Epilogue—Towards a Transdisciplinary Discussion on Future Cities and City Futures

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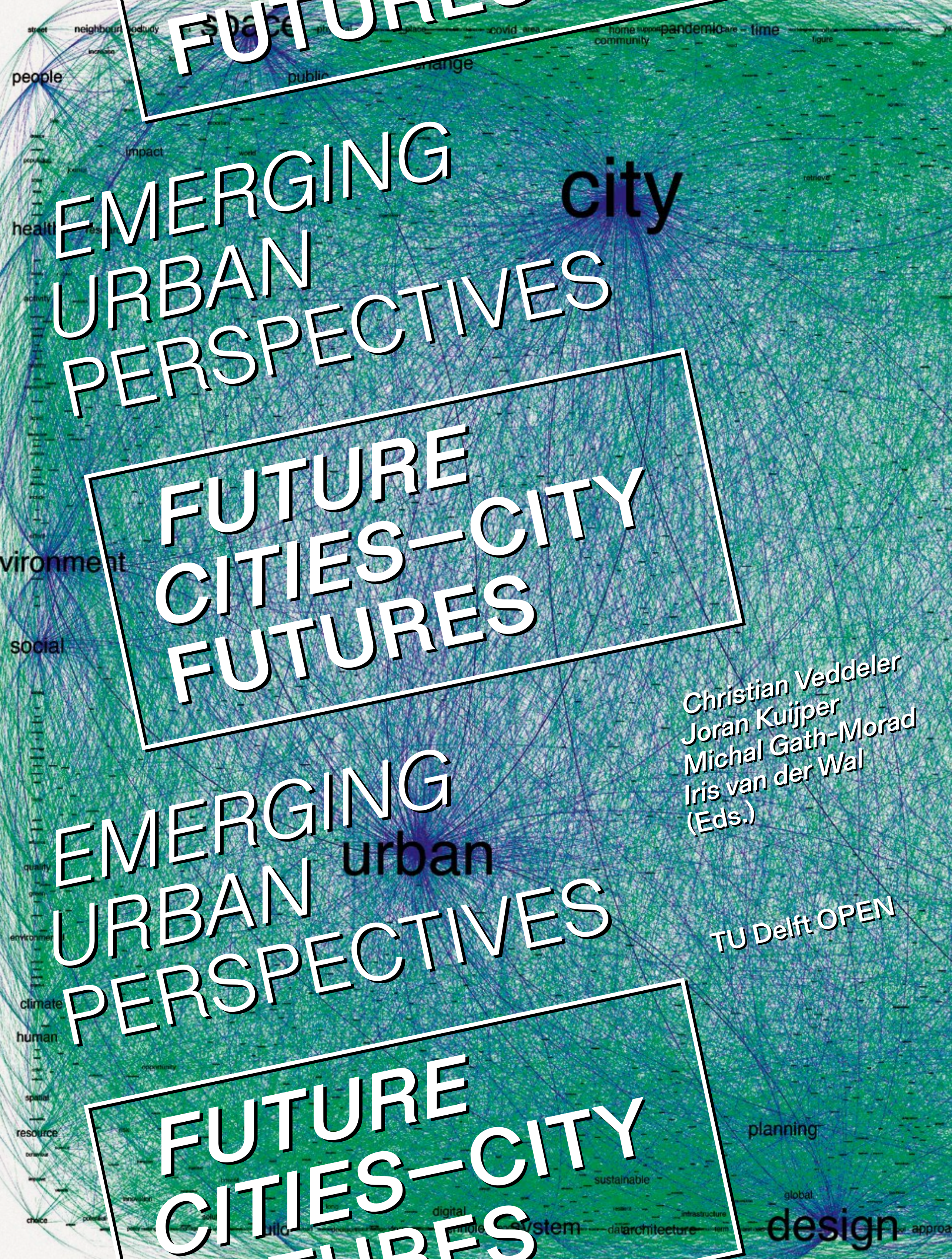

EMERGING URBAN PERSPECTIVES

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Emerging Urban Perspectives

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This book expresses the visions of urban thinkers, each through their own unique lens. Emerging themes concern the current challenges faced by cities worldwide, including the climate crisis, increased urbanization, limited natural resources, health and healthcare challenges, and changing social structures. Similarly, various themes recur as opportunities to tackle these challenges, including the use of information and communication technologies, hybrid workplace models, and ideas of circular economies.

Unsurprisingly, it appears that authors from diverse backgrounds each tend to envision city futures that are grounded in their training, education, and daily practice. For instance, some architecture, engineering, and construction practitioners and urban designers envision a speculative future for the city, while others focus on designing with the aid of human-centric planning tools or propose novel business models fit for architects within the circular economy of the future city. Differently, amongst academic authors, we see how the future of cities draws on research across a profusion of fields, including neuropsychology, cognitive science, environmental

← Israels Plads, Copenhagen (photograph by Rasmus Hjortshøj).

‘Cities are, above all, physical spaces which produce surprising things, reacting like a catalyst for the unexpected.’

