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Neal, Z.P.; Rozenblat, C. (eds.) (2021): Handbook of Cities and Networks.

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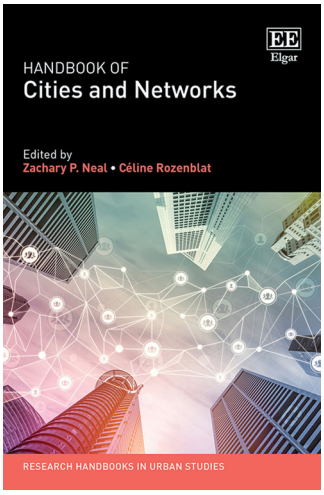
Received: 17 January 2022 ▪ Accepted: 22 February 2022 ▪ Published online: 16 March 2022



In mainstream socio-economic thinking, cities continue to be treated as points in space and time. To conceive of cities as networked systems remains a heterodox position. Today, the computational revolution is catapulting these theories of urban systems to the foreground of scholarly debate, complementing the, to date, dominant location-based paradigm with an emerging network-based paradigm. Nevertheless, network thinking for cities and social interaction is familiar in academic debate. In 1964, Berry proposed that several levels of systems characterize cities: cities are themselves spaces of interactions for actors and institutions (cities as systems) and are positioned in relation to other cities with which they interact (systems of cities) (Berry 1964). By the late 1970s, social scientists began to employ formal methods of social network analysis.

The Handbook of Cities and Networks, edited by the sociologist Zachary Neal and the geographer Céline Rozenblat, undertakes the effort to perceive cities as phenomena that evolve over time through exchange and thus by flows of people, capital, goods, services, information, ideas and gossip. This volume gathers an almost unsurmountable diversity of subjects, methodology and spatial scales. The editors are most ambitious: "[...] we sketch a framework for integrating the diversity of urban networks by situating them along the dimensions of level and scale. These two dimensions define, respectively, the aggregation and spatial scope of the nodes, and therefore provide critical parameters for defining an urban network" (p. 3), and furthermore: "[...] since there are so many types of relationships that an urban network might aim to capture, clarity and precision about the level of (aggregation of) the nodes in an urban network is critical for clearly defining the network" (p. 3). 'Level' is defined as the size and nature of the relationships (links) between individuals (nodes) that are considered in the network and identifies the aggregation of network linkages and nodes where 'micro' stands for people, 'meso' for firms, and 'macro' for cities. The geographical 'scale' is defined as the boundary of a set of interacting nodes of the network: from 'local' to 'regional' and 'global'. The resulting 3x3 matrix gives a glimpse of the vastness of subjects analysed and methods applied – in the eye of the reviewer a mixed blessing.

From which angle does one tackle the phenomenon of cities and networks? The editors lend a hand: "Cities are the macro level if we consider only what happens inside the city,

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or cities are only an intermediate meso level if we assume that each city is a part of a system of cities that constitutes the macro level" (p. 13). Neal and Rozenblat argue "[…] the city is both a level and a scale: it represents a social/economic/cognitive process that emerges in specific spaces, and the city can eventually be considered as emerging from its relationships with other cities that constitute a system of cities. It is both a top-down and bottom-up complex process evolving in relation to the transformations of social relationships and global trends. The urban space is strongly dependent on what is considered to be the basic constituent of this emergence, namely, the nodes and linkages of the networks" (p. 13).

Readers will be grateful to the editors for being precise in their definition. Still, an epistemological challenge lies with the two terms that lend the title to the Handbook: 'Cities' are instantly associated with spatial characteristics like size of population, extension, specialization of economic activity or built form; 'networks' are usually considered to be a-spatial structures that connect two or more nodes into an interdependent system. Here, an elaboration of which concepts of space are fruitfully applied would be much appreciated: Does Lefebvre's distinction between perceived, conceived and lived space help some or are we more at ease with distinguishing metric, functional and social space? Finally, how do we conceptualize temporality – change over time? Classic spatial theories about cities are either structural theories or development theories. The former use attributional data, including the composition of agency that forms and uses structure and institutions, at a given point in time. The latter look at driving factors for change and their relative importance over time. Consequently, the data we use to test our hypotheses must differ. The attributional perspective uses point data or adopts a territorial dimension and morphological perspective, which is standard to measure size, dimension, composition, boundaries etcetera. The flow perspective, or reticular dimension, conceives space as a relational phenomenon that is best represented by the metaphor of a network consisting of nodes and edges and requires relational data.

