatial econometrics (*Luc Anselin*) and local modelling in regression frameworks, which leads the reader to a use case on estimating house prices, showing practical implementation through software (*Mehak Sachdeva, Taylor Oshan and A. Stewart Fotheringham*). Methods of Geospatial Artificial Intelligence (GeoAI) (*Wenwen Li*) are then presented, giving a well-structured and informative overview on these techniques that “mimic [...] the way humans recognize and reason about the world” (p. 292). Here, the case of tracking a disease outbreak exemplifies the applicability for social sciences. The section on applications includes various scales. Starting with urban issues, such as the analysis of gentrification (*Elijah Knaap*), introductions to spatial social networks (*Clio Andris and Dipto Sarkar*) and inter-regional inequality (*Sébastien Breau*) are given with implications for regional development. Further, urban analytics as a field of application for the social sciences is highlighted (*Geoff Boeing, Michael Batty, Shan Jiang and Lisa Schweitzer*). This chapter shows the field’s evolution towards data-driven approaches that help to develop new theoretical knowledge by analysing spatial structures and processes. For spatial planning, the importance lies in explaining spatial patterns. Connections in space, emphasising infrastructure networks or spatiotemporal big data show the broadness of the field, but also its connections to planning in terms of access to services or smart city approaches and data-driven policy development. Here, the “Dark Side of Urban Data” allows a critical perspective on the possibilities of urban analytics to be developed. Given the ethical and political implications, the authors argue that the technologies can either “protect or imperil, subjugate or empower” (p. 513). This requires data producers to question what data is generated, who benefits from it and who controls it. Thus, data liter-

acy and open data systems are considered key to implement these considerations in practice.

The Handbook has a convincing overall structure that ensures that the reader can delve into the variety of topics of individual interest, but also can gain knowledge on the general opportunities and challenges of spatial analysis for the social sciences. The structure is thus ideal to identify methods and approaches and assess their applicability to one’s own research questions. The structure of the chapters broadly follows a general form, which starts with a theoretical introduction and then leads to instructive use cases that sometimes even include direct information on the software. The length of the chapters is well chosen, giving first insights while being clear about limitations and directing the reader to further sources.

For spatial planning, the book offers an ample collection of interesting methods, covering the urban but also the regional scale. In particular, the Handbook has added value in terms of a greatly required dialogue between the fields of planning and spatial analysis. The more theoretically oriented chapters with critical perspectives allow readers, as recipients of spatial information, to open the black box and develop a basic understanding. This appears to be highly important for addressing the digital technologies’ communicative and contributing role in questions of planning practice and research.

#### Full reference of reviewed title:

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#### References

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