

Teaching, Learning & Researching **Spatial Planning**

Edited by Roberto Rocco, Gregory Bracken,
Caroline Newton & Marcin Dąbrowski

Teaching, Learning & Researching Spatial Planning

TOOLS, CONCEPTS AND IDEAS TAUGHT AT THE SECTION OF SPATIAL PLANNING AND STRATEGY OF THE
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Street scene in Amsterdam. Photo by R. Rocco.

**Teaching, Learning &
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DIEGO SEPÚLVEDA-CARMONA

Spatial Planning & Strategy at TU Delft

REMON ROOIJ, GREGORY BRACKEN, DOMINIC STEAD, ROBERTO ROCCO

The Department of Urbanism of the TU Delft is organised in six sections: Spatial Planning & Strategy (SPS), Urban Design, Environmental Technology & Design, Urban Studies, Landscape Architecture, and Urban Data Science. SPS has three distinct and complementary pillars: (i) Spatial Planning & Strategy, (ii) Regional Design and Planning, and (iii) International Urbanisation & Development Planning. Spatial Planning at TU Delft has an evident, but unique relationship with spatial design, focusing on the development and transformation of spatial form, composition, patterns, structures, and networks.

The sections form the key pillars to Urbanism at Delft University of Technology. They bring together spatial and visual thinking, planning and governance, the urban and non-urban, data and technology, research and design. This integrative approach to urbanism has a long history at TU Delft and makes the University's academic profile in spatial planning highly distinctive and highly ranked.

All over the world, cities and regions are challenged by the risks and opportunities associated with accelerating challenges arising from migration, climate change, the fourth industrial revolution, globalisation, rising inequality, and political instability. They face urgent questions with respect to sustainable growth and transformation that can only be tackled in an interdisciplinary integrative way that promotes social, economic, and environmental sustainability and spatial justice. In other words, they are not only concerned with what to do (i.e. the objectives of spatial planning) but also

with how to do it (i.e. processes of democratic citizen engagement and governance).

Over recent decades, spatial planning, policy making, and territorial governance have changed drastically. First, trends of deregulation and decentralisation have had a large impact on traditionally strong spatial planning authorities, such as national governments and national bodies of planning. They have repositioned themselves and gotten new responsibilities, but regional and local planning authorities have had to adapt as well. Additionally, at least in the European Union, private stakeholders and civil society have been given much more room to co-create spatial plans and interventions with those planning authorities. Spatial planning has developed into an inter- and transdisciplinary activity, especially in advanced economies.

Secondly, vision and strategy-making have become mainstream in spatial planning with an increased understanding of the complex, uncertain, networked, and dynamic nature of cities and regions. Planning for resilience and sustainability, for organic growth, for flexibility, and for adaptivity means that planning has become a process of intensive interaction, negotiation, and communication between involved stakeholders, looking for shared visions and strategies to go forward. Such a process is helped by diverse tools and ways of approaching the tasks at hand, with the formulation of alternative spatial scenarios and by vision and strategy-making. These tools contribute to a new planning paradigm that focuses on communication and consensus-seeking in collaborative

decision-making processes. This has increased the need for urbanism-planning professionals who can lead, guide, facilitate, mediate, manage, and steer those processes, across a variety of spatial scales, from neighbourhood to city-region and beyond.

Thirdly, spatial planning has become a more digitised and digitally supported process in many ways. In several places, spatial planning processes are based on E-participation and innovative ways of citizen engagement. Urban (big) data and sophisticated 2D and 3D analysis, visualisation, modelling, and decision-making tools are providing urbanism professionals with more input on the city than ever before, making urban policy-making processes potentially more transparent, explicit, and democratic, and strongly underpinned and supported by actual and dynamic data that allows for evidence-based decision-making.

The changes within the professional field of spatial planning come with many questions that can be researched at the University, focusing on issues of:

- fairness, spatial justice, and democracy building.
- the roles and responsibilities of stakeholders in spatial development processes, including the roles and values of planners.
- spatial decision-making processes and how they are informed by socio-spatial data (analysis).

SPS contributes to teaching and research on these questions and contributes to the understanding of theoretical perspectives on the nature, scope, and effects of spatial planning. Our section focuses on (i) international and European territorial governance and policymaking, including their potential for democracy building, (ii) contemporary methods of spatial planning, spatial planning instruments, and spatial planning systems, (iii) territorial evidence and impact assessment. By doing so, the Section contributes to theories of spatial planning and builds on SPS's strong tradition of international comparative studies.

TU Delft is the leading institution in the Netherlands for research and education on Urbanism. It has an established track record of excellence in research, teaching, and learning, confirmed by external assessments.

With this book, we intend to disseminate a specific understanding of what spatial planning entails and how it converses with other disciplines. This understanding is anchored in a Dutch tradition that brings together spatial planning, urban design, environmental technology, urban studies, landscape design, urban data approaches, and more.

Foreword

ROBERTO ROCCO, GREGORY BRACKEN, CAROLINE NEWTON & MARCIN DĄBROWSKI

The complexity and interconnectedness of the urban challenges of today demand integrated and innovative approaches to the planning and design of sustainable, fair, and inclusive cities and regions. This, in turn, requires us to challenge and rethink current planning practice and education. Future generations of planners and designers need knowledge and skills to deal with that complexity by integrating insights from across different disciplines, from urban and regional design, environmental technology, geomatics, and urban studies to history and other branches of the social sciences. Furthermore, they also need to have a strong understanding of the values, ethical challenges, and dilemmas intrinsic to planning practice. These insights, methods, and frameworks provide a foundation for envisioning a future in which justice and sustainability play central roles. Contemporary planners need effective tools for developing shared spatial visions in communicative democratic exercises, to design strategies to achieve those visions, and create action plans for their implementation.

Communication plays a central role in multi-stakeholder environments, especially when power and knowledge are unevenly distributed, as is the case in cities. It is generally understood that the fields of planning and design require a value-oriented stance that seeks to promote pluralism (both epistemological and political) and shape public debate and practice. Planning is seen as a process in which visioning and strategy creation for (and with) diverse stakeholders is carried out. Therefore, blueprint planning is skewed in favour of participatory and deliberative planning.

Conveying ideas and shaping the future are two of the capabilities of planning and design. With the help of design, we can better ground planning in

existing spatial conditions and maximise the potentials of a given space. Design adds imagination and creativity to planning practice and opens up opportunities for experimenting with stakeholder participation and (visually) communicating solutions to complex urban challenges.

This book provides an authoritative collection of perspectives on theories, urban challenges, and methods of research and education in planning, from a diversity of perspectives and disciplines. It builds upon the integrative 'Delft approach' to Urbanism, which draws on knowledge and research from design, the social and physical sciences, and engineering. At the Department of Urbanism of TU Delft, students and staff engage in cross-disciplinary and comparative studies to better understand the inherent connections between spatial planning, spatial design, landscape design, environmental technology, urban data science and urban studies.

It is our hope that the various chapters in this book will resonate with the call for a more pluralist and adaptive approach to planning and design, one that is in constant evolution in response to changing needs, circumstances, and perspectives.

Part 1: Concepts and Theories

This book consists of nineteen chapters. For the sake of convenience, we have divided them into three parts, although, as you will see, there is a certain amount of overlap between them. We begin with Part 1, which has seven chapters that discuss concepts and theories. This is followed by five chapters in Part 2 which examine current issues of urban development and planning, while the third and final part, also with seven chapters, looks at

methods and teaching. These contributions represent a snapshot, as it were, of our research and teaching activities at the section of Spatial Planning and Strategy at TU Delft. This book will be updated in years to come as new research avenues open up, and new researchers join our team (and also when this volume's contributors want to share how their own work has developed and expanded in response to evolving societal challenges).

Part 1 begins by presenting crucial concepts and theories in planning and its connected disciplines. The aim is to create a common knowledge base. The first chapter is Roberto Rocco's 'Spatial Justice', which defines this concept and unpacks its implications for spatial planning, and planners' roles. It addresses spatial justice as an important aspect of sustainability and contends that one of the socio-political institutions supporting sustainability is spatial planning. It then examines the role of planning as a tool for public deliberation and identifies participatory planning as a viable tool for achieving spatial justice.

Chapter 2, 'Beyond Territorialism? Why there is no European spatial planning and what to do about it', is by Andreas Faludi and shows how problematic a concept 'territorialism' is, particularly for the European Union, where, he argues, borders are not watertight, therefore states should not plan as if they were.

The next chapter, by Rodrigo Viseu Cardoso, is called 'Theses on Metropolisation: Ten discussion points for research and education'. This defines metropolisation as the transformation of fragmented urbanised areas into coherent and consolidated urban regions. This definition takes into account the effects of long-term and intertwined processes of spatial, functional, institutional, and symbolic integration and the chapter outlines ten open-ended discussion points to inspire debate and further exploration.

Chapter 4, 'Multi-Level and Multi-Actor Governance: Why it matters for spatial planning' by Marcin Dąbrowski, sheds light on the vertical (multi-level) and horizontal (multi-actor) aspects of governance, which he sees as crucial for integrating planning

with other policy agendas and for engaging citizens in decision-making processes for the co-creation of planning visions.

Staying with citizen engagement in decision-making processes, Reinout Kleinhans and Enzo Falco's 'Digital Participation in Urban Planning: A promising tool or technocratic obstacle to citizen engagement?' examines digital participatory platforms (DPPs) – a specific type of web-based technology often adopted by governments for citizen engagement in urban planning. Their chapter points out that simply establishing these platforms is not enough, and they highlight five fundamental challenges to their effectiveness, showing that technology is not the main issue, it is the way in which the DPPs are embedded in wider participation approaches that is key to their success.

Eva Purkarthofer's Chapter 6, 'Agency in Planning: (Future) planners as key actors in the strive for sustainable urban development', continues this examination of agency in planning, this time through the lens of sustainable urban development. This 'ubiquitous objective in spatial planning' leads to concrete actions that vary greatly and her chapter examines how agency can contribute to a better understanding of the challenges facing actors in planning today.

The final chapter in Part 1 is by Carola Hein. '(Re)-positioning Spatial Planning History and Historiography' shows how governing bodies have historically used planning tools to advance the interests of select groups, which echoes the concerns of Roberto Rocco's opening chapter on spatial justice. Hein argues that students of spatial planning need to be aware of the background to planning systems, and their global interrelationships, in order to assess the impact these histories have on current and future planning practice.

Part 2: Current Issues

Whereas Part 1 is intended to create a benchmark that will allow readers to dive into current challenges for planning, Part 2 addresses specific current issues, beginning with 'Four Clusters of Thought on Flood Resilience and Climate Adaptation: The state of the art and new directions for spatial planning' by Meng Meng, Marcin Dąbrowski, and Dominic Stead. This shows how planning as an instrumental-technical intervention is mainly used to improve physical environments. However, the implementation of these interventions is often challenging, as can be seen from the authors' review of recent developments in flood resilience and climate adaptation. They identify the four clusters of thought of the title (which are mainly European and American) and call for an enlargement of the scope of planning research to enable us to identify future directions for study.

Chapter 9, by Wilbert den Hoed, is called 'Urban Mobility in Planning: An exclusionary or a uniting force? Conceptualising urban mobility for the planning discipline'. This chapter also highlights the desire to improve the social and environmental qualities of cities, this time through mobility systems. Den Hoed points out that mobility and transport planning have often worked in a disconnected way. His chapter sheds a light on this dichotomy by using new conceptualisations of urban mobility to argue that urban space is better when city planning – rather than transport planning – is at the heart of design.

The next chapter, 'Spatial Planning Policy Tools: A conceptual model', is by Dominic Stead and outlines a conceptual model for the policy tools used in spatial planning. He classifies these using Christopher Hood's NATO model (nodality, authority, treasure, and organisation) and differentiates between substantive and procedural functions. He further distinguishes these from tools used in plan-making (and reviewing), development control, and plan enforcement, since these activities use different tools.

Merten Nefs' chapter, 'Metropolitan Landscape: Definition, mapping, and governance', also examines tools at the planner's disposal. His chapter revisits the definition of metropolitan landscape and discusses one specific tool used to develop it: Community of Practice, reflecting on its qualities and challenges.

The final chapter in Part 2 is Guus van Steenbergen's 'Regional Network Governance in Spatial Planning: Constructing a framework to analyse the influence of regional authorities in metropolitan areas'. This points to an increasing recognition of the importance of the region in spatial planning. He shows how national challenges, like climate adaptation and energy transition, arise from the local level and come together at the regional, yet the region is neither spatially nor administratively bounded. The key focus of his chapter is to examine how regional authorities in the Netherlands influence spatial planning in metropolitan areas. He does this by proposing an analytical framework, and also provides a three-step approach for analysing policy practices at the regional level.

Part 3: Methods and Teaching

Part 3 deals with teaching, particularly the way in which planning can take into account the complexity of the present while simultaneously making it possible to take steps toward desirable and possible futures. It does this by introducing a broad selection of methods, beginning with Gregory Bracken's 'Teaching Theories of Urbanism' which introduces the various theories of urbanism courses taught at the Urbanism Department of the Faculty of Architecture and the Built Environment. He also emphasises the importance of urban theory for an increasingly urbanised twenty-first century.

Chapter 14, by Wil Zonneveld, is called 'Visual Storytelling: Assessing the power of maps in planning'. This chapter discusses the abundant use of visualisation in spatial planning, and, echoing Guus van Steenbergen's chapter at the end of Part 2, is particularly concerned with planning at the region-

al level and beyond, where maps form the dominant mode of visualisation. Zonneveld discusses the techniques map-makers use, and, also in an overlap with Part 2, provides tools for interpreting and assessing them by looking beyond visual style.

Chapter 15 is by Akkelies van Nes. 'Space Syntax in Spatial Planning: A short introduction to its methods, theory development, and application in practice' explains the use of space syntax in spatial planning and gives an overview of the different ways of carrying out spatial analyses in the built environment, underscoring its use in evaluating urban design and planning proposals.

The next chapter, 'Regression Analysis: Quantitative exploration of interactions between the built environment and spatial behaviour' by Arie Romein and Susanne van Rijn, is also quite technical, in that it introduces regression analysis as part of quantitative statistical analysis for empirical research, the outcomes of which can also be extremely useful for urban design and planning.

Chapter 16, 'Planning as Critically Engaged Practice: Consequences for studio education' is by Caroline Newton and emphasises that spatial planning and urban design are not merely technical disciplines but that everyday use of space must be incorporated into any plan or design because of the way they impact people's daily lives. This underscores the importance of seeing planning as an engaged practice, something which is related to Habitat III goals and (more specifically) those of the New Urban Agenda, both of which are committed to enabling sustainable urban development and the creation of integrated and just societies for the future. This chapter also shows the importance of incorporating socio-spatial complexity and the concept of 'the right to the city' into planning education, particularly the design studio, meaning that the focus of the studio will no longer be on what is, but on what is 'yet to be'.

The penultimate chapter in the volume remains with design teaching. Lei Qu's 'Vision and Strategy Making: Teaching spatial planning in design education in a situated learning environment' introduces a pedagogical approach for guiding vision and

strategy-making in design studios, showing the use of bridging research, planning, and design by highlighting one particular master's course on design as an example, this shows how its evidence-based/scientific methods can also be explorative, with a search for more plausible and desirable future scenarios, and this is in line with the role of regional design in practice, particularly in the context of collaborative planning.

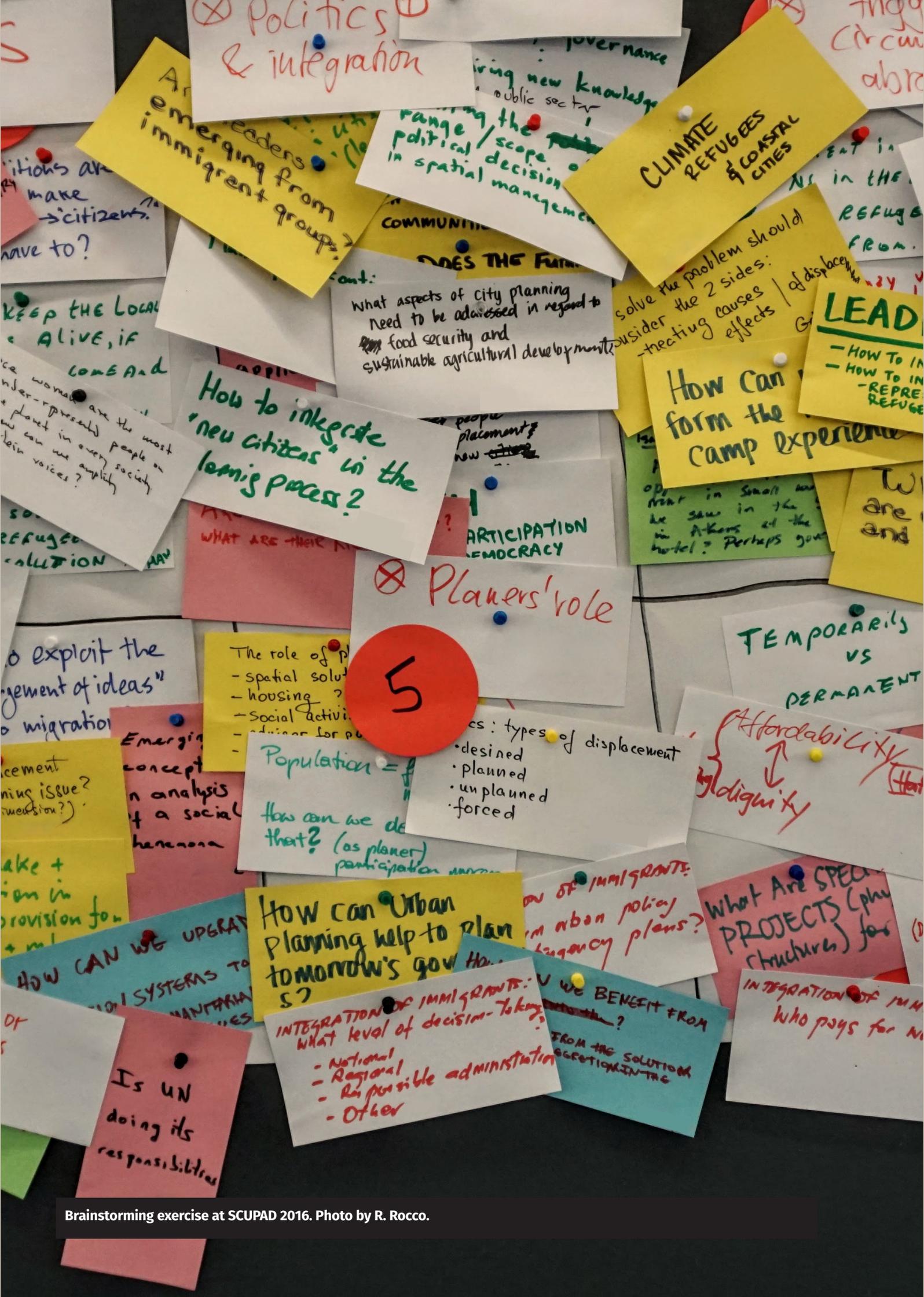
Finally, we end with Diego Sepúlveda-Carmona's chapter 'Dimensions of Socio-Environmental Approaches as a Platform for Local Development Under Climate Change: Theoretical and practical considerations of transdisciplinarity' which examines the governance of urban processes in the face of variability (for example, climate change). The urgency for responses and actions to extreme weather events transfers additional complexity to less developed societies. This chapter proposes linking climate adaptation processes to the outlining of strategies for local development, and presents a case study to establish a framework for possible interventions for local development strategies.