The Handbook is organised in five parts with a helpful index closing the oeuvre. Part I is dedicated to theoretical conceptions of cities and networks. Here, Luis Bettencourt, with a background in theoretical physics and complex systems theory, makes his claim: "While cities are made of people, places and organizations, it is the social, economic and physical connections among these entities that start to reveal how and why cities exist, are sustained and grow" (p. 41) – thereby citing earlier seminal work by Jane Jacobs and Peter Hall. This volume with authors the likes of Bettencourt, Pumain, Batty and Barthelemy makes clear that the underlying tendency in urban theory, and perhaps also in urban planning and policy, is to develop a unifying theory of cities and urban systems. Bettencourt states "Network theory […] will constitute the basis for a predictive statistical dynamics of urbanizing human societies, capable of better accounting for processes of social change, economic growth and human development" (p. 54) and he goes on "Networks are idealized quantitative structures that enable us to model, in a common formalism, many different types of connections, structures and flows" (p. 54).

While Bettencourt regards urban science in general and network analysis in particular as instrumental in creating the basis for new approaches to urban planning and policy, Denise Pumain is skeptical: "The available urban knowledge still appears too fragmented among a variety of disciplines for efficiently undertaking enough inspiring policies. It is also not yet connecting well the accumulated knowledge from the past with the new urban sciences" (p. 33), referring to chapters by Batty and Bettencourt in this volume. Also, it remains difficult to establish sound reasoning at the level of individual cities and at that of systems of cities.

To be fair, Bettencourt himself concedes that "predictability of a few average urban quantities does not imply the predictability of most others or any substantial loss of human agency or individuality" (p. 56), then closes with an unresolved key epistemological question of aggregation, involving: "[…] how people's individual exploratory and learning behaviour accumulates over time in a population and can lead to the most fascinating properties of cities as environments that create such fast change in human societies" (p. 56).

Part II focuses on cities and networks in history, elucidating continuities spanning thousands of years. Part III discusses methods and models of city–network interactions that cover a variety of quantitative and qualitative approaches. Part IV sheds light on network processes within cities addressing multiple issues, levels and scales. Part V revolves around network processes between cities, including an overview chapter by the co-directors of the Globalization and World Cities research network, Ben Derudder and Peter J. Taylor.

Where does this volume leave us as scholars and practitioners in urban development? Batty's view is that most of the chapters in this volume are about urban processes that determine how cities function and evolve, whereas only a few chapters emphasize how networks can be used to represent processes associated with the actual planning of the city: "These two different approaches to networks are usually developed by different constituencies of researchers and professionals, and there are few attempts at reconciling them" (p. 389).

A second edition of the Handbook should contain a sum-

marizing chapter that assesses the pros and cons of scales, levels, applied methods and data used. Does this volume implicitly say anything goes, as long as it is called 'network'? Or implicitly tell us that eventually we all will be using simulation modelling and large-scale computational tools? A second edition should also see more dialogue between the analytical and the normative approaches to cities and networks. This is certainly the case for pressing subjects like the role of large-scale technical networks for the spatial transformation of city-regions, climate change and urban growth, or the long-term effects of the Covid-19 pandemic with its imperative to keep physical distance while the triumph of the urban system lies with productively building upon physical proximity. Thus, understanding the nexus of cities and networks is a prerequisite for all urban analysts, planners and policymakers to do the right things right.

Full reference of reviewed title:

Neal, Z.P.; Rozenblat, C. (eds.) (2021): Handbook of Cities and Networks. Cheltenham: Edward Elgar Publishing. ix, 651 pages.

Reference

Berry, B.J.L. (1964): Cities as systems within systems of cities. In: Papers in Regional Science 13, 1, 147–163. https://doi.org/10.1111/j.1435-5597.1964.tb01283.x