Antoine Picon (as cited in Leonard, 2018, section Mapping the Unexpected)

psychology, real estate, urban economics, healthcare, and computer science. It is therefore not surprising that these authors make use of a broad range of methods to hypothesize what the future city will be like and how it will perform. The methods range from historical and literature research to observations, behavioural experiments, case studies, agent-based modelling, and computational simulations. This collection creates a broad image of what the city of the future could be or how it may function. Some authors are not easily categorized within each of the former groups their backgrounds and education are diverse and include the arts as well as real-world experience of urban imagination and policy making. In these chapters, themes from the natural world tend to be at the forefront of the future city, highlighting notions of circularity, biobased materials, and the social aspects of sustainability.

To further visualize how these authors from diverse backgrounds envisage the future city, we conduct a meta-analysis

with network analysis methods to capture the underlying textual structure of each chapter separately and all chapters combined. The themes emerging from this analysis reflect how rich and fertile is the ground for urban research and practice. Recognizing this diversity, we aim to adopt an inclusive approach and facilitate a pluralistic discussion that will ultimately contribute to the design of ‘good’ cities in the face of complexity. To conduct our analysis, the text composing each chapter is processed and represented as a network graph. From this graph, key topics are mapped using InfraNodus (Paranyushkin, 2019; 2011), and the relationship between words comprising each chapter is visualized using Gephi (Bastian et al., 2011). Each network graph is made from nodes that represent words and from edges that represent relations or connections between these words.

By representing each chapter and the prologue as a network graph (see Figures 1–26), we can begin to analyse how these chapters resemble or differ from one another in their textual content and structure. The network graph provides instant visualization and insight into the vision each author has. The size of the words in each graph depends on the frequency of appearance in the text, and their degree of connectivity to other words. The colour of the nodes depends on the connectivity of each word. More connected and central nodes are coloured in warmer red or orange tones, whereas words that are less connected or more peripheral appear in cooler blue tones. In addition, we have created a single network graph (Figure 27) from all chapters combined to analyse the connections between the different chapters. This reveals how the words used in various chapters relate to one another, forming a sort of shared mental model between authors and reflecting the prospects of our transdisciplinary discussion for the design of future cities.

Within the scope of this epilogue, we refrain from analysing the chapters with quantitative network analysis measures such as in-degree, out-degree, degree, eccentricity, closeness centrality, and betweenness centrality. Instead, at this point, we qualitatively analyse the high-level qualities of the

network graph for each chapter to allow a multiplicity of interpretations of the differences and similarities between the various perspectives comprising this book. For instance, a key quality that is instantly reflected in these network graphs is the 'centre of gravity', which is formed by the most connected nodes within the text. These nodes form a sort of neighbourhood or community that can be mapped to the topical clusters generated for each network graph using InfraNodus (Paranyushkin, 2019; 2011).

The network graphs reflect the unique lenses of our authors. As can be seen, the central node, which represents the most connected word in each chapter, is often the word 'city' or related words such as 'urban', 'planning', or 'building'. Yet, noticeably, the neighbourhood surrounding these central words differs dramatically between authors and reflects the diversity of centres in each chapter. For instance, in Figure 24, we see that the words connecting to the central word 'building' relate to themes of natural construction, and in Figure 3 to specific sustainability-related terminology around carbon footprints. In contrast, some of the network graphs do not follow this logic, and their 'centre of gravity' highlights other concepts, such as Figure 15, where the most connected word is 'choice', reflecting choice theory in behavioural economics and its potential for designing active buildings and cities. Finally, Figure 27 shows a network graph composed of all chapters in this book and thus visualizes the discourse emerging from the book. Unsurprisingly, the same words that were central in the individual chapters, such as city, urban, planning, architecture, design, and building, remain central in the joint network graph. Yet, this holistic, systematic view provides insights into the grouping of themes. By calculating the modularity (Bastian et al., 2011) of this network graph, we are able to visualize the structure of groups, clusters, or communities of words that are predominantly interrelated across the different chapters. This visualisation shows six main clusters of words colored in red, orange, pink, purple, blue and green. Each cluster emphasises different themes. The red cluster highlights words related to architectural design process, the orange cluster

seems to focus on words related to urban life and urban design, the pink cluster is centred around the recent pandemic, the purple and blue cluster focus on sustainability and climate change, and finally the green cluster emphasises the topic of health and healthcare.

The resulting epilogue is very much a visual one, allowing readers, authors, and editors alike to visually inspect and compare the different chapters, hoping to encourage individual insights and reflection in our effort to foster a transdisciplinary discussion. We see *Future City—City Futures* as the starting point for a much-needed discussion between thinkers, researchers, practitioners, and policy makers. How do you envision the future city? Is your voice heard? The discussion this book intends to facilitate is an open-ended one, and through the layering of perspectives we hope to honour the complex problem that the city remains (Jacobs, 1961). The launch of this book is also an invitation to make your urban voice heard. It is the diversity of voices that will help cities tackle the challenges that lie ahead. Following the launch of this book, we will initiate a series of gatherings and outreach activities seeking to extend and expand our discussion to include additional emerging voices. If you feel that your voice should be heard, you are welcome to join us.

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