Concluding note

As you will see, this book is useful for both seasoned professionals and novices wishing to get a head start in learning the fundamentals of planning – this includes teachers and students in the field – but the chapters have all been written with a broader audience in mind as well. Basically, anyone concerned with issues of planning, design, and management of the built environment will find a wealth of ideas and resources for engaging with our most pressing urban and regional challenges.



Concepts & Theories



Politics & integration

CLIMATE REFUGEES & COASTAL CITIES

Emerging from immigrant groups

range of political / scope in spatial management

What aspects of city planning need to be addressed in regard to food security and sustainable agricultural developments

solve the problem should consider the 2 sides: -treating causes / -treating effects

LEAD

- How To IN
- How To IN
- REPRE
- REFUGE

How Can form the camp experience

How to integrate 'new citizens' in the learning process?

Planners' role

5

- spatial solution
- housing
- social activities
- indicators for people

- types of displacement
- designed
- planned
- unplanned
- forced

Population = how can we deal with that? (as planner)

TEMPORARILY VS PERMANENT

Affordability & dignity

How can Urban Planning help to plan tomorrow's growth?

What are SPECIFIC PROJECTS (physical structures) for

- INTEGRATION OF IMMIGRANTS: WHAT level of decision-making?
- National
 - Regional
 - Responsible administration
 - Other

FROM THE SOLUTION SELECTION IN THE

Is UN doing its responsibilities

Brainstorming exercise at SCUPAD 2016. Photo by R. Rocco.

Spatial Justice

A crucial dimension of sustainability*

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This chapter seeks to describe the concept of spatial justice and to unpack its implications for spatial planning and the role of planners. It addresses spatial justice as a crucial dimension of sustainability, especially of social sustainability. It argues that justice buttresses public reasoning and public justification and therefore reinforces the social and political structures and institutions that allow for sustainability to exist. It argues that spatial planning is one of those socio-political institutions buttressing sustainability. It argues, furthermore, that Justice is a good “internal and necessary for the successful realisation” of spatial planning, without which it is meaningless. It goes on to examine the role of planning as a public reasoning tool and identifies participatory planning as a viable tool to achieve spatial justice.

**SPATIAL JUSTICE, CITIES, CITIZEN PARTICIPATION, COMMUNICATIVE TURN,
THE RIGHT TO THE CITY**

*An earlier version of this text appeared in Rocco, R., Newton, C., D’Alencon, L. M. V., Watt, A. v. d., Babu, G., Tellez, N., . . . Pessoa, I. T. (2021). A Manifesto for the Just City. Delft: TU Delft Open. Excerpts from Patsy Healey’s and Do-reen Massey’s writings have been widely used by me in other texts, websites and communications.

1. Introduction

Social justice is undoubtedly one of the greatest challenges of our times, as rampant inequality erodes the fabric of our societies everywhere, undermining trust in governments and institutions, leading to violence and extremism, and eating at the very core of democracy.

Growing inequality, socio-spatial fragmentation, and lack of access to public goods are threats to the sustainability of our cities, especially when sustainability is understood in its three fundamental dimensions (social, economic, and environmental) (Dillard et al., 2009; Larsen, 2012). Social sustainability can be conceptualised as the social and political structures that hold overall sustainability up. Justice is at the core of social sustainability, as it sustains public justification and the democratic process itself. Social sustainability is underexplored in sustainability studies and the absence of this dimension means there is an enormous gap to be filled in how we understand the role of those social and political structures in planning for the just transition to sustainability.

Moral and political philosopher Alastair McIntyre argues that a practice is defined by the goods internal and necessary for the successful realisation of that practice (McIntyre, 2007). In the case of the planning practice, justice is a definitive 'internal good' that allows planning to achieve its standards of excellence, without which it is meaningless. In other words, I argue that justice is an essential component of planning, without which planning cannot be publicly justified or sustained.

Among other things, this means spatial planning must engage with 'two converging, yet distinct

social movements: sustainability and social justice' (Campbell, 2013: 75) to continue to be relevant. The European Union has made big steps in this direction in its European Green Deal (European Commission, 2019) taking up the notion of 'just transition to sustainability' as a core tenet in policymaking.

Justice underscores social sustainability because it helps boost the legitimacy of institutions. It also helps increase support for, compliance with, and suitability of policy. Moral and political thinker John Rawls explains this connection by reminding us that truth concerns validation, while justice determines acceptability: what is acceptable or not acceptable as outcomes of reached agreements (Rawls, 2005).

Justice is in fact inscribed in the very notion of sustainability: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987). The same report advances the idea that 'even a narrow notion of physical sustainability implies a concern between generations, a concern that must be logically extended to equity within each generation' (43). This speaks to the concept of intergenerational justice having a logical extension to the idea of intragenerational justice, that is, justice in this generation, here and now. And, indeed, it seems implausible to imagine a world in which we are worried about the welfare of future generations, while disregarding the needs of the current generation, by which I mean of course a broad concern for the welfare of all human beings, independently of their nationality, gender, race, sexual orientation, or creed.

2. Freedom, justice and sustainability

This concern might, in the view of many, be extended to the well-being of all living beings and of Planet Earth itself, especially when the latter is conceived as a system in which all 'existing biological systems behave as a huge single entity [with] closely controlled self-regulatory negative feedback loops that keep the conditions on the planet within boundaries that are favourable to life' (Boston, 2008: 86). This is known as the Gaia Hypothesis.

For Indian economist and philosopher Amartya Sen (Sen, 2009), there is a special case to be made for the preservation of the environment beyond the satisfaction of our needs and the preservation of our living standards. Sen appeals to the responsibility we have towards other species due to our incomensurable power in relation to the planet and all living beings. This is our 'duty of care' towards the planet, like the duty of care that befalls any adult in relation to a small child. In Sen's example, the adult is so much more powerful and stronger than the small child that a duty of care automatically ensues, as an adult may not allow a child to come to harm through action or inaction, even if they are not biologically related. Likewise, humankind, as a powerful presence on Planet Earth, has a duty of care towards the planet and its natural systems.

This speaks to the case for the 'rights of nature', by which we can also imagine jurisprudence that describes inherent rights of ecosystems and living beings, similar to the concept of fundamental human rights. In this theory, human rights emanate from humanity's own existence, that is, every human being has fundamental rights just because

they exist, independently of their country of origin, race, gender, age, and other characteristics. In this perspective, babies do not have fewer human rights than adults just because they cannot communicate with words or write petitions. Babies are born with the full set of human rights by the mere fact that they exist as living sentient beings. In this sense, all living beings should have fundamental rights because they exist, are alive, may experience pain, and are an integral part of the complex systems of life on our planet.

Talking about the 'rights of nature' is difficult because justice is a human invention. Justice allows us to keep interacting with each other, it does not exist in nature. Nonetheless, it is clear that we must extend the notions of rights and justice to the natural world if we wish to keep interacting with it, lest a purely predatory interaction will lead to our mutual destruction. Epstein and Schoukens (2021) recognise a 'jurisprudence trend' towards recognising the rights of nature and argue that 'explicit or not, nature as protected by European Union (EU) law already has certain legal rights in the Hohfeldian sense because other entities have legal obligations towards it' (2021: 205).

For Sen, by extending rights to nature, we are in fact extending our own freedoms, including the freedom to meet our own needs now and in the future. He calls this idea 'sustainable freedom': the preservation and expansion (where possible) of the substantive freedoms and capabilities of people today, without compromising the freedoms and capabilities of people in the future (Sen, 2009: 252-253).

But the emphasis on our own human needs, which is ubiquitous in sustainability science, can also be challenged. For Sen, people have needs, but they also have values, conscience, rationality, freedom, ethics, moral feelings, and codes which determine how soci-

eties are organised. Most importantly, there is power, often expressed in economic or political power, which makes our relationships with each other and with nature unbalanced.

3. Cities: The spaces of shared life

Cities are a spatial expression of this organisation. Cities are the predominant mode of human inhabitation in the twenty-first century (Gross, 2016), and they seem to exert an enormous pull towards those seeking for a better life, as testified by the dramatic urbanisation of the world after World War II. According to the World Economic Forum, the world's urban population has risen almost six-fold between 1950 and 2018, from 751 million to 4.2 billion people (Ghosh, 2019), or more than 52% of the world's total population. Such a dramatic urbanisation process was triggered by two intertwined reasons: overall population increase and upwards trends in people migrating to cities from rural areas (United Nations Department of Economic and Social Affairs, 2018). However, cities do not offer the same opportunities to all who come seeking for opportunities to improve their lives. There is an (urban) geography of the distribution of the burdens and benefits of human activity, where those burdens and benefits (in the form of services, public goods, and environmental quality) are unevenly distributed. In short, where an individual or household lives in the city will have a determining impact on their access to opportunities, services and (public) goods (Marcuse, 1997; Van Kempen, 1994).

This distribution follows diverse patterns and path dependencies, according to each place's his-

tory, geography, economic and social development, presence and quality of democratic institutions, and a myriad of other factors that influence the distribution of those burdens and benefits in space and among different social groups.

Somewhat counter intuitively, cities have enormous advantages over rural areas: density is maybe their most significant feature (Glaeser, 2000). Spatial density means density of interactions and opportunities as well, and density is also the breeding ground of innovation and exchange (Jacobs, 1969). Cities are spaces where we simultaneously cooperate and compete for resources, and where we must decide together how these resources are distributed and shared.

British social scientist and geographer Doreen Massey claimed urban space as the dimension of multiplicity: 'If time is the dimension of sequence, then [urban] space is the dimension of contemporaneous existence. In that sense, it is the dimension of the social and therefore it is the dimension that poses the political question of how we are going to live together' (Massey, 2011). Massey calls this idea 'radical simultaneity', in which stories, ongoing trajectories, and multiple voices happen simultaneously, but not symmetrically. Space is permeated by asymmetrical power relationships, practices, and interactions. In a world of growing inequality, scarce resources, and climate emergency, this conception feeds increasing uncertainty about how the burdens and benefits of our coexistence can be fairly distributed among us and whether there is a spatial dimension to social justice. Simultaneously, this triggers a deeper reflection on how to foster spaces of true democracy and participation in deciding how those burdens and benefits are distributed.

Therefore, Spatial Justice seems to be especially

relevant today, as it allows us to focus on the spatial dimension of the distribution of the burdens and benefits of our association in cities and on the manner this distribution is governed.

Spatial justice focuses on two dimensions of justice: distributive and procedural. On one hand, distributive justice seeks the creation, fair allocation of, and access to public goods, resources, and services throughout the city. This is connected to the geography of distribution we mentioned earlier. On the other hand, justice or injustice can also be found in how resources and public goods are negotiated, planned, designed, and managed. Justice or injustice can be found in the procedures of negotiation, planning, and decision-making. For example, planning processes that are transparent and allow some form of citizen participation are bound to be more just than those that do not. This is because the incorporation of multiple voices in decision-making processes increases the chances that the wishes, needs, and desires of those voices are integrated in decision-making.

But as Massey's conceptualisation reminds us, the city is also the space of power differences, friction, and disagreement, where vulnerable groups are generally silenced or unable to have their needs, interests, and aspirations considered. Despite its obvious advantages, citizen participation and engagement are by no means a panacea to solve this impasse.

4. Citizen participation and spatial justice

Citizen participation as an activity supporting procedural justice in planning encompasses a large variety of engagement and participation methods, in practice mostly related to the lower steps of Sherry Arnstein's famous 'ladder of participation' (Arnstein, 1969).

The vast majority of democratic theory, and deliberative democratic theory in particular, either implicitly or explicitly assumes the need for widespread citizen participation. It requires that all citizens possess the opportunity to participate and also that they take up this opportunity. But empirical evidence gathered over the past half-century strongly suggests that many citizens do not have a meaningful opportunity to participate in the ways that many democratic theorists require, and do not participate in anything like the numbers that advocates of participation theorists believe is necessary (Parvin, 2018: 31).

Reasons for low levels of citizen engagement in policymaking abound (Parvin, 2018) and are as much related to governance styles and other political, cultural, and economic factors as they are to public officials' unwillingness or lack of capacity to engage citizens.

Following Sen (2009), in order to advance the idea that communicative rationality and public reasoning can deliver urban policy that is both 1) better informed about the pleas, needs, and wishes of citizens and 2) more just, because it includes the voices of the vulnerable and silent, we must find innovative ways to encourage citizens to participate and enable policymakers to guide more meaningful

and fruitful forms of engagement.

Despite the serious critiques to participatory processes put forward, it is difficult to imagine the Just City without some form of participation and co-creation. These can be found in the ideas of French Marxist philosopher and sociologist Henri Lefebvre in his concept the Right to the City (1968), which we will discuss in a moment.

One of the first proponents of the idea of Spatial Justice was American political geographer Edward Soja. For Soja

Thinking about space has changed significantly in recent years, from emphasizing flat cartographic notions of space as container or stage of human activity or merely the physical dimensions of fixed form, to an active force shaping human life. A new emphasis on specifically urban spatial causality has emerged to explore the generative effects of urban agglomerations not just on everyday behaviour but on such processes as technological innovation, artistic creativity, economic development, social change as well as environmental degradation, social polarization, widening income gaps, international politics, and, more specifically, the production of justice and injustice (Soja, 2009, n.p.).

Soja states that spatial justice 'seeks to promote more progressive and participatory forms of democratic politics and social activism, and to provide new ideas about how to mobilise and maintain cohesive collations and regional confederations of grassroots social activists [...] Spatial justice as such is not a substitute or alternative to social, economic, or other forms of justice but rather a way of looking at justice from a critical spatial perspective' (Soja,

2010: 60). In this perspective, 'the spatiality of (in) justice [...] affects society and social life just as much as social processes shape the spatiality or specific geography of (in)justice' (Soja, 2010: 5).

For Soja, Spatial Justice is not only about distribution and procedures, but has a potential for insurgent action that disrupts and reimagines the *status quo*. And indeed, our time is a time of successive crises: climate change, the COVID-19 pandemic, indecent inequality, and cynical populist leaders that caters to the interests of economic elites by subverting the public realm and eroding democratic norms. These crises seem to have a common root in our economic system: capitalism in its current predatory form is not socially, economically, or environmentally sustainable. But we have naturalised capitalism, as if it were an ineluctable 'natural system' appropriate to human nature. This conception completely disregards other forms of economic organisation that have existed before capitalism and continue to exist in traditional societies and at the fringes and interstices of modern ones.

I wish to argue that ours is a crisis of imagination: we cannot imagine a future that is not market-based. Most importantly, many among our fellow citizens and politicians have naturalised the idea of rational choice that underscores the idea of an invisible hand of the market to the point where we cannot imagine a world that is not organised by this 'market'. It is easier to imagine a planet ravaged by climate change than to imagine a different economic and social form of organisation that is fairer, more humane, and respectful of the rights of people and nature.

Following the ideas of Professor Faranak Miraftab of the University of Illinois at Urbana-Champaign, our minds are colonised by ideas of individual free-

dom and entrepreneurship that are meaningless if we cannot agree on how we will live together in our cities and in a planet whose resources are finite. There is no freedom possible outside of a society in which we all collaborate with each other, so we can all be free. And sustainability is meaningless if we do not have sustainable freedom, following Sen's conceptualisation.

4. The Right to the City

The concept of the Right to the City was formulated by Henri Lefebvre (Lefebvre, 1968) and is firmly grounded on ideas about active citizenship: the right to take part in the affairs of the city, to make decisions about one's own living environment, and therefore realise one's full potential as a political being, realising one's "sustainable freedom". More recently, British Marxist economic geographer David Harvey, and others, have written extensively about the right to the city. According to Harvey (2003), the Right to the City is the right to actively shape the city to one's needs and desires, thus exercising one's full citizenship. In liberal democratic societies, public involvement in the affairs of the city is institutionalised and democracy is representative through elected officials or through other indirect forms of participation. The ability of common citizens to directly interfere in the affairs of the city is limited by a number of obstacles: lack of time, socio-economic and cultural exclusion, lack of access to relevant knowledge, poverty, and many other issues. These are sometimes insurmountable hurdles to full active citizenship in some societies.

Planning and designing the city must cope with constant change and with the need to 'redistribute' power among stakeholders, leading to the fair redis-

tribution of resources, services, and opportunities. This fair redistribution of power among stakeholders in the conduction of the affairs of the city is one of the fundamental aspects of Spatial Justice.

And indeed, in a world struggling through a climate emergency, where resources are dangerously depleted and social and economic instability are rampant, reaching consensus and acting collectively to avoid or mitigate the worse effects of the crisis seems to be the most rationally self-interested thing to do. In this sense, justice concerns a wide range of subjects that concern us collectively, as humanity, in relation to ourselves, to the planet and to other species. Spatial justice remains crucial to how we address these problems in connection to how we conceive and manage our living spaces.

But there are very special circumstances in which compromises can be reached and just outcomes achieved. Those circumstances are often not present in how our cities are planned, designed, and managed, but it is our task as planners, designers, and managers of the built environment to create those circumstances and to improve the fair distribution of burdens and benefits of urbanisation.

5. Communicative rationality and planning: potential for fair and inclusive policymaking

In the 1990s, a new 'style' of planning started to emerge, championed by authors like Edith Innes, Patsy Healey, and John Forester, heavily influenced by German philosopher and sociologist Jürgen Habermas' communicative rationality theory. This is concerned with clarifying the norms and procedures by which agreements can be reached and

is therefore a view of reason as a form of public justification (Bohman & Rehg, 2007). This 'public justification' is irrevocably intertwined with notions of democracy, diversity, and justice. Public justification is also a form of shared truth-forming. As we saw with Rawls (2005), truth concerns validation, whereas justice determines acceptability: what is acceptable or not acceptable as outcomes of people's and institutions' actions and agreements. Both contribute to the formation of a democratic public sphere.

This 'communicative turn' (Healey, 1996) is important for planners, designers, and managers of the built environment, because it has far-reaching consequences for how they act and interact with others influencing the allocation of resources in the city (distributive Spatial Justice) as political agents. In this perspective, planners, designers, and managers of the built environment must make efforts to include the voices of a variety of stakeholders to discuss any given issue arising from the distribution of resources in the city (procedural Spatial Justice).

It also implies that citizens have a duty to participate in civic debate (Rawls' 'duty of civility') and, as pointed out by Brandon Morgan-Olsen, they also have a duty to listen to each other and to the arguments emanating from a variety of sources (Morgan-Olsen, 2013). As we have seen, these issues and more make public participation problematic, if highly desirable.

British planner Patsy Healey offers a step forward to incorporating these ideas into planning theory and practice, and explains the possibilities of a 'communicative turn' in planning from the recognition that we are diverse people living in complex webs of economic and social relations, within which we develop potentially very varied ways of seeing the world, of identifying our interests and values,

of reasoning about them, and of thinking about our relations with others. The potential for overt conflict between us is therefore substantial, as is the chance that unwittingly we may trample on each other's concerns. Faced with such diversity and difference, how then can we come to any agreement over what collectively experienced problems we have and what to do about them? How can we get to share in a process of working out how to coexist in shared spaces? The new wave of ideas focuses on how we get to discuss issues in the public realm (Healey, 1996: 219).

Healey correctly identifies this 'new wave of planning' (albeit not so new by now) as having the potential to reconstruct the public realm and publicness. Healey recognises the influence of Habermas in this enterprise by positing that

He [Habermas] shows us that we are not autonomous subjects competitively pursuing our individual preferences, but that our sense of ourselves and of our interests is constituted through our relations with others, through communicative practices. Our ideas about ourselves, our interests, and our values are socially constructed through our communication with others and the collaborative work this involves. If our consciousness is dialogically constructed, surely, we are deeply skilled in communicative practices for listening, learning, and understanding each other. Could we not harness these capacities explicitly to the task of discussion in the public realm about issues which collectively concern us? (Healey, 1996: 219)

Healey asserts that ideas of communicative rationality focus on ways of 'reconstructing the meaning of a democratic practice', based on more inclusive practices of 'inclusionary argumentation'.

For Healey, this is equivalent to a form of public reasoning which accepts the contributions of all members of a political community and recognises the range of ways they have of know, valuing, and giving meaning. Inclusionary argumentation as a practice thus underpins conceptions of what is being called participatory democracy (Fischer, 1990; Held, 1987).

(...). Through such argumentation, a public realm is generated through which diverse issues and diverse ways of raising issues can be given attention. In such situations, as Habermas argues, the power of the 'better argument' confronts and transforms the power of the state and capital (Healey, 1996: 3).

There are close connections between Rawls' theory of justice and Habermas' communicative rationality. For Healey,

Habermas' ideas have the potential to reconstruct democratic practice towards more inclusive participatory forms of democracy based on inclusionary argumentation. Inclusionary argumentation implies public reason that 'accepts the contributions of all members of a political community and recognizes the range of ways they have of knowing, valuing, and giving meaning' (Healey, 1996: 219).

As a practice, Healey argues, it has the potential to regenerate the public realm in which diverse issues and diverse ways of raising issues can be given attention. In such situations, Healey argues, 'the power of the "better argument" confronts and transforms the power of the state and capital' (Healey, 1996). We posit that communicative rationality has the power to make sense of, and distribute justice.

In this sense, the communicative turn in planning

recognises that communication plays a central role in achieving agreements about how spatial burdens and benefits should be distributed. It goes further to posit the inclusion of 'alternative rationalities', that is, the need to include silent or oppressed groups in the dialogue and communication so as to maximise the chances of just agreements being reached, as the exclusion of certain groups from communication and decision-making leads to unfair/unjust outcomes for those groups. This idea is at the core of procedural spatial justice and includes issues of democracy, participation, accountability, transparency, and more. This is also very close to contemporary thinkers' ideas on the distribution of power by the recognition of alternative rationalities, such as Foucault's Power/Knowledge theory (Foucault, 1975; 1990; Foucault & Gordon, 1980) and Paulo Freire's 'pedagogy of the oppressed' (Freire, 2018 [1968]).

It is perhaps naïve to expect that 'just procedures' will produce 'just outcomes', or that the 'power of the good argument' will subvert power, especially in contested urban environments where economic forces override the possibility of fair public debate, but democracy still is our best chance to deliver social justice, and most specially, the Right to the City for everyone.

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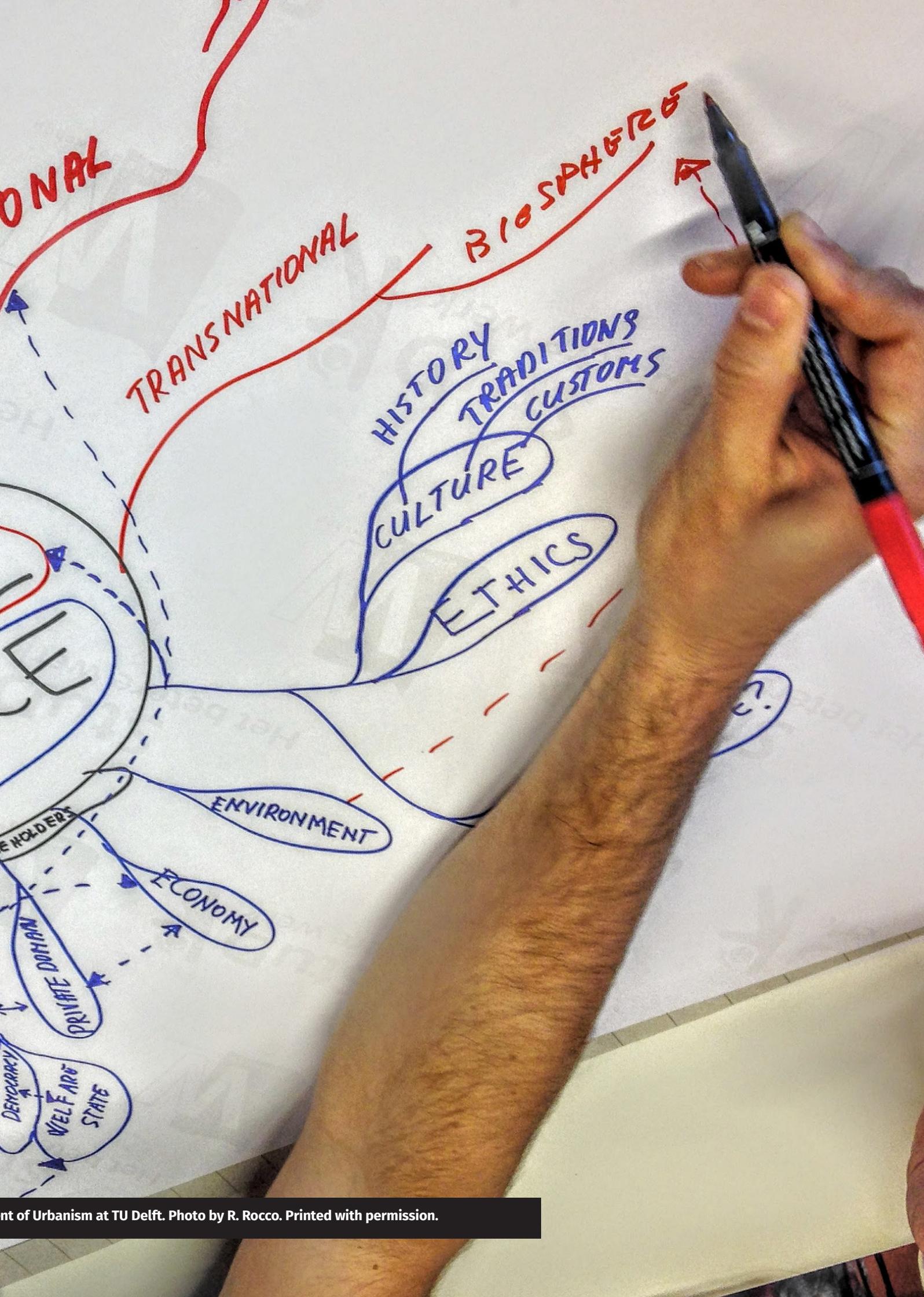
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Mind map on Spatial Justice made by students of the Department



Beyond Territorialism?

Why there is no European spatial planning and what to do about it?

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This paper is about my path from studying Dutch to European planning. Looking at the latter made me identify a 'territorialism' that subdivides land into supposedly self-contained units as a basic organising principle. Where the EU is concerned, territorialism is problematic: relations, spatial or otherwise, between EU members states take the back stage. A strong, maybe even a federal EU might help but is not on the cards. So, European planning cannot take a leaf out of the book of Dutch planners. At least as far as the twentieth century has been concerned, the latter have pointed the way to a well-ordered Netherlands. But in the EU, member state should not plan as if each were a law unto itself. They should accept that, like in the Middle Ages, borders are not watertight but that there are criss-crossing governance arrangements, functional or otherwise. Nor could European spatial planning, if it existed, be about making one overall scheme, like the one Dutch planners once did for their own country. Instead, we see multiple, overlapping schemes hanging like a cloud over the land. Which only goes to show that not everything can be contained within the territories of each EU member state. The paper ends a consideration of how to create awareness of this, and how to critique territorialism in teaching.

**DUTCH TWENTIETH-CENTURY PLANNING, EUROPEAN SPATIAL PLANNING,
THE EU CONSTRUCT, TERRITORIALISM, PLANNING PEDAGOGY**

1. Introduction

In Faludi and van der Valk (1994), we unravelled to our own satisfaction the secret of Dutch twentieth-century planning: its having a ‘planning doctrine’ for how to keep the country in shape. More about this below, but what needs saying here is that Dutch conditions at the time were of course different from those prevailing in the European Union (EU) the planning of which was the object of my next research. It has led me from being a, perhaps naïve enthusiast of the EU to being – no, not a Eurosceptic – but circumspect about the meaning of European integration: if it is not about creating a federal, let alone a superstate, maybe it is something novel. And, if so, then we might also need novel forms of planning. Consider, for instance, the notion of ‘ever closer union’. Wrongly understood to mean the formation of a federal, some would say a super-state, this is now anathema. So would, if one were to be proposed, an EU spatial plan. In matters of spatial planning, member states are sovereign: answerable to nobody but their voters. Which rests on the further assumption of the land surface of the globe being divided into territories, each the responsibility of a state. What is meant by the term territorialism in the title of this chapter is precisely this: the world being divided into clearly marked and distinct territories, with pride of place going to the territories of sovereign states. The term itself comes from Jan Adriaan Scholte. Accordingly, territorialism means ‘that macro social space is wholly organized in terms of units such as districts, towns, provinces, countries and regions. In times of statist territorialism more particularly, countries have held pride of place above the other kinds of territorial realms’ (Scholte, 2000: 47).

It is also relevant to look at Jan Zielonka, my source of inspiration in coming to terms in Faludi (2020 [2018]) with European integration and planning. He has invoked Max Weber in saying that in states, functional and geographic borders coincide (Zielonka 2001: 508). This suggests states are like containers. So, leaks in their walls need to be plugged. In terms of Sack (1986: 19) they cast doubt on the ability of states to control people, phenomena, and relationships by asserting control over a geographic area: what he calls their territoriality.

To give an example that is topical: fearing being dammed if not seen to be doing something about COVID-19, states invoked their territoriality by excluding potential carriers of the virus. It is the same when, nurturing life-saving equipment and vaccines, they prevent these from being taken outside their borders. In other words (even if more symbolic than effective as a measure) the border must be closed, asserting the state’s territoriality.

Spatial planning, too, involves drawing borders. Could a putative European planning do the same? Where would it draw its powers from? The question is pertinent, since a permissive consensus has made room for scepticism about European integration. That there is a way out is anything but certain. This has become central to my thinking and research. I discuss European planning below, but not before relating the contrasting case of twentieth-century Dutch planning.

2. Dutch planning, the sources of inspiration

Coming to this country, with its reputation for orderliness and planning, I started comparing Dutch practice with that of England and Wales, with two university towns, Leiden and Oxford, the cases I selected. While not the topic here, the finding that Dutch local planning was unable to give firm guidance to urban development was a surprise. In *Flexibility and Commitment in Planning: A comparative study of local planning and development in the Netherlands and England* (Thomas et al., 1983) we interpreted the issue in terms of the dialectics between flexibility and commitment.

I followed this up by exploring an, at the time, unique Dutch practice: national planning. The main issue was the imbalance between the dynamic Western Netherlands and the periphery. Deflecting pressure away from the former to the benefit of the latter seemed the solution. But there was also a concern to preserve the pattern of development in the Western Netherlands with its characteristic ring of cities and towns arrayed around a relatively open space. This pattern has acquired international fame as the 'Randstad', with its 'Green Heart' (Dieleman & Musterd, 1992). To manage urban growth in ways leaving this pattern more or less intact, development needed to be channelled away from the Green Heart and towards new growth centres designated for the purpose. The practice of guiding investment to designated areas called growth centres at the time continues to the present day when – see below – Dutch doctrine has more or less been abandoned.

There was remarkable consensus about the policy as described, and the pragmatism in managing it,

throughout the latter parts of the twentieth century (Faludi & van der Valk, 1994). In an effort to understand how, we drew on discussions about the development of science, in particular on Thomas Kuhn (1970). Kuhn had pointed to the existence of scientific paradigms guiding research, often to the exclusion of other schools of thought. We posited that planning needing something similar. We called this a doctrine. The Dutch doctrine we saw in particular as being based on an image of the shape of the country, together with ideas on how to preserve and enhance it in the future. Development that would impair this shape, like building massively in the Green Heart, was unthinkable, the forbidden, the eternal sin. Just like anomalies could lead to the downfall of a paradigm in what Kuhn called a scientific revolution, so too with Dutch doctrine: massive development in the Green Heart could signal a doctrinal revolution.

The danger could be reduced by maintaining the pattern which the doctrine prescribed. Which required locating the growth centres mentioned above where they enhanced the development of the Randstad. Syphoning off pressure, this made it possible to restrict development in the Green Heart.

We were not the only ones to draw inspiration from the development of science. In a parallel effort, Wil Zonneveld (1991) invoked, not Kuhn but rather his critic, Imre Lakatos (1970), in identifying patterns in the conceptual development of Dutch strategic planning.

Importantly, adherence to the doctrine was achieved, not through dictates but through building consensus in the relevant policy community. In this respect, what helped was the evocative term 'Green Heart' for the open space, much appreciated as it was, in the core of the Randstad. Policies

advocated by mavericks to develop the area were out of bounds. As with paradigms which, in order to change, required a 'scientific revolution', changing doctrine, too, would require a doctrinal revolution, we reckoned. And, as revolutions go, this one, too, would result in the removal of the planning elite behind the doctrine.

Dutch doctrine has since lost its edge, but Green Heart and the Randstad are still household terms. What has happened to this doctrine has not been the object of my further research. I turned my gaze towards European spatial planning, which will be discussed in a moment. Suffice to say, rather than a veritable revolution, the twenty-first century saw the doctrine petering out and national planning suffering from benign neglect until it has, to all intents and purposes, disappeared. The national government abandoning all ambition to guide spatial development is perhaps the ultimate demise of the doctrine.

3. Territorialism, its origins, and dangers

I started researching European planning in the same way as I had done before with Dutch planning: by looking at its practice. The occasion for doing so has been planners from the Dutch national planning agency themselves taking an interest in the matter. To articulate issues in European planning in terms of a territorialism that conceives of the land surface of the globe – see above - as neatly divided into the territories of sovereign states took time.

But I soon figured that to expect a European doctrine on the Dutch model was 'a bridge too far' (Faludi, 1996). After all, conditions during post-war

reconstruction in the Netherlands had been uniquely favourable. And, of course, the EU was not a state and not remotely as cohesive as the Netherlands. Only later did it become clear to me that it was not even a state in *statum nascendi*, but rather an enigma.

Reminded of when I came to Dutch planning as an outsider, I set out to look at the humdrum practice of what went on under European planning. So, once I had found out about a 'European Spatial Development Perspective' (ESDP) in the making, Bas Waterhout and I engaged in an in-depth study of its making (Faludi & Waterhout, 2002).

There have been occasions, most recently in Faludi (2020; 2021), for revisiting this process. Importantly, giving up control over their territories was anathema to EU member states. But the planners involved learned to cooperate. The problem was the national administrations. They either ignored the planners or, where their work seemed to concern matters of national interest – in the Dutch case, for instance, the position of the Port of Rotterdam – they told them to take such issues off the agenda. The opposite – planners being instructed to ensure that matters of little overall relevance be included – was also the case: when Greece and Turkey were at loggerheads over an outcrop off the port of Bodrum on the Turkish mainland, Imea (Kardak in Turkish; see Mann, 2001: 34) the Greek member of the team was ordered to insist that this speck of land to be shown on all maps.

Clearly, I needed a better understanding of the EU based as it is on intergovernmental treaties. Those treaties are so comprehensive that the EU seems like a federation, but its members have more say than would be the case in a true federation. Relations are also evolving, giving rise to misun-

derstandings and outright conflict. Jacques Delors, Commission President from 1985-1995, once described the EU as an 'unknown political object'. Another way of putting it is saying that it is *sui generis*: one of a kind. Whatever, the uncertainty over what it was made people ask where integration was heading and what it meant for the more familiar figure of the democratic sovereign state.

Working on the European Spatial Development Perspective (ESDP) with planners from the member states, an activist European Commission considered the EU territory as a whole, but the planners from the member states – see above - were beholden to look at what it meant for their own countries. And these had the upper hand. Spatial planning was not, after all, what is called an EU competence. It could be argued that one such was implied, for instance in the so-called Structural Funds, the vehicles for pursuing social and economic cohesion. But, whilst welcoming essential Commission support for its logistic preparation, led by the Germans, the representatives of the member states considered the ESDP a matter for so-called intergovernmental cooperation. With each member state having what amounted to veto power, this led to lowest- common-denominator decisions. So, in the end, the Commission lost patience. Looking forward to being given a competence at the next occasion: a pending review of the EU treaty, the Commission ended its logistic support for the ESDP in 1999.

The discussion about changing the treaty was not in terms of spatial planning but of territorial cohesion. This seemed a logical add-on to the existing EU competence for economic and social cohesion. Under it, the EU operated the European Regional Development Fund giving assistance, mainly to less favoured regions. In anticipation of territorial cohe-

sion appearing on the books, more or less the same planners, from more or less the same countries that had taken a lead before, prepared the 'Territorial Agenda' as a kind of follow-up to the ESDP. Anticipating that the treaty would be amended in due course, even the German legal experts decided that a case existed, if not for European spatial planning, then at least for a common territorial cohesion policy (Ritter, 2009).

But in 2005, French and Dutch referenda shipwrecked the Treaty, establishing a Constitution for Europe. It was only at the end of 2009 that a toned-down version – the current Lisbon Treaty – came into force. It was then that 'territorial cohesion' became what is called a shared competence of the EU.

It is not always appreciated that a shared competence gives leeway to member states to reject the exercise of said competence on the ground that they themselves could deal with, in this case, the matter of territorial cohesion. Each for its own reasons, Germany and the United Kingdom did precisely that. So, there was no follow-up to the Commission's 2008 'Green Paper on Territorial Cohesion'. The Commission has been trying ever since to infuse Cohesion policy with elements of territorial cohesion, but there is no territorial cohesion policy as such: a far cry, this, from what might have been expected one or two decades before.

Let this be an object lesson on how the EU works: its members, sovereign states each, are all-important. Under the theory of international relations – and here I return to the notion introduced briefly above – not only the European continent, but – with the exception of Antarctica – the entire land surface of the globe is covered with self-contained territories: 'territorialism'.

But this is only half the story. The other half is

that the EU features many overlapping spaces which are the objects of various forms of planning at different scales ranging from cross-border cooperation to macro-regions embracing groups of member and also non-member states. Perhaps even more important, though, meanwhile, there is integration fatigue, putting the future of the EU as such in the balance. Populists are driving governments to reassert control over their territories. I blame this on the 'territorialism' discussed above.

Clearly, European planning is up against territorialism, the more so since populists focus on borders and border security. Balibar argues after all that the sacralisation of borders expresses 'the fact that the state is [...] the people's property' (2009: 193). Like landlords watching over their holdings, governments husband their resources and, therefore, their territories. Other authors talk about 'the submission of all that space contains – beasts, goods, lands and waters – to one single authority exclusive of all others' (Balligand & Maquart, 1990: 31; my translation from the French). So, borders have acquired an almost mythical position, as if they were a skin on the body of the state.

4. Alternatives, if any?

For planners, what is beyond the borders can be a matter of concern: optimal locations may be on the other side, and then there are spill-overs. Remember that borders are artificial, cutting into the life tissues, as it were. Constrained by them, as they are, planners cannot always properly define, let alone tackle, planning issues. To do their job, they need to reach across borders. What happens at the Port of Rotterdam has repercussions deep in the European hinterland; an outlet at Oberhausen in Germany at-

tracts shoppers from the Netherlands. Dutch liberal policies on soft drugs raise the ire of other governments for their cross-border effects. In an ideal world, planners would define plan areas according to the reach of proposed measures – and so would health officials dealing with COVID-19!

But states are the holders, if not of the land, then at least of sovereign rights over their territories. And they owe their right of existence to their representation of their citizens. In so doing, they often compete with other states, making for endemic conflict, which makes sovereignty into an issue for European integration and, with it, for European spatial planning. Can anything be done about this? What are the alternatives to territorialism as an organising principle? In Faludi (2020 [2018]) I invoke Zielonka (2014) making the case for neo-medievalism as a much looser spatial organisation principle, accepting, as it does, that jurisdictions may overlap. This is against the classic Weberian notion referred to above as the state as a container. Before this modernist construct became the measure of all things – before space was carved up into self-contained (national) territories – it was common for jurisdictions to overlap. But containerising space and people – us – is not the only way of ordering relations. Nor is it always desirable to do so.

Neo-medievalism breaks with the habit of thinking about the land surface of the globe being parcelled into territories. It means also breaking with the idea that borders must be sharply defined. In the past, they were overlapping so that there were grey zones – no man's lands. Suggesting a return to such, on the face of it disorderly arrangements, sounds provocative, but remember that the EU as is – a union of member states, each exercising control over a well-defined territory – is deeply problemat-

ic, and this not only in planning. So why not consider alternatives?

Take a flagship project like the Single Market. For it to work, the EU must not only remove regulatory barriers, it must also ensure equitable access, in particular for those on its periphery. This not only means improving infrastructure, but also a whole gamut of competitive assets. So, the EU needs powers and, as it lacks resources of its own, EU member states must provide it with the requisite funding. Administering these funds, the EU has to invoke regulations. In so doing, it restricts the room for manoeuvre of the recipients. Which is why the EU, and in particular the Commission on its behalf, is a thorn in member states' flesh. The consequence is that EU cohesion policy becomes a battleground. (Faludi, 2016). The reason for all this is the prevailing territorialism.

Not only cohesion policy, but EU policies in general are almost universally controversial. Once more, territorialism gives pride of place to member states. Relations – functional or otherwise – reaching across borders play second fiddle. Which leads to shortcomings, including the not unimportant matter of the lack of agreement on European planning.

One could of course wish for a strong, supranational EU engaging in planning, somewhat on the same lines as the Dutch once did. An EU with features like a state could look after its territory as it became more coherent, true. But, rather than dreaming about Utopia, we had better look at the EU as is, with many functional arrangements overlapping. Schengen, for instance, does not include all members, but it does include non-members; the Eurozone excludes members, some of them by their volition and others because they do not yet conform to the criteria. EU foreign and defence policy

is anything but coherent, and migration leads to differences between an inner core and an internal, as well as an external, periphery, with functional relations and exchanges between them (Hilpert, 2020). This quite apart from the fact that some members stay out of it altogether.

What planning exists across the EU is also pluriform: cross-border, transnational, macro-regional. But there is no prospect of an overall plan, let alone a planning doctrine. Even in a mid-size, reasonably coherent country like the Netherlands, the days of doctrine, it seems, are gone.

An example of how the planning of overlapping spaces would look, consider maritime planning (Faludi, 2019). On the sea we find a muted form of territorialism up to the outer limits of the 'Exclusive Economic Zones'. Presently, they are in the news because of conflicts over their demarcation in the Mediterranean. But besides those, there are also the Areas Beyond National Jurisdictions (ABNJ). They are not totally unregulated. No, the Freedom of the Sea and the increasingly intense exploitation of the resources of the sea – and the seabed! – do require regulation. This is what the United Nations Convention on the Law of the Seas (UNCLOS) is about. Importantly, regulated areas can overlap, depending on function. So, we need not even invoke neo-medievalism. All we need to do is to turn our gaze out to sea and consider how maritime space is being managed to discover that territorialism and associated sovereignty claims are not the only conceivable principles of spatial organisation.

5. How to teach students about territorialism

I have never given more than the odd lecture about territorialism. But if pressed on how to teach about it, I would draw on my experience of when I was more involved than now in teaching planning. In fact, Chapter 14 of 'Planning Theory' (Faludi, 1973) is about 'Teaching the Planning Process'. When in charge of teaching on the graduate diploma course at the Oxford Polytechnic – with its dozen or so graduate students – I was inspired by Ira Robinson, whom I had met at an American-Yugoslav Summer School. He had taught about systematically generating and evaluating alternatives which suited my interest in rationality in planning.

The project I was given to supervise at Oxford was about the expansion of a small Oxfordshire town. So, I insisted on students following Ira Robinson's precepts. Naturally, this gave rise to discussions; for instance, about having to make decisions with incomplete information and under pressure of time. Students gave me a hard time explaining – perhaps it had not been clear to me before – that the precepts of rational decision-making needed to be handled pragmatically. As regards presenting the outcome of the exercise, students had devised a simulated meeting of Oxfordshire County Council only to discover that through their gaming it led to their intentionally rational proposals being shredded into pieces. Such is life!

When giving input later on to the first two years of the Amsterdam planning course, I drew on this experience and on my research into Dutch practice. Before explaining this, a word about bringing practice into teaching seems in order. It is often

thought that the royal road is to let students work on life projects. Attractive though this may be in advanced teaching, I thought it less appropriate in the core curriculum. There, students needed to progress swiftly from one module to the next and into the following year, so we gave them extensive, but stylised, information about the institutional and political setups of the places where we set our study projects. The projects themselves culminated in simulated meetings of the council planning committee. Some students were tasked with presenting their recommendations, with others sitting on the committee, and yet others playing the roles of aggrieved parties. Some students were not only good at, but definitely delighted about role-playing. All learned how to accept proposals being de- and reassembled as expedience required. My debriefing also always included commentary on styles of presentation and on the politics in planning.

I devised yet another expedient way for teaching – and thinking – about practice, which was confronting students with life situations culled from my own research. My favourite one concerned a barber by the name of – no joke – Short (Kort in Dutch). Trying to find out why the pavement in front of his shop was being broken up, he found out that many rules had been honoured more in the breach than in the observance. An initially tense situation between him and the authorities, thanks to his having caught the planners with their pants down, resulted in his becoming a key player. In good humour, in the end the planners even consulted him about the colour of the roof of the small kiosk built on his doorstep. Students were shocked by a lay person getting so much say. They had come to the course expecting to become experts, with say on such matters! Again, this was a good opportunity to discuss matters.

The other example I derived from other research. Again, it concerned a veritable tangle where, being called upon to adjudicate in a dispute concerning a planned container terminal, the planning minister was asked to adjudicate. However, his staff did not have all the necessary information. The ministry also got bogged down in a case that involved many parties with conflicting interests. So, by the time he, or better say his staff, had got around to investigating all the ins and outs, demand for the terminal had evaporated. The verdict given prematurely was reversed by a new minister who subsequently proposed a housing scheme in the location where the container terminal had been planned.

Reading this case study, much like the story of Mr Short, came as a healthy shock to first-year students. I knew this from reading the impromptu reactions I asked them to hand in at short notice. A busy evening later, I played back to them the most astonished and frustrated reactions, giving me once more an opportunity for talking about the idiosyncrasies of real-life planning.

We were going further in confronting students early on with situations of uncertainty. Once we invited the manager of a plant processing organic waste from the intensive market gardening the Dutch are famous for. In this case, permission had not yet been granted, but the pressure to open the plant had been such that he had no choice but to start operations no matter what. His opening sentence to first-year students was: I have got one foot in prison. A good occasion, this, for reflecting on the gap between ideal and reality.

If in the position of having to teach about territorialism I would invoke the same didactic principles, taking situations from real life, knead them into stories of what planners can be faced with, and let stu-

dents deal with them as best they could. One of my standard cases for first-year students could serve as an introduction. Presenting the case with, amongst others, Mr Short in it, I used to put a slide on the overhead – those were the days before PowerPoint – showing a four-lane bridge across a canal separating the study area from the neighbouring community. It featured a bus coming across the width of the canal separating the two. For the rest, no cars: the bridge was closed to all motorised traffic other than public transport. The other community had not paid its share in building the bridge, so the border was closed for private cars, not because the bridge lacked the capacity nor for environmental reasons (not yet an issue at the time) but because there was this intangible, but at the same time very real, territorial boundary.

Presently, I could think of similar cases in cross-border areas along national boundaries. How about this one: two authorities, on either side of an international border receiving EU funding for improving their respective positions. This was on the assumption that they would reach across their common border. But the authorities on each side decided to use their allocations to improve their internal connectivity instead. Their internal cohesion was more important, it seems, than overcoming the barrier formed by the international border. Of course, there are myriad more cases of offloading external costs, environmental or otherwise, to neighbours: first-class demonstrations of the idiosyncrasies of territorialism. There are also examples of use being made of differences, such as in cross-border business parks where, with some inventiveness, firms can shop for an optimal mix of services and regulations.

So much for the effects of territorialism in

cross-border areas. My research on the matter had of course been about the ESDP and its follow-ups. That work, too, could prove a rich source of episodes illustrating the restrictions under which well-meaning planners have limited scope to pursue interdependences. My favourite would be the case of the Port of Rotterdam and alternatives for off-loading goods from the Far East. Perhaps I would even bring in the New Silk Road.

6. A real privilege: reflection

Episodes like these were my entry points into deliberations about territorialism. Some planners accept its limitations and deal with whatever issues within their own territory, and others reach out. Planning teaching must discuss such situations, including professional ethics, the planners' roles, and hidden prejudices. My guiding principles would be that their education must make students aware, not only of such matters, but also about the motives of, and the pressures on, other actors with whom planners deal.

I close, not without expressing my gratitude for the privilege as an emeritus to be allowed to continue engaging in academic reflections like the ones in this chapter. I suppose I have paid my dues in the past, but now I am able to really follow my own compass, needing no justification for where I am heading, nor where I land. There have been times when this was self-evident in academic teaching and research, but this is no longer the case. Which is why I particularly cherish the islands and niches where academic freedom still persists and where sheer curiosity can be the compass.

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Street scene in Rotterdam. Photo by R. Rocco.



Landscape in the municipality of Vlist, in the Dutch Green Heart. Photo by Vincent van Zeijst - Own work, CC BY-SA 3.0, <https://commons.v>



Theses on Metropolisation

Ten discussion points for research and education

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This chapter introduces the concept of metropolisation, a framework to describe and understand the dynamics of territories undergoing extensive urbanisation. Metropolisation is defined as the transformation of fragmented urbanised areas into coherent and consolidated urban regions through the effects of long-term and intertwined processes of spatial, functional, institutional, and symbolic integration. The metropolisation story is told through ten theses formulated as open-ended discussion points. Individually, the theses aim to provoke debate and inspire further explorations in research and education. Together, they uncover the novel conceptual transformations, real-world mechanisms, and policy and planning implications of the processes of metropolitan integration.

METROPOLISATION, URBAN FIELDS, AGGLOMERATION BENEFITS, URBAN REGIONS, METROPOLITAN GOVERNANCE

Introduction

This chapter discusses the foundations, mechanisms, and implications of the concept of metropolisation. Over three quarters of the European population lives in urban areas (Eurostat, 2016) but the definition and boundaries of such areas have long surpassed conventional understandings of 'cities'. Once distinct cities have gradually become embedded in large and multicentric urban regions, following diffuse and pervasive urbanisation processes where stable distinctions between oppositional socio-spatial categories – urban, suburban, rural, natural – no longer hold. These processes of unbounded and extensive urbanisation (Cardoso & Meijers, 2021a) are arguably the dominant form of contemporary urban development. Their constituent elements knit together and interact on multiple scales and through various spatial and non-spatial dimensions, and in the process shape increasingly integrated urban regions. Metropolisation is a framework to describe, as well as a lens to interpret, these dynamics of interaction between long-term, intertwined processes of spatial, functional, institutional, and symbolic integration of urban regions, as they gradually transform fragmented urbanised territories into coherent metropolitan systems at a larger spatial scale (Cardoso, 2016a).

The theoretical framework of metropolisation has been introduced and discussed at length elsewhere, together with its fundamental triggers, concrete manifestations, and implications for policy and planning (Cardoso & Meijers, 2020; 2021a). In this chapter, the key features of metropolisation are presented in the form of ten theses. The reason

to formulate them in this way is that while all the theses are interdependent, each one can be read and discussed as a relatively self-contained topic to provoke debate in research and education. Indeed, each captures a claim which is far from complete and is open to confirmation, contestation, or falsification. The theses follow a fluid order. Together, they arguably tell a coherent story; individually, each aims to be a nugget of useful knowledge and a trigger for the discussion of relevant problems in urban research, suggesting paths for further investigation.

1. Urbanisation processes bring about the citification of the region, not the regionalisation of the city

The urban is (nearly) everywhere, but more than a one-way process of urbanisation of what was formerly not urban, current developments denote a convergence of the spatial, functional, and socioeconomic features of the spaces of human activity, whose categorical differences and boundaries become harder to pinpoint. The outcome is a generalised 'urban field', dense and consolidated in some areas, scattered and incomplete in others, whose elements differ more in degree than in kind. In this context, the typical features that define urbanity – spatial typologies, urban functions, economic activities, cultural encounters, social relations – can be found again at the territorial scale, rather than being exclusive of predefined nodes (Indovina, 1990; Sieverts, 1997). The qualities, expectations, and

demands usually reserved for ‘proper cities’ (Phelps et al., 2006) are thus reconstructed at the larger scale. The urban planning toolkit is duly rescaled, and liveability sought ‘at any point of the territory’ (Balducci et al., 2011) as ‘city’ programmes, networks, and devices (amenities, transport, urban design features) become ‘urban region’ programmes, networks, and devices. Metropolisation pays attention to this process of *citification of the region*, not interpreting cities as dissolving into shapeless urbanisation, but rather regions made of urban fragments consolidating into extensive cities. This kind of thinking in research acknowledges the variety of forms, flows, and activities that constitute contemporary urbanity, and avoids neglecting important manifestations, effects, and challenges of urbanisation just because they are outside presumed spatial categories, it also helps us include areas, people, and institutions beyond our typical assumptions of where cities begin and end in the debate about urban futures (Sieverts, 1997; Piore et al., 2011).

2. The image of the urban network can be superseded by the image of the urban field

The sprawling morphological, demographic, and functional patterns present in many urban regions can be represented by zonal concepts such as ‘field’ alongside nodal concepts like ‘network’. This shift suggests that some popular spatial understandings, such as polycentricity, might be inaccurate. Indeed, the polycentricity lens sees singular nodes forming networks while actually looking at continuous urban fields where ‘it is difficult to disentangle the nodes from the in-between’ (van Meeteren, 2016: 6). This

echoes similar paradigm shifts in twentieth-century physics from particles to fields as key physical entities, and happens not only spatially but also in terms of functional and demographic distributions and governance arenas. As a way of seeing, the network abstraction is spatially selective and therefore incomplete in its understanding of large urban regions whose main feature is spatial diffusion, with some being *also* relatively monocentric and others *also* relatively polycentric (Soja, 2011; Hajrasouliha & Hamidi, 2017). These places are defined by regionalised common processes rather than localised and distinctive physical characteristics – constitutive sociospatial processes rather than nominal settlement typologies, in Brenner’s words (2013: 98). The demographic, functional, economic, or environmental manifestations of urbanisation can consequently be seen as fluctuations of agglomeration externality fields, defined as zones of influence of urbanisation which are to some extent detached from network nodes or hierarchical roles (Burger & Meijers, 2016). As an analytic and normative concept, metropolisation is to the image of the urban field what polycentricity is to the image of the urban network (Cardoso & Meijers, 2021a).

3. Understanding contemporary urbanisation demands taking a historical perspective over the urban region rather than the city only

The default understanding of urban region formation processes used to be that they originate from large cities gradually expanding over a regional hinterland in a long-term process of decentralization and redistribution of urban forms and functions:

from small to large, from simple to complex. But the history of territories matters: urban regions can also be shaped by collections of well-connected, similarly sized, historically distinct cities operating in conjunction (the so-called polycentric urban regions, like the Randstad or the Rhein-Ruhr), or by mixed models in which cities of different types, sizes, and growth stages loosely expand towards each other until they build a relatively continuous urban landscape (Champion, 2001; Cardoso, 2018). As a result, the vast majority of European cities have several other cities in their close surroundings and the urban systems that they eventually form come in a wide variety of shapes, sizes, and functional relations. The image of cities expanding over a relatively passive and historically non-problematic hinterland is thus only one of the possible paths to an urban region, but taken as a blanket assumption, it neglects the differentiation allowed by a historical perspective over that scale of the urban. A lesson for planners and urbanists emerges here: we have grown accustomed to thinking about the city as an historical body, but not the urban region. The latter tends to be quickly categorised as a 'recent' outcome of urban expansion under contemporary socioeconomic conditions, but that is mainly because the discipline of urbanism was invented to deal with the city, not the region, and we lack conceptual tools to historically observe that scale (Grosjean, 2010). However, there is a long history of *urbanisation* alongside the history of *urbanism*, and territorial urbanisation processes do not appear from nowhere: their patterns have remained remarkably stable in time and the imprints left by the history of their territories partly guide contemporary transformations (Batty, 2001; Hohenberg, 2004; Cardoso, 2018). Different origins lead to different outcomes

and to understand the shape and direction of urban regions today, we need a historical perspective beyond the boundaries of the city.

4. Metropolisation processes entail spatial-functional, political-institutional, and cultural-symbolic dimensions

As a lens over long-term, intertwined, multi-dimensional interaction processes, metropolisation requires the differentiation allowed by an historical perspective over the space of the urban region. But metropolisation processes are not just about spatial transformations. They involve 1) functional interdependencies carried by the redistribution of specialised urban function, economic activities and transport linkages across urban regions, 2) political-institutional integration managed by new governance bodies and networks operating at different scales and arenas, and 3) cultural-symbolic reinterpretations of urban settings changing the scale and scope of place attachments and urban identities. These three dimensions are intertwined and interdependent, establishing feedback relations which can stimulate or hinder the unfolding of metropolisation processes over longer time periods. Therefore, looking at metropolisation from only one perspective or as a snapshot in time isolates events from other contingent processes along other dimensions, of which they are both outcome and trigger. For instance, governance cooperation (institutional integration) is important to deliver metropolitan functional redistributions and transport links (functional integration), which may enhance the perception by citizens of a common identity and

priorities (cultural integration), which in turn provides more legitimacy for further institutional and functional integration. This was the case at the time when symbolic aspirations, political urgency, and a bridge across the river interacted to drive the integration of the cities of Buda and Pest as Budapest in the nineteenth century, as much as in the self-reinforcing feedback between the delivery of infrastructural projects and the emergence of new institutional bodies in the south wing of the Dutch Randstad (Cardoso & Meijers, 2020). The three dimensions of metropolisation may play these changing roles as enablers, carriers, or beneficiaries of processes, always in interaction. Metropolisation does not happen in a vacuum, it is embedded in spatial and temporal contexts whose interaction returns unique, uneven, and arguably path-dependent integration trajectories in every urban region. The advantages of strong integration, as well as the drawbacks of poor integration, are experienced differently among, as well as within, urban regions.

5. Metropolisation is an example of a concept developed in parallel research traditions whose overlaps remained unnoticed

Many theoretical concepts do not travel well between different geographical, historical, or cultural contexts. Travelling theory (Connolly, 2008) may create inappropriate reference frameworks to analyse different places, ultimately making urban theory abstract, bland, and lacking explanatory power. But sometimes the opposite happens: scholars in different traditions ‘know’ similar urban phenomena and

develop similar ways to explain them, but observe them from slightly different vantage points and under different names. The conceptualisation of urban regions is a case in point, as it often amounts to local syntheses based on empirical observations and specific research traditions (Cheshire & Gornostaeva, 2002; Cardoso & Meijers, 2021a). Metropolisation, as defined here, bridges these mutually unintelligible traditions which lingered in linguistic and academic silos. It builds upon the notion of French *métropolisation*, a concept to denote the demographic and economic accumulation in the largest urban areas since the 1980s, as their growth trends detached from the rest of the territory. It considers the approach of economic geography, that stressed the functional selectiveness of these detachment processes, based on specific services and industries, and their spatial impacts leading to a polycentric distribution of activity across regions (ESPON, 2012). It revisits the regional scale systems thinking of Dutch planning (van Meeteren, 2020), namely the concept of *metropoolvorming*, which, in its aspirational application to the Randstad, aimed to turn the patchwork of urban fragments of that ‘disassembled city’ into an integrated ‘assembled city’ of regional scale (Neutelings, 1989; Deltametropool, 1998), precisely through functional, spatial, institutional, and cultural integration. It echoes the related notion of the *Zwischenstadt*, by Sieverts (1997), in the sense that the city is characterised by a set of devices and relations rather than a predefined type of space and boundary and that these are actually the ‘in-between’ spaces where people live, work, and should care about: a concept so far from regular understandings of urban space that Sieverts’ plea was initially translated to English as ‘cities *without* cities’. Finally, it resonates with the idea

of *metropolizzazione*, advanced by Italian scholars who had been looking at what happens in North-west Italy when urban spaces, functions, activities, and people spread across the territory and interact across extensive territories like in a conventional city, but without ever clustering as compact urban cores or hierarchical structures (de Carlo, 1962; Quaroni, 1967; Secchi, 1989; Indovina, 1990; Balducci et al., 2017).

6. Tighter, broader, and deeper urban region integration became an important policy aim in contemporary capitalist economies

The positive externalities of urban agglomeration amount to the socioeconomic benefits delivered by size, density, and diversity accessible primarily in large cities (Jacobs, 1969; Melo et al., 2009). But these benefits are limited by the problems of excessive concentration – congestion, pollution, spatial competition, higher prices, ungovernability, among others. Capturing the added functional and demographic mass and diversity spread across an urban region carries the opportunity to enjoy the benefits of agglomeration while reducing the costs of over-concentration. Urban centres operating in close interaction engage in network economies that may replace typical agglomeration economies based on local size and proximity (Johansson & Quigley, 2003; Meijers et al., 2016). However, tapping into these metropolitan benefits needs strong integration across the urban region. Indeed, the added economic and functional performance of a set of nearby cities is usually not as high as a single large city of similar size (Meijers, 2008) because flows do not

travel seamlessly across urban regions (Parr, 2004). This is due to several barriers that single large cities do not experience as strongly: institutional fragmentation, functional redundancies, uncoordinated transportation, disconnected housing markets, disparities in investment, and lack of common cultural and political references able to shape joint strategic priorities (Lambregts, 2006; Nelles, 2013; Cardoso, 2016b). As a result, policymakers are keen to nurture integration processes to mitigate these obstacles and exploit the potential of the metropolitan scale. This includes building transport links, encouraging complementary functional specialisations, envisioning various institutional governance models – from strong metropolitan authorities to informal cooperation networks – and reframing city branding and symbolic place attachment strategies to explore the urban region scale (Cardoso & Meijers, 2017). This is sometimes seen as an ‘upward cycle of metropolisation’ (Meijers et al., 2012): integration measures dismantle stable core-periphery equilibria and induce regional-scale urbanisation, which in turn increases the (metropolitan) agglomeration economies present in the urban region and creates the need and incentive for further integration measures (Cardoso and Meijers, 2020).

7. Different types of city search for different gains from urban region integration through borrowed size effects

Being able to synergistically combine the size, mass, and diversity of several places into a larger and well-connected entity is quite attractive for large core cities hoping to redistribute their over-

concentrated activities while still leveraging their economic and political agenda onto the urban region. However, integration must also be perceived positively by smaller cities, which may wonder what is in it for them if they give up some autonomy and redirect priorities for the benefit of the larger scale. The arguments here entail the concept of borrowed size. As initially formulated by Alonso (1973), smaller cities which are part of a larger urban region perform economically better than they would in isolation due to their easy access to nearby agglomeration benefits of other cities (both a large core city and a network of similarly sized cities), including population, amenities and workforce serving the whole region. This definition has been successively expanded (Meijers & Burger, 2017) to note, first, that borrowing size is not only an ability of smaller cities ‘upscaled’ by a strong urban region. Large cities also borrow from smaller ones and the region as a whole, for example, by hosting even larger higher-order functions which build upon the additional critical mass of the region. Second, the word ‘size’ is imprecise, as cities can borrow **performance** (e.g., faster economic and population growth rates by building upon the economic externalities of the larger region) and/or borrow **functions** (e.g. hosting more important activities, infrastructures or amenities than they would attract and support by themselves). Different places in the urban region can borrow in both these dimensions, only in one, or none at all. A satellite ‘dormitory’ town close to a core city may attract substantial population growth and wealthier demographic groups but still be poorly served by services and amenities. An historic city may host urban functions well beyond its local scale (such as a large university) but the economic and demographic benefits of such functions are not

necessarily localised. Large urban regions, such as the Dutch Randstad, are prodigal in such examples.

8. Metropolisation processes necessarily imply urban region unevenness through agglomeration shadow effects

Stronger integration contributes to better functional and economic performance (Meijers et al., 2018). But these net results of the urban region may hide strong unevenness within the region. Indeed, the generative effects of metropolisation processes can result in intra-regional distributive effects producing both borrowed size dynamics and their reverse, known as agglomeration shadows. Some cities may even be unable to keep stable socioeconomic conditions, let alone borrow performance or functions, as they are emptied of population, amenities, investment, and opportunities due to the presence of other larger or more attractive cities nearby. Here, the strong integration enabled by good transport links, coordinated governance, and functional interdependence results in an optimised flow of competition effects which further differentiates among cities and channels the advantages to a handful of privileged places in the urban region (Dembski et al., 2017; Cardoso & Meijers, 2021b). Existing advantages (amenities, people, capital, etc.) tend to attract more advantages and the privileged few perpetuate their condition. On the other end, undesirable urban functions and socioeconomic groups are gradually pushed to the regional (rather than the urban) periphery and tend to stabilise in the places already suffering from agglomeration shadow effects (Cox & Longlands, 2016; Dembski et

al., 2017). This affects the urban region integration efforts, as stakeholders in cities on the receiving end of such redistributions are unlikely to see the benefits of further autonomy loss towards integration. This means that, paradoxically, the places which could arguably gain more from tighter, broader, and deeper integration are those less willing to do so because the advantages are not visible to them – and if they are still willing, they are not likely to engage in balanced power relations to further their integration agenda rather than the one promoted by the urban region winners. In short, need, willingness, and ability to integrate are three different, and eventually contradictory, things which need careful distinctions.

9. The structure of relations within the urban region influences and is influenced by the development of metropolisation

Rather than a grand structural movement with a definite beginning and end, metropolisation is a contingent and uneven process-in-the-making that colonises the unique conditions and contexts of each urban region, namely the intra-regional structure of relations between cities. In some cases, metropolisation processes are constrained and eventually harmed by these pre-existing conditions. For instance, urban regions dominated by a large core city – especially politically powerful capitals – are prone to experience barriers to fair and balanced integration. Large contrasts between cities in terms of size, economic weight, and political-institutional capacity distort the competition for jobs, population, economic activities, and urban

functions, creating relations of dependence rather than cooperation (Phelps et al., 2006). They also affect the perception of a fair distribution of gains among places, increasing the necessity but reducing the willingness to cooperate by stakeholders (Feiock, 2007; Cardoso, 2018). Both real and perceived imbalances affect cooperative intensity (Cardoso, 2016b; Nelles, 2009), which points to the role of inherited historical power relations and cultural habits formed over centuries of interaction. On the other hand, the lack of a leading city mobilising the necessary resources to drive metropolisation strategies, taking the initiative to gather actors around common goals, and providing a common identity to the urban region is also an obstacle to integration. Polycentric urban regions lacking a clear anchor point may remain as collections of disjointed cities (Lambregts, 2006) in search of a driver and their identity tags ('Randstad', 'RhineRuhr', 'Flemish Diamond') may be conceptually strong but remain policy buzzwords with insufficient implementation and recognition. Only some types of urban region are able to successfully walk the thin line between undesirable dominance and loose indifference to engage in a generally positive metropolisation process. Identifying and overcoming historical legacies, developing variable geometry governance frameworks where individual agency and horizontal cooperation are encouraged, and developing a strong metropolitan identity – a shared understanding of the meaning and value of the urban region – are key aspects for policy to consider.

10. Individual city features affect the winners and losers of metropolisation

Cities in the same urban region can experience widely contrasting fortunes in terms of their engagement with, and outcomes of, metropolitan integration processes (Volgmann & Rutsche, 2019). The role and positionality of each city in such integration processes – for instance, their ability to borrow size or likelihood to remain under an agglomeration shadow – are influenced by several other factors beyond the relational dimension provided by the structure and size of the urban region. While the direction of causality remains unclear, cities may be benefited by 1) larger size enabling agglomeration economies, 2) historical importance constraining path dependent processes, 3) a greater number of relations to other cities, from transport to tourism flows, 4) spatial-environmental features linked to (perceived) liveability, 5) a demographic profile with high levels of population diversity and that avoids the overconcentration of vulnerable groups, 6) the presence of top-level functions, 7) transport connectivity (Cardoso & Meijers, 2021b; Meijers & Cardoso, 2021). No single place in the urban region congregates all these assets, and all kinds of combinations are possible. According to these combinations, cities can occupy different quadrants of a matrix but a preferred quadrant cannot be assumed. High functional performance may help a city occupy a key position in the region, but poor connectivity will limit its success, while demographic contrasts to other cities may affect institutional cooperation and cultural proximity. Culturally and institutionally proximate cities may be willing to cooperate but this may stimulate the perception of strong func-

tional or economic contrasts. Cities with high attractiveness and liveability, beneficial demographic profiles, and good functional performance may still be embedded in unfair distributions of political power. Each city inherits positionality within the urban region and has a different bundle of incentives, deterrents, and possible trajectories to engage in metropolisation. The bottom line is that metropolisation is an ongoing project, not a condition, and planners and policymakers have the responsibility to bring that project from the potential to the operative level, integrating rather than alienating partners, and reducing both real and perceived inequalities between places.

Closing remarks

This paper told the story of metropolisation through ten theses, each framed as a set of related claims which may be discussed, expanded, and contested. The bigger story certainly covers many different aspects, from the more theoretical (see theses one, two, and four) to the quite pragmatic and policy-oriented (see theses eight to ten), reflecting along the way on methodological aspects about how to look at the urban in contemporary times (see theses three and five). But in a publication like the present one, it is also appropriate to think about what these theses tell us about our work as researchers and students of the urban. It might be useful, therefore, to extract some key practical messages which might be useful to inform urbanism studies. Not trying to exhaust theoretical interpretations or conceptual implications, but rather aiming for concreteness and usefulness in our observation and documentation of the urban, we conclude with the following practical summary for urbanism studies, in the same order of the theses:

1. Do not think of cities within predefined assumptions and prejudices about what they are and what they look like
2. Do not stop looking for urbanity after one network node stops and before the other begins
3. History does not stop at the city gates; look for territorial histories wherever space and human activity have coexisted
4. Do not assume that functional, spatial, cultural, or political processes happen neatly in a void or in a laboratory
5. Learn languages, read beyond the English-language canon

6. Consider the explanatory value of relations between places and events, not just places and events themselves
7. Qualify what happens in urban regions; what is exactly happening where, and why?
8. Do not be satisfied with general net results; look closer to identify winners and losers
9. Delve into the reasons behind the unevenness (of power, of assets, of opportunities) determining those winners and losers
10. Engage in planning, design, and governance practices that give all cities and all spaces and opportunity to participate in a just and balanced metropolisation process

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Street scene in Amsterdam. Photo by R. Rocco.



Multi-Level and Multi-Actor Governance

Why it matters for spatial planning

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This chapter sheds light on how planning is affected by multi-level (vertical) governance relations that shape an enabling environment for planning decisions and multi-actor (horizontal) governance aspects which are crucial for integrating planning with other policy agendas and effectively engaging citizens and other stakeholders in decision-making. The chapter makes a plea for taking those inter-dependencies more seriously and basing planning decisions not only on a thorough governance and stakeholder analysis but also more direct engagement of stakeholders in decision-making, knowledge co-creation, and co-design of spatial visions, plans, and solutions.

MULTI-LEVEL GOVERNANCE, PARTICIPATION, STAKEHOLDER ENGAGEMENT, SPATIAL PLANNING

Introduction

Spatial planning is concerned with mediating competition for land use and property, managing development rights, and regulating and coordinating the processes of spatial development towards desired spatial and urban qualities and sustainable futures. Spatial planning, however, does not operate in a vacuum. In fact, planning and urban design disciplines, like architecture (see Till, 2009), are not autonomous but rather contingent upon a variety of processes, actors, and stakeholders operating at different scales and in different sectors of policy and society. Planning is increasingly done in close collaboration with citizens and other stakeholders to ensure more democratic urban and regional governance, but also, more pragmatically, to build support visions and plans elaborated and gain access to knowledge and resources to design and implement them. Planning is also increasingly intertwined with other policy agendas, such as economic development, transport policy, social policy, environmental protection, climate change adaptation and mitigation, or, more recently, energy transition and the circular economy, which makes decision-making on spatial development more complex and subject to pressures from those (often conflicting) policy agendas. Finally, spatial planning is becoming increasingly connected to various geographical scales and levels of government, with processes of rescaling of decision-making and growing interdependencies – between the local, the urban, the regional, the national, and the supranational – in what one may call multi-level governance system. At the same time, we are witnessing increasing bottom-up activity of citizens and local

organisations demanding to have a voice, agency, or influence on the shaping of urban futures, especially in the context of growing inequality and the challenges of digital and sustainability transitions.

An important reason for this growing dependence of planning on multiple levels of government, processes cutting across multiple geographical scales, and involving multiple actors and stakeholders from diverse sectors and societal groups, is the fact that planning increasingly requires dealing with the so-called wicked problems. These problems involve a diversity of stakeholders, are notoriously hard to define, riddled with uncertainty about how they will unfold, interconnected with other problems, and impossible to solve with a ‘silver-bullet’ solution (see Rittel & Webber, 1973). Prime examples of urban wicked problems include urban inequality or climate change mitigation and adaptation. Planners are far from being all-knowing experts and cannot address those problems alone. To quote John Forester, ‘we should be wary or distrusting of any experts who seemed confident about actually “solving” these kinds of policy problems!’ (Forester, 2020: 112).

The main message that this chapter conveys is that the shifts needed to tackle wicked urban problems make spatial planning a boundary spanning activity, whereby planning decisions and actions have to span across administrative, sectoral, and/or scalar boundaries. This, in turn, greatly increases the complexity of planning and calls for more flexibility, adaptivity, and the paying of more attention to the vertical and horizontal interdependencies, interests, and power relations. Planning depends

on what happens above the city scale (policies and processes with territorial impacts related to the regional, national, and supranational scales and levels of government) and below it at the scale of the district and neighbourhood. In the face of wicked problems and growing complexity of urban issues, planners also depend on the actors and stakeholders around them, namely on officials dealing with a variety of public policies, on the authorities of the municipalities and regions their jurisdiction, on private sectors players, on organised civil society, on providers of technical expertise and scientists, and, last but not least, on the citizens' interests, attitudes, and their (local) knowledge and participation in city making.

This chapter will sketch out some of the implications of these shifts. The following section will discuss planning from a vertical, multi-level governance perspective. Then the focus will shift towards the multi-actor dimension, i.e. the need to engage a diversity of stakeholders in the planning process. The concluding sections will bring these arguments together, highlighting caveats and opening questions raised by the shift towards multi-level and multi-actor planning practice.

2. Multi-level perspective

For the past few decades, in Western democracies at least, we observed a trend of moving from government to governance. As Rhodes (a British political scientist studying this phenomenon) put it: 'governance signifies a change in the meaning of government, referring to a new process of governing; or a changed condition or ordered rule; or the new method by which society is governed' (1996: 652-653). That means shifting from a model of man-

agement of public affairs in which the state plays a dominant and leading role, in a hierarchical, top-down decision-making and policy implementation system, towards one in which the state increasingly shares responsibilities for managing public affairs with non-state actors, that is companies and civil society organisations, making the state operate not only as a hierarchical system but also a network system. The term 'governance' is used in various disciplines and policy areas with different aspects of it emphasised, but our focus here is, in particular, on how the state increasingly makes policy together with a network of diverse actors at different territorial levels.

Having observed how, since the late 1980s, the European states find themselves increasingly intertwined with and co-dependent on the European Union (EU) and its policies that have a territorial impact, such as the Cohesion Policy or the European Environmental Policy, Liesbet Hooghe and Gary Marks coined the term 'multi-level governance' (2010), which was quickly picked up and advocated as a mode of managing policies to solve the increasingly complex and interconnected urban and regional challenges by the EU itself (European Commission, 2020) as well as other international organisations, including the OECD (2017,2019) or UN-HABITAT (2022). Multi-level governance has two dimensions. The first is vertical, which relates to the 'multi-level' component of the term referring to increased interdependence of authorities operating at different levels of government, from the city, through regions, to national governments, and even supranational organisations like the EU. Whereas, the second can be defined as horizontal and relates more to the increasing interdependence between governments and non-governmental actors, who

also operate at different territorial levels (Bache & Flinders, 2004).

Let us first ponder the multi-level or vertical dimension. The territorial organisation of states comes in different shapes and sizes but is typically hierarchical and involves the central- or national-government level on top, a form of sub-national administration, with certain powers and responsibilities, operating at the regional level (e.g. provinces, regions, counties), and local level governments running public affairs in municipalities. This can be compared to a Matryoshka doll, with a large doll containing a smaller one, and that one containing an even smaller one, and so on (see Figure 1). In the last few decades, the levels of government below the national government have been gaining prominence, with more and more policies and resources (financial, fiscal) being transferred to them in a process of decentralisation of state authority (OECD, 2019; Hooghe et al., 2016).

In theory, this involves coordination between levels of government which are nested, from the national down to local. In practice, however, multi-level governance can be a messy and complicated process with different levels of government interacting with one another in ways that cut across the seemingly hierarchical relations, making the Russian doll metaphor not all that appropriate. What also tends to happen is that there are multitude (sometimes overlapping and changing) cooperative links and interdependencies between authorities operating at different levels, creating a fuzzy patchwork of cross-boundary and cross-level cooperation. Thus, cities and regions can, for instance, interact directly with the European Commission, which manages the EU Cohesion Policy and distributes funding for specific types of territorial interventions directly to the

local and regional authorities, bypassing the central government. By the same token, EU policies sometimes create very tangible constraints for planning at the municipal level (Evers & Tennekes, 2016), triggering changes in planning practice on the ground. In other words, the Europeanisation of spatial planning (Nadin et al., 2018; ESPON, 2021). For instance, the NATURA 2000 policy designating certain areas of high environmental value as protected and restricted for urban development. EU policies can also offer concrete incentives for certain spatial planning initiatives, such as planning for metropolitan regions, by provision of financial resources to support the activities of metropolitan cooperation bodies via the so-called Integrated Territorial Investment instrument (e.g. Krukowska & Lackowska, 2017).

We can also take flood risk management and climate adaptation policy in the Netherlands as an example of such complex patchworks of multi-level governance: there is a national 'Delta Programme'. Initiated by the central government and managed by the so-called Delta Commissioner, it is implemented in close collaboration with sub-national actors, with knowledge provided by and through regional sub-programmes in which certain cities play a key role and the local impacts of climate change are investigated and place-specific solutions devised (see Dąbrowski, 2018). At the same time, local governments lack formal responsibility and competences for flood risk and must rely on close collaboration with water boards, the regional special-purpose jurisdictions who manage waters and ensure flood safety. In this task, the city of Rotterdam, for instance, has to deal with no less than three water boards, but also has to consider surrounding municipalities, the port authority, the province, and cross-border partners in the wider delta area. The

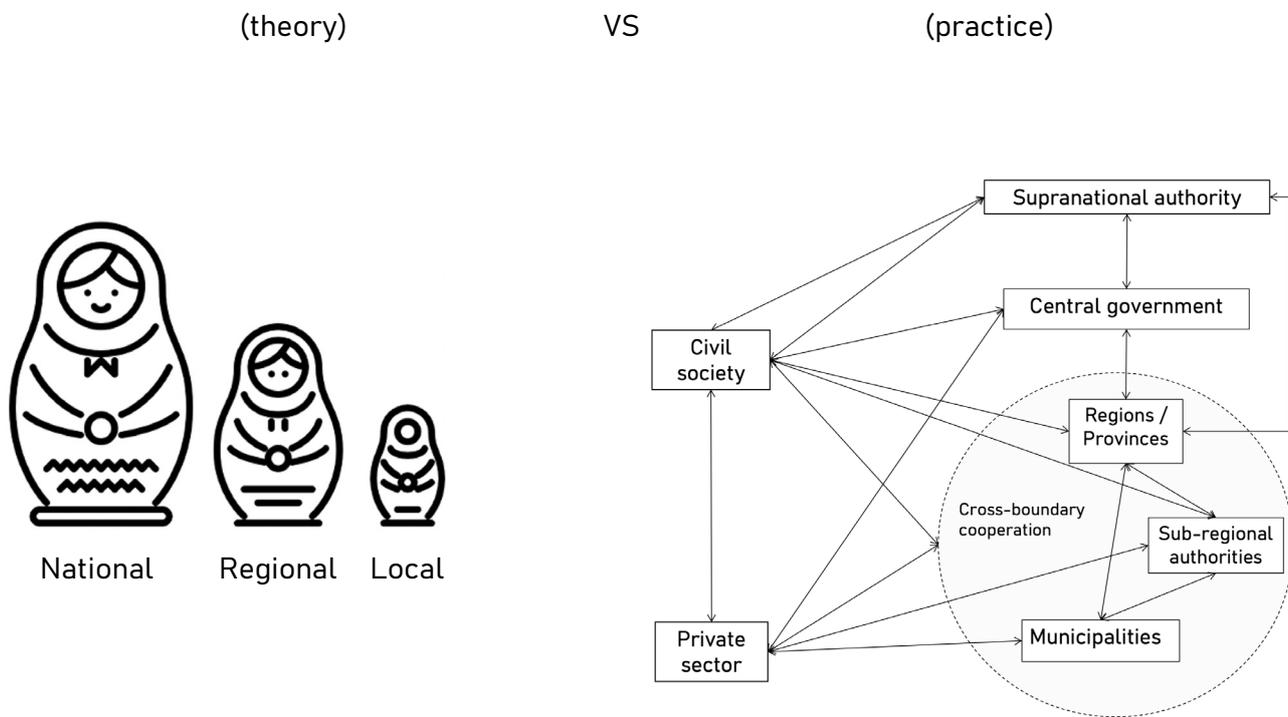


Figure 1: Territorial administration in theory vs complexity of multi-level governance in the real world (Source: Author, icons: Nikita Golubev via flaticon.com)

need to coordinate interests, ideas, and approaches to designing policies and pooling resources across this network of actors adds to the already complex challenge of adapting to the uncertainties of climate change.

Another good example illustrating the complexities of multi-level governance is the management of public transport in cities and regions in borderlands. Take the case of the city of Luxembourg, which is a capital of a small state nestled between German, French, and Belgian regions. Since many people in Luxembourg, and in those neighbouring regions, commute daily across national borders, regional public transport becomes a transnational affair. Making public transport work in Luxembourg requires dealing with a plethora of institutions and agencies across different borders operating

at different territorial levels, comprising, among others, the ministries of the national government of Luxembourg responsible for transport and sustainable development, but also the government of the French region of Lorraine, the German city of Trier, a cross-border municipal association called QuatroPolle, and a range of transport organisations and associations in each of the regions involved (Dörry & Decoville, 2016).

But it gets even more complicated. The EU supports cross-border and cross-national cooperation as part of its Interreg programme and enables the provision of cross-border public services as part of the European Groupings of Territorial Cooperation (Engl, 2016), for example, for managing cross-border ambulance services. At a much higher scale, the EU also experiments with macro-regional strategies

and policies to support territorial cooperation and development in territories belonging to a larger shared geographical space. The EU, for instance, has been promoting such macro-regional cooperation as part of its Cohesion Policy, prompting new linkages and strategic cooperation between national, regional, and local governments, for instance, around the Baltic Sea, along the Danube river basin, or within the Alpine macro-region (Gänzle et al., 2019).

Summing up, these multi-level interdependencies have important consequences for how national and sub-national authorities operate and for the scope of and constraints of spatial planning at different scales. Firstly, decisions made beyond the administrative boundaries of a given city or region, for instance in neighbouring areas, can have important consequences for that territory. Secondly, decisions made at other levels of government, national or European, can have important consequences for planning practice on the ground in cities or regions. Thirdly, planning and coordination of territorial policies in a multi-level governance setting makes these processes very complex and riddled with multiple obstacles, which the OECD calls ‘multi-level governance gaps’ (e.g. OECD, 2016). These can include, for instance, clashing objectives of authorities at different levels (e.g. with the central government promoting spatial development that allows to adapt to climate change impacts and limit exposure of cities and populations to future flood risks, and the municipal governments planning for urban expansion in low-lying areas to maximise profits from land development) or capacity gaps, whereby some municipalities lack administrative, financial, or technical capacity to engage in implementation of national programmes (e.g. for climate mitigation or circular economy policy requiring expert knowledge

and substantial human resources). Fourthly, multi-level governance entails a certain risk of dilution of ambitions, as the core goals and values promoted by a policy or strategy may be watered-down by agreeing on the lowest common denominator between the multiple actors involved. Lastly, planning and implementing policies with a territorial dimension in a multi-level governance setting requires crossing multiple boundaries, across different political, organisational and planning cultures, administrative borders, and policy sectors. Such boundary-spanning activity requires skills, resources, and experience which is often missing in practice.

3. Multi-actor perspective

As already mentioned, multi-level governance includes a horizontal or multi-actor dimension, with the trend towards the engagement of a diversity of actors in planning and in urban and regional policies, from public agencies, market players, civil society organisations, to individual citizens. In other words, this aspect of governance relates to the engagement of stakeholders in running urban and regional affairs. While this reflects wider trends towards network-based mode of decision-making and policy-making, with the state playing a less prominent role, there are multiple reasons which such engagement is a good idea, if not a necessity.

There are normative reasons for this, at least from a democratic standpoint. Engagement of a diversity of stakeholders, and especially of citizens, allows for creating a greater sense of ownership of strategies, plans, and urban initiatives among them and can strengthen the local community bonds. Engaging stakeholders in decision-making and in

the making of plans and strategies allows for the enhancement of the legitimacy of the decisions taken by the public authorities. This matters especially when they entail burdens and sacrifices from the stakeholders affected, as is the case with the increasingly urgent measures to reduce carbon emissions or reduce the generation of waste and consumption of materials, for instance. By the same token, one can argue that by giving agency to local stakeholders and citizens in decision-making on important urban or regional matters and plans, one can strengthen local democracy, without which democratic processes remain distant and abstract for these local actors. What is more, engaging stakeholders who represent deprived social groups, such as the residents of low-income neighbourhoods or marginalised communities – who, depending on the context, can include ethnic minorities, women, youth, or elderly citizens – is a critically important for addressing the growing urban inequality and socio-spatial injustice (see Soja, 2010; Feinstein, 2014, and Rocco's chapter in this book). Thus, participatory practices give these groups voice and agency in decision-making on the future of their urban environments and can help promote fairer and more just urbanisation as well as ensure procedural justice in planning and urban policy-making. Arguably, such empowerment through participation in planning is particularly urgent in the face of growing disillusionment with democracy and the rise of populist voting, especially in the so-called 'places that don't matter' affected by decades of policy neglect (Rodriguez-Pose, 2018) or in areas which are the most negatively affected by the current imperatives of sustainability transitions, such as old industrial or mining regions. Finally, engagement of a diversity of stakeholders can enhance transparency and ac-

countability of planning and urban or regional policies by providing a degree of social control over the decision-making process and enabling the stakeholders engage to hold the authorities accountable for these decisions.

There are also good pragmatic reasons for engagement of stakeholders in planning and policy-making. From this efficiency perspective, stakeholder engagement allows those involved to, first and foremost, navigate and mitigate conflicts, which are an inherent element of spatial planning. As Campbell (1996) observed, planning entails facing multiple conflicts stemming from the tensions between the clashing goals that planning activity may subscribe to: 1) the pursuit of economic growth and efficiency, 2) the pursuit of social justice, and 3) the protection of the natural environment. The first goal entails seeing the city as a location where production, consumption, distribution, and innovation take place, competing with other locations for markets and investors. In this perspective, space is a resource to serve economic activities through networks of infrastructure and businesses districts, etc. This inevitably leads to resource conflict if one considers the development of a just city, i.e. guaranteeing access to public goods and the benefits of urbanisation for all, as a goal of planning. From this perspective, the city is an arena of struggle for a fairer distribution of amenities, services, and opportunities among different citizen groups and communities. The pursuit of the just city agenda, however, as Campbell argues, may entail a development conflict, because providing spaces for social and community needs can encroach upon natural assets which need to be safeguarded and restored. From this perspective, the city is seen as a consumer of resources as well as a generator of waste and

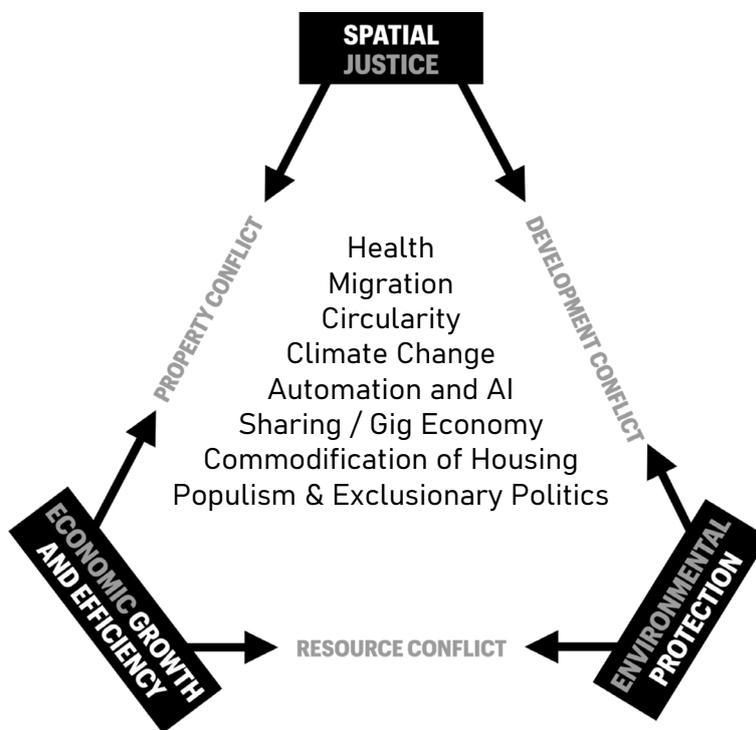


Figure 2: Conflicts in planning, exacerbated by the current major urban challenges. Source: Adapted from Campbell, 1996.

pollution. The triangle of planning conflicts (see Figure 2) is closed by the all too familiar resources conflict between the pursuit of economic growth and environmental protection. Finding ways to mitigate planning conflicts is becoming increasingly urgent in the wake of the major urban challenges of today – from climate change, integration of migrants, coping with pandemics, to the housing crisis – which exacerbate these tensions.

By engaging the stakeholders whose interests are aligned with those conflicting goals of planning in a dialogue, we can seek compromise and win-win solutions to mitigate the said conflicts. What is more, engagement of diverse stakeholders, with different kinds of resources, expertise, or tacit, local knowledge can allow the planners to find new ways and solutions to try and address the wicked urban problems that we mentioned at the beginning of this chapter. For instance, designing and imple-

menting place-based circular economy strategies requires a great diversity of insights and skills which planners often lack as well as the engagement of all relevant economic actors along the value chains to close material loops and reduce the generation of waste (see Obersteg et al., 2019; Heurkens & Dąbrowski, 2020). Participatory practices involving diverse stakeholders in the co-creation of policies or spatial interventions designed to address this kind of challenges allow the planners to pool knowledge and create the needed networks of stakeholders, overcome their limitations, and, ultimately, deliver plans and strategies that have a greater chance of success. Stakeholder engagement can also help overcome opposition of stakeholder groups towards specific developments. In fact, this opposition tends to stem less from NIMBY (not in my backyard) attitudes than from the lack of dialogue with citizens and missing participation in the early stages

of planning the deployment of wind parks close to residential areas (Wolsink, 2000). Thus, participation can boost acceptance of planning decisions and create a sense of ownership of those decisions, leading to more sustainable outcomes. Moreover, pragmatically speaking, by enabling participation of diverse stakeholders in the planning process, planners can identify and engage potential 'allies' and actors who can support the planned developments with resources and capacity to convince or attract other stakeholders.

That being said, stakeholder engagement, just like the coordination and integration of strategies across levels of government and administrative boundaries, is a notoriously challenging task. Again, we can list many normative and efficiency caveats about participation in planning. Concerning the former, by giving agency to a wide range of stakeholders, we risk diluting or even completely departing from the originally pursued goals of a plan or strategy as new issues and interests are brought to the table. More importantly, stakeholder engagement always includes a risk of capture by powerful interest groups able to skew the process to pursue their agenda. The most vulnerable and marginalised groups tend to lack capacity to actively take part in public hearings or stakeholder workshops. Finally, another caveat is the suitability of participatory practices for application in specific socio-political contexts, where there is a lack of participatory practices or other cultural conditions that may skew the participatory process. Thus, we need place-specific and context-sensitive approaches to engagement of stakeholders.

Likewise, it is easy to denigrate stakeholder engagement efforts on efficiency grounds. Participatory processes are typically resource-intensive and

time-consuming, making planning activities more lengthy and costly for budget-strapped municipalities. While digital innovations in participation, rolled out in many cities in the last two decades, allow to involve larger groups of stakeholders and citizens in planning, this involvement remains shallow and biased towards the most tech-savvy groups (see Kleinhans et al., 2015; Evans-Cowley & Hollander, 2010, and the chapter by Kleinhans and Falco in this book). Consequently, it hardly contributes to democratisation of urban governance (Sorensen & Sagaris, 2010; Brownill & Parker, 2010). Moreover, if there are deficits of capacity and knowledge about the issue in question among some groups of stakeholders, ensuring meaningful and effective participation can be a major challenge. This is especially problematic when dealing with complex, multi-scalar issues such as climate change (Few et al., 2007). Finally, in the face of the growing importance of regional or metropolitan planning it is extremely difficult to spark public interest and devise effective participation practices at those higher geographic scales perceived by the stakeholders as abstract and distant (see Pickering & Minnery, 2012). Thus, even though citizen engagement in planning processes is clearly on the rise, it often 'remains relatively weak in a sizeable proportion of countries, pointing to the need for further development of participatory planning practices' (Nadin et al., 2021). Against this background, we need to better understand the barriers to effective stakeholder engagement, map and embrace the increasingly thorny conflicts that planning has to deal with, and experiment with participatory practices based on partnership-building and co-creation.

4. Conclusions

In this chapter, we stressed two governance trends that increasingly affect planning: interdependencies across levels of government and across administrative boundaries (the multi-level dimension), and the shift towards multi-actor decision-making and engagement of a growing diversity of stakeholders in planning. Both of these trends bring a promise of helping municipal and regional governments to address their wicked urban challenges. These challenges require a crossing of boundaries between disciplines and organisations and the building of broad coalitions of stakeholders to pool resources and mitigate the conflicts that they exacerbate.

This is probably best illustrated by the climate crisis, which is both a global and a local issue that is riddled with uncertainty and is calling for an 'all hands on deck' approach for the mitigation of climate change and the potential of the built environment to adapt to its impacts. To plan for low-carbon and adaptive urban and regional futures, and have a chance of success, planners need to collaborate and coordinate actions across levels of government, while engaging a diversity of relevant stakeholders and citizen groups. Both of these tasks entail dealing with barriers and inevitable conflicts.

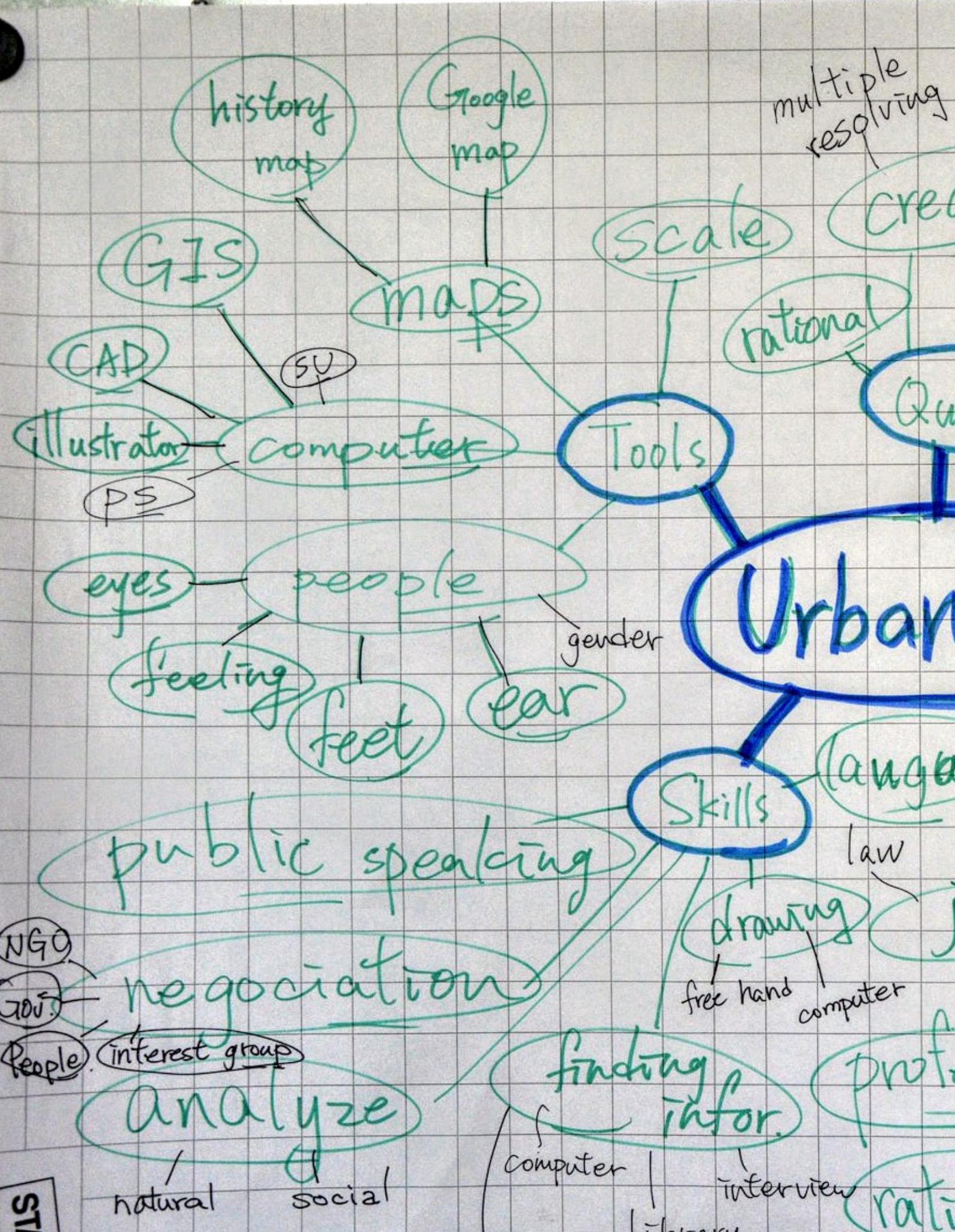
The global shift from government to governance, from hierarchy to networks, is not unproblematic, but it does open up new possibilities and opportunities for improving planning and design processes and their outcomes. There is no shortage of ideas and governance innovations that can be experimented with in different urban and regional contexts, operationalised in the planning practice, and, ultimately, upscaled and transferred across differ-

ent locations. To seize these opportunities, we need engage the wicked urban problems and embrace the conflicts they arouse rather than ignore them. For this, we also need to rethink the roles of planners as enablers of dialogue and co-production of new knowledge, sustainable solutions, and shared values.

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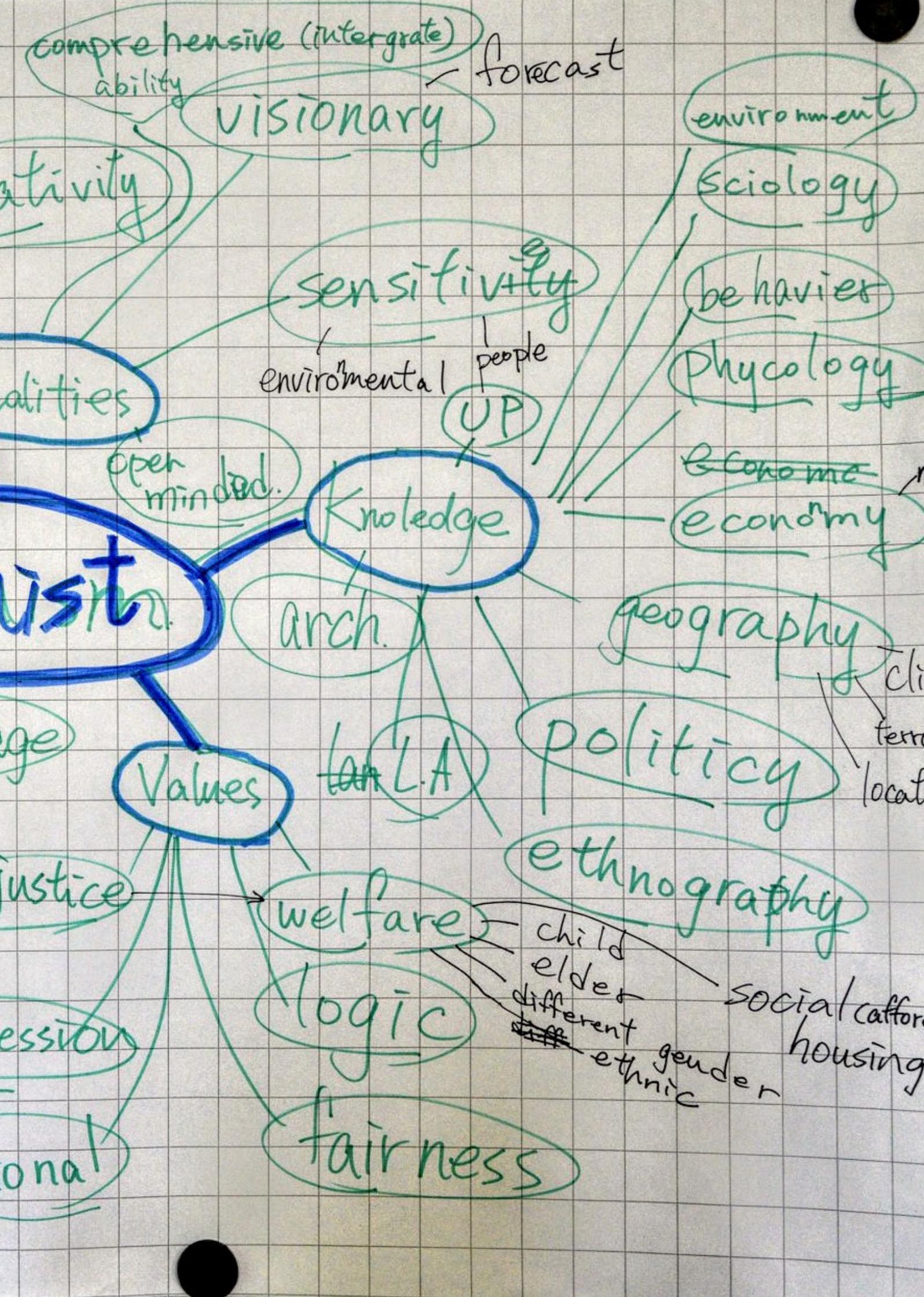
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Mind map made by students of the Department of Urbanism at TU Delft. Printed with permission. Photo by R. Rocco.

STAPLES



Digital Participation in Urban Planning

A promising tool or technocratic obstacle to citizen engagement?

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Over time, urban planning scholars have studied ways to improve communication and collaboration between ‘experts’ and the ‘public’ in planning processes. Social media and the web 2.0 have strongly affected governments’ communication with citizens. The growth of public participation, Geographic Information Systems and geo-visualisation interfaces have provided many opportunities for citizens to create and share various kinds of location-based information. Digital participatory platforms (DPPs) are a specific type of web-based technology, often adopted by governments for citizen engagement in urban planning. DPPs are explicitly built for engagement and collaboration purposes allowing for user-generated content and include a range of functionalities which transcend and considerably differ from ‘conventional’ social media such as Facebook and Twitter. However, simply establishing DPPs is not enough. Previous research has outlined various challenges towards DPPs attempting to leverage citizen participation in urban planning. This chapter discusses five fundamental challenges to effective citizen participation: 1) access and awareness, 2) sustaining user motivation, 3) expectation management, 4) re-establishing routines and practices, and 5) offline follow-up and decision-making. The main question is how these challenges affect the actual take-up and effectiveness of DPPs. Contrary to the common debate, the chapter will show that technology is not the main issue. Rather, the way in which DPPs are embedded in a wider participation approach is key to its success.

1. Introduction

Participation of citizens in government activities at all levels has received increasing attention in many disciplinary fields, including public administration and government studies, urban planning, public service design, and information technology (Bryer & Zavattaro, 2011; Linders, 2012; Falco & Kleinhans, 2018a). Much attention derives from the potential contribution of social media, digital platforms, and other ICTs to the interactions between national, regional, and local governments and citizens. Because of wider economic trends, welfare state retrenchment, and new knowledge-sharing patterns, citizens' demands and governments' actions increasingly require two-way engagement and collaboration (Kleinhans et al., 2015). The growth of public participation geographic information systems (PPGIS), crowdsourcing, volunteered geographic information (VGI), and geo-visualization interfaces such as Open Street Map, play a fundamental role in citizen engagement strategies (Brown & Kytta, 2014). The COVID-19 pandemic has accelerated the adoption of new technologies and operational practices, also in terms of digital participation (Bricout et al., 2020).

While there is an abundance of literature on the use of social media for citizen-government relationships (e.g. Bryer & Zavattaro, 2011; Mergel, 2013), this chapter focuses on a specific type of ICT: digital participatory platforms (DPPs). These are defined as a specific type of social media explicitly built for participatory, engagement, and collaboration purposes allowing for user-generated content and include a range of functionalities which transcend and considerably differ from 'conventional' social

media such as Facebook, Twitter, or Instagram. A few examples of such DPPs are Cartiipe (Lille), Citizenvestor (Tampa), Commonplace (London, Newcastle, and other cities), Sticky World (Hexham), Better Rejkjavik, Maptionnaire (many countries), and Decide Madrid. Previous research has outlined various challenges to overcome in making DPPs effectively leverage citizen participation in urban planning. Without attempting to be exhaustive, this chapter uses a literature review and 27 semi-structured interviews (reported elsewhere) with public agencies and platform founder to identify five of such challenges:

1. **access and awareness**
2. **(sustaining) user motivation**
3. **expectation management**
4. **re-establishing routines and practices**
5. **offline follow-up and decision-making**

The main question we wish to address is how these challenges affect the actual take-up and effective deployment of DPPs. The chapter starts from the premise that availability and development of technology is not the main issue that needs to be addressed. Rather, the ways in which the technology is embedded in both the involved institutions and the actual participation process are more influential for the overall effectiveness of participation. However, both in planning education and the debate among practitioners, the technology itself tends to overshadow other important issues, in the wake of a dominant smart city discourse (Hasler et al., 2017; Robinson & Johnson, 2020; Townsend, 2013). This

chapter shows how the five challenges underscore the observation that ‘citizens will only continue to participate if they derive some value from doing so’ (Webster & Leleux, 2018: 106). In the next section, we provide a brief theoretical background to digital participation in the context of urban planning. The third section analyses the nature of the challenges for effective leverage of digital participation. The final section offers conclusions and will also reflect on how planning education should approach digital participation in its curriculum.

2. Citizen participation and digital platforms in urban planning

From the second half of the twentieth century onwards, urban planning researchers have studied many ways to increase and improve collaboration, communication, and interaction between ‘experts’ and the ‘public’ in the planning process (Friedmann, 1973; Healey, 1997; Brownill & Parker, 2010). Essentially, citizen participation is considered to be ‘a cornerstone of democracy’ (Roberts, 2004: 315), in which democratic legitimacy strongly depends on the nature and quality of public decision-making. Roberts (2004: 320) defined citizen participation as ‘the process by which members of a society (those not holding office or administrative positions in government) share power with public officials in making substantive decisions and in taking actions related to the community’. In the context of urban planning, ‘public participation may be defined at a general level as the practice of consulting and involving members of the public in the agenda-setting, decision-making, and policy-forming activities

of organizations or institutions responsible for policy development’ (Rowe & Frewer, 2004: 512). For example, citizens may contribute to developing plans for regeneration of public squares, parks or wider neighbourhood and infrastructure redevelopment.

Conventional citizen participation methods include a range of tools and tactics: referenda, public hearings, public surveys, conferences, town hall meetings, public advisory committees, or focus groups (Shiple & Utz, 2012). Most methods require citizens to be physically present at a particular time and place. This characteristic is associated with a range of practical problems of participation, such as limitations of time and costs in the process of policymaking, lack of motivation among citizens, weak citizen expertise, or difficulties of including socioeconomically disadvantaged and less articulate groups in the process (Roberts, 2004; Shiple & Utz, 2012; Falco, 2016).

Recently, urban planning has been reinventing itself in a multi-vocational, fragmented, and actor-relational way, underscored by the influence and power of self-organisation of various groups, associations, and networks (Boonstra & Boelens, 2011). This has been accompanied by the rise of new approaches to citizen participation that move beyond conventional methods and attempt to include various stakeholders in a more equal way. Online methods are increasingly adopted, as the Internet’s unique many-to-many interactivity and ubiquitous communications promise to enable participation and co-production between citizens and governments on an unprecedented scale (Linders, 2012: 446). Many authors have identified various levels of citizens engagement and participation in government activities through the use of digital technologies (Desouza & Bhagwatwar, 2014; Ertiö,

2015; Linders, 2012; Williamson & Parolin, 2013). Such conceptualisations add to the widely acknowledged ladders developed in the past as well as more recent spin-offs (e.g., Arnstein, 1969; Falco, 2016; Hassler et al., 2017; IAP2, 2018).

As mentioned in the introduction, DPPs sustain a wide variety of features that allow for different forms of participation and collaboration between public and private actors. A systematic review of DPPs has identified the following functionalities: opinion maps, surveys, discussion forums, budget allocation, simulation design, voting and ranking of ideas, analytics, map-based and geo-located inputs for collaborative mapping (through comments, pins, or geographical features), crowdfunding, exporting in different file formats, importing and media uploading, and sharing on other social networking sites such as Facebook and Twitter (Falco & Kleinhans, 2018a). However, regardless of platform functionalities, which challenges need to be addressed to make DDPs ‘work’?

3. Five challenges for effective leverage of digital participation

In this section, we address five fundamental challenges to digital, platform-based participation that are evidenced in the literature: 1) access and awareness, 2) sustaining user motivation, 3) expectation management, 4) re-establishing routines and practices, and 5) offline follow-up and decision-making.

3.1 Access and awareness

Digital participation concerns real life issues in the ‘offline’ world and relies on material tools and infrastructures. In other words, citizens who want to participate digitally must access the means and tools to do so. However, there is compelling evidence for a digital divide across many dimensions, ranging from socioeconomic status to competences and skills (Norris, 2001). In its essence, digital participation requires a stable Internet connection, a personal computer, tablet, or smartphone. While basic Internet access is common in many developed countries, urban areas, and affluent households, it is sometimes a much scarcer resource in poorer countries and remote areas lacking necessary infrastructure, and for poor, low-educated households lacking the means to acquire such access. COVID-19 has exacerbated existing social inequalities, including those regarding access, because huge parts of work, education, public administration, services, and other key elements of public life were moved online seemingly overnight during full lockdowns (Robinson & Johnson, 2020). In many cities across Europe, local governments and schools hastily distributed laptops and internet connections among children in deprived households, attempting to address the acute digital divide (e.g. Coughlan, 2020).

Digital (il)literacy is another key dimension of access (Bertot et al., 2012; Media Smarts, n.d.; Pizarco-Vela et al., 2012). Digital participation usually requires language processing, navigation skills, and critical thinking. Even in developed countries, significant proportions of the population have difficulty in reading, writing, and interpreting text and forms. Hence, digital illiteracy may create a barrier beyond basic access. Apart from the ‘haves’ and

'have-nots', there is also a distinction between the 'cans' and 'cannots'. In the latter category, visually impaired people and language minorities are an often-forgotten attention group. Even though the COVID-19 pandemic has accelerated a shift to digital technology-mediated, pervasive, applications across society, disparities in digital literacy and access, affordability, and usability continue to pose challenges for marginalized populations (Bricout et al., 2020: 94-95).

Finally, awareness is an important dimension of access (De Filippi et al., 2019). The presence of an online platform or portal established for participation purposes is not sufficient to attract people. A lack of participation cannot be directly equated to non-engagement of potential platform users. In fact, 'the reasons or motivations for non-participation are diverse, ranging from lack of awareness to disinterest, abstention, and exclusion' (Lutz & Hoffmann, 2017: 889). Hence, potential participants need to know about the existence of a designated DPP, preferably through information channels that are deeply rooted in their daily routines. Such channels may include 'offline' sources, ranging from local newspapers and leaflets to information stands, and word of mouth.

3.2 Sustaining user motivation

Just as with any other form of participation, digital participation requires 'action' from users, which can range from reading or listening or clicking points on a map to voicing comments, offering suggestions, participating in online debates, etc. Users need to be either intrinsically or extrinsically motivated, or both, to venture into participation. Shared interests and values are critical (De Filippi

et al., 2019). Examples of intrinsic motivation are issues in citizens' direct living environment, such as reporting and solving maintenance issues (e.g. fixing potholes, broken street lighting, sidewalks, playgrounds) or contributing to regeneration of public squares, parks, or neighbourhood redevelopment plans. Extrinsic motivation refers to situations in which stakeholders are explicitly invited to participate in a specific setting, or when external events activate users to start participating. In both cases, keeping users motivated is crucial for the overall effectiveness of the participation scheme, as 'citizens will only continue to participate if they derive some value from doing so' (Webster & Leleux, 2018: 106).

DPPs may attract users out of curiosity for the medium. A potential advantage of 'early adopters' attracted by novelty is that they may convince other prospective users to join in. However, a disadvantage of 'early adopters' is that they may become bored quickly. This emphasises the importance of inviting, accessible, and careful design logics for DPPs, as well as adding incentives and gaming elements, to increase the 'fun factor' of digital participation (Baldwin-Philippi & Gordon, 2013; Lam et al., 2015; Thiel, 2017). However, the behaviour of users on the platform is also important. Researchers increasingly express their concerns in relation to harmful or destructive forms of online participation that frightens off other users, such as blasting, incivility, hate speech, bullying, and indignation (Lutz & Hoffmann, 2017: 889).

A key challenge to sparking and sustaining user motivation is the extent to which users feel that the act of participation is rewarded by platform owners recognising their input, responding to it, or highlighting links between user input and the chosen scenario(s) or outcome. Adoption of new

technology, such as DPPs, 'often comes bundled with the expectations that there will be a positive change or improvement in how citizens relate to governments' (Robinson & Johnson, 2016: 60). Users expect or require that their time and efforts pay off. The notion of *quid pro quo* is particularly important when prospective users are aware that it is not always possible to identify how the produced data are employed in the urban planning process (Hasler et al., 2017) and that the overall outcomes of the participation platform may be uncertain and located in the distant future.

A common cause for stagnating or declining user motivation is a lacking sense of ownership regarding the participation and site in general and the platform in particular. For DPPs to be 'responsive to the social and ethical needs of a specific community of interest, it is important to make a paradigm shift for policy design, from "borderless" technology to technology that is participatory and situated in a locale' (Bricout et al., 2020: 99). A possible mitigation strategy is creating a white-label version of the DPP, i.e. a local version of a generic platform, tailored to specific contextual needs and incorporating the *couleur* locale so that users can recognise their own situation.

3.3 Expectation management

The attraction of digital participation lies in the 'Internet's unique many-to-many interactivity and ubiquitous communications [that] promise to enable participation and coproduction between citizens and governments on an unprecedented scale' (Linders, 2012: 446). However, on a day-to-day basis, this promise meets a sobering reality. Despite a growing number of web-based and mobile-based platforms

that enable information sharing and interaction between government and citizens, scholars have highlighted that the use of DPPs is not yet interactive and is not able to sustain two-way communication (Williams & Parolin, 2013; Ertiö, 2015). In fact, governments often stick to representation, applying 'push strategies' to provide one-way information (Mergel, 2013). Moreover, while citizens may expect a dialogue with the local government or other stakeholders, the actual engagement strategy invites co-production of content without necessarily engaging contributors in dialogue (Mossberger et al., 2013). In other words, citizens may have interaction expectations which are quite different from the intentions of the platform owners or the institutions using the platform to facilitate digital participation.

The above argument emphasises the need for expectation management, i.e. communicating by all possible means what platform users can expect in terms of interaction, frequency, nature, and impact of responses to inputs, impact of the platform inputs on the final outcome of the participation process, as well as the expected timeline and deliverables for each stage of the participation.

There are three reasons why civil servants and public officials are often hesitant or even outright against responding in real-time to digital participation inputs by citizens. First, making mistakes during the interaction, for example making promises which cannot be fulfilled, bears the risk of political consequences and creating distrust. Second, civil servants may refer to negative participation legacies. These refer to previous experiences with participation attempts that did not work out as expected, or simply failed to attract a sufficient critical mass of participants. Finally, civil servants face the daunting task of filtering information from the 'wisdom of the

crowd' towards a narrow selection of a few or even a single solution, strategy, or policy alternative in the context of scarce resources (Seltzer & Mahmoudi, 2013). This process of selection inherently involves 'disqualifying' inputs and alternatives suggested by users.

3.4 Re-establishing routines and practices

The intentions of government agencies and other actors to enlarge digital participation by 'the public' raise significant organisational challenges. In fact, digital participation often requires a fundamental revision of daily routines, practices, and protocols in public agencies. On a basis of a review of the literature and semi-structured interviews conducted over a number of years (Falco & Kleinhans, 2018a; Kleinhans, Falco & Babelon, 2021), we are able to draw five lessons learned. First, agencies need to meet regulations on privacy, data protection and security, and accessibility of media, for example for people with various disabilities or language minority groups (Bricout, 2020). Relatedly, agencies need to prepare clear strategy and policy guidelines on how to stimulate digital participation. Such guidelines should include demographics, target populations and stakeholders, feedback, monitoring, and measuring activities on platforms (Bryer & Zavattaro, 2011; Falco & Kleinhans, 2018b). Third, the revision should also include necessary changes in the 'back offices' of governments to adequately react on citizens' inputs on the selected platforms, and to establish meaningful interactions among citizens (Baldwin-Philippi & Gordon, 2013; Lam et al., 2015). Fourth, availability of expertise and trained person-

nel capable of 'managing' digital participation using DPPs also constitutes a challenge (Bryer & Zavattaro, 2011; Falco & Kleinhans, 2018b). As a prerequisite to this revision, overcoming an outdated organisational culture which underestimates the value of citizens' input constitutes a major challenge (Voorberg et al., 2015).

Finally, there are concerns that DPPs may actually thwart the improvement of government-citizen relationships and prevent the rise of new practices. While the related technologies make it easy to count people, to capture quick reactions (e.g. 'likes') and to use predefined answer categories, such shallow interactions generate large quantities of data from 'transactional citizens' without actually improving the two-way engagement and challenging deliberative processes underlying government and urban planning decisions (Johnson et al., 2020).

3.5 Offline follow-up and decision-making

A common misunderstanding is that digital participation embodies decision-making. However, urban planning scenarios or solutions co-created through DPPs usually need to be legitimised and approved in regular democratic decision-making bodies such as local authorities and local councils. Sometimes, additional resources need to be acquired and additional stakeholders need to be involved. As mentioned earlier, the collected data, carrying the 'wisdom of the crowd', needs to be filtered into a few or even a single solution, strategy, or policy alternative (Seltzer & Mahmoudi, 2013), which can be subject to political decision-making regarding the procurement and 'physical' imple-

mentation. The actual implementation of a chosen strategy or intervention also requires preparation and deployment time. As a result, there is often a significant time gap between the establishment of a range of options or specific choice through the DPP and the resulting changes in the built environment, physical infrastructures or community services (see e.g. Hasler et al., 2017). Such a time lag may be a source of misunderstanding incomprehension or frustration by citizens thinking ‘why does it take so long?’.

4. Conclusions

In the wake of wider economic trends, welfare state retrenchment, new knowledge-sharing patterns, and the COVID-19 pandemic, there has been increasing interest in fostering digital forms of participation in public policy, and urban planning in particular. More specifically, the rise of Smart Cities and the pandemic’s impact on public health and economics are considered as drivers of more pervasive technology and further development of digital planning applications, with attendant benefits and challenges (Bricout et al., 2020: 95). This chapter has focussed on a specific type of participatory ICTs, namely digital participatory platforms (DPPs).

Our premise is that availability and development of technology is not the main challenge to digital citizen engagement. In the process between crowdsourcing citizens’ ideas and their selection and ultimate realisation, the technological element is modest in relation to the importance and extent of public decision-making and implementation, which requires a lot of time, energy, and expectation management. Moreover, any sincere governance culture puts citizens and their (tacit) knowledge and inputs

at the centre, rather than the technology itself. As for crowdsourcing and digitally enabled exchange, the tools are already widely available, but their effectiveness and inclusiveness are contingent upon the extent to which the following five fundamental challenges can be addressed: 1) access and awareness, 2) sustaining user motivation, 3) expectation management, 4) re-establishing routines and practices, and 5) offline follow-up and decision-making. Meeting these challenges requires strategies by initiators, often government agencies, to ensure that citizens from all backgrounds and societal positions have (the economic means and technical capacity to) access, are aware of the options, continue to be motivated, and are aware of what they can expect from their input. In turn, governments must adapt their procedures and daily practices to ensure that they can adequately respond to, incorporate, and decide upon citizens’ online inputs and ‘materialise’ these in the decision-making and subsequent interventions in the real world.

While technology often dominates the discourse on digital participation, these requirements emphasise the position of DPPs as elements in a wider, ‘non-technological’ process of carefully crafted citizen engagement. Not effectively addressing these requirements will render DPPs a technocratic obstacle rather than a promising tool. This is a key implication for planning education. Planning students should understand that citizen participation is ‘a cornerstone of democracy’ (Roberts, 2004: 315), in which democratic legitimacy strongly depends on the nature and quality of public decision-making.

Planning education should train students in facilitating the requirements discussed above, which extend to the full process of preparation, implementation, and follow-up of digitally support-

ed participation. However, the COVID-19 pandemic has taught us a lesson that needs to be passed on in education. Regardless of all available means of digital interaction, human beings crave face-to-face interaction, representation, recognition, and tangible consequences of our acts in the physical world. DPPs carry an imminent danger in this respect. 'As citizens become removed from the more challenging, involved, slower, traditional forms of citizen engagement, and funnelled towards transactional forms of engagement, supported by technology, opportunities for robust, high-quality civic discourse are lost, replaced with an emphasis on speed and quantity of connections' (Robinson & Johnson, 2016: 62). Meaningful and democratically viable citizen engagement requires planners and planning educators to ultimately think about people, not about heat maps, pins, geo-tagged comments, or sticky notes.

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Street scene in Amsterdam (2015). Photo by R. Rocco.



Agency in Planning

(Future) planners as key actors in the strive for sustainable urban development

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Sustainable urban development is currently a ubiquitous objective in spatial planning (not least due to the UN Sustainable Development Goals). However, the concrete actions to achieve sustainable urban development vary greatly. This chapter looks at the topic of agency in planning and discusses how actors have been conceptualised in planning research. Research on agency can make a significant contribution to better understand which challenges actors face in planning practice, how actors are influenced by organisations and administrative systems they work in, and how we can help (future) planners to cope with wicked problems.

SUSTAINABLE URBAN DEVELOPMENT, AGENCY IN PLANNING, ACTORS IN PLANNING, PLANNING PRACTICE, PLANNING EDUCATION

1. Introduction

Sustainable urban development is currently a ubiquitous objective in land use planning and spatial development. To make cities and human settlements inclusive, safe, resilient and sustainable is one of 17 UN Sustainable Development Goals (United Nations, 2017). Sustainable urban development is also the guiding theme in the New Urban Agenda (Habitat III, 2017) and several policy documents published at the European Union scale (EU Ministers Responsible for Urban Matters, 2016; Territorial Agenda of the European Union 2020, 2011). Consequently, actors working in urban and regional planning worldwide have recognised their crucial position in striving for sustainable urban development and acknowledged their obligation to do so. However, concrete actions aimed at sustainable urban development in spatial planning vary greatly between and within countries, regions, and cities.

Planning practice all around the globe exemplifies this ambiguity. While the promotion of ecologically, economically, socially, and culturally sustainable development is often an overarching goal in planning laws and national strategies, legal and policy documents typically remain vague regarding what sustainability means for cities, regions, the state, and citizens. Consequently, planning actors strive for considerably different objectives conflated under the umbrella of sustainable urban development, for example, cutting carbon emissions, ensuring liveability (particularly in shrinking regions), reducing segregation (particularly in urban environments), or making planning more inclusive for all citizens. Each of these objectives can, in turn, be achieved through a multitude of diverse actions,

illustrating the complexity inherent in the term sustainable urban development.

In this chapter, I argue that actors involved in the planning process play a crucial role in translating abstract goals, such as sustainable urban development, into concrete actions, policies, projects, and plans. On the one hand, it is often individuals (such as planners or politicians) who take the initiative, steer the public debate, and thus guide urban transformations. On the other, collective actors (such as city planning departments) have established organisational cultures which affect their ways of working and shape their vision of a sustainable future. Actors working within these organisations are not unfettered in their actions, neither are they mere cogs in a machine. Instead, they make active choices that maintain, modify, and transform the forces shaping our world (Healey, 1997). In governance practice, this is manifested in day-to-day choices about how rules, structures and narratives are interpreted, implemented and instrumentalised (Purkarthofer, 2018).

The dimension of agency becomes increasingly important when urban development does not follow linear or hierarchical procedures but unfolds in multi-dimensional and multi-scalar projects and processes. 'Wicked problems' (Rittel & Webber, 1973), such as the strive for sustainability, for which no preconceived solutions exist, exemplify the need to understand how abstract and ubiquitous objectives are operationalised through specific policies and concrete interventions in the built environment and what role actors play in these translation processes.

This contribution presents an overview of the theoretical perspectives on actors in planning research and highlights how the dimension of agency is closely tied to addressing complex issues and wicked problems in planning. The chapter also highlights what place agency has in planning education and how teaching agency is approached at TU Delft.

2. A theoretical perspective on actors in urban and regional planning

In the context of planning, two definitions of agency are relevant: agency can be understood as the capacity to act or exert power and as the person or thing through which power is exerted, or an end is achieved. In urban and regional planning, various stakeholders can assume agency, for example, citizens, developers, politicians, and public servants. In most planning processes, actors from each of these groups play a role, although power is never shared evenly between these groups or among actors within one group. The role of individual actors or groups of actors can also vary greatly during different phases of the planning process over time. In a simplified example, this could mean that public servants develop a draft plan, citizens comment and appeal to the plan, politicians ratify the plan through a vote, architects develop building designs complying with the plan, and investors finance the construction of buildings following the plan. In reality, planning processes are, of course, more complex, less linear, see many iterations, and reflect various interests. However, what can be said with certainty is that agency, i.e. actors and their capacity to act, are highly relevant in all planning processes.

In this chapter, I focus on the agency of planners, and especially planners working as public servants. In planning research, there exists no ‘theory of agency’ or ‘theory of actors’. Instead, scholars have considered the topic of agency implicitly and explicitly in many writings on planning theory and practice. Olesen (2018) provides an overview of the role of ‘the planner’ in various established planning theoretical paradigms, such as rational planning, communicative planning, and agonistic planning. Without following these theoretical planning paradigms, in this section, I present five strands of literature that are highly relevant for the dimension of agency in planning.

2.1. Institutions, structure, and agency

Among the most influential writings on agency is Anthony Giddens’ theory of structuration (Giddens, 1984), which distinguishes between structure, i.e. enduring sets of rules and resources, and agency, i.e. actions and behaviours of individuals. Giddens claims that ‘structure is not “external” to individuals’ (Giddens, 1984: 25) but internalised through memories and social practices. At the same time, actors have the transformative capacity to change structure over time. Consequently, Giddens argues that structure and agency are intrinsically linked.

Giddens’ theory of structuration is considered highly influential in planning research. It has resonated especially with scholars interested in institutions, i.e. the formal and informal rules, norms, and discourses that shape planning. Healey’s (1997; 1999; 2006) writings on sociological institutionalism and communicative planning relate the ideas of structure and agency to learning and the construction of knowledge. Actors are portrayed as creative

learners and reflective beings who make choices about which institutional rules to accept and reject. In doing so, actors maintain, modify, and transform the structural forces that shape their lives (Healey, 1999). Jessop's (2001) strategic-relational approach advances Giddens' theory by recognising structurally inscribed strategic selectivities. He thus acknowledges that 'a given structure may privilege some actors, some identities, some strategies, some spatial and temporal horizons, some actions over others' (Jessop, 2001: 1223).

Without referring to Giddens, Scharpf's (1997) concept of actor-centred institutionalism builds on the assumption that social phenomena are the outcome of interactions between individual, collective, and corporate actors and that these interactions are structured by the institutional settings within which they occur. Scharpf proposes a game-theoretical framework that treats policy as the result of interactions of actors whose capabilities, preferences, and perceptions are largely, but not entirely, shaped by the institutionalised norms within which they interact (Scharpf, 1997: 195). The emphasis on socially constructed and institutionally shaped perceptions distinguishes actor-centred institutionalism from other game theories that broadly assume rational behaviour among actors.

2.2 Discretion

Discretion refers to the ability and right of making choices between courses of action based on one's assessment of a situation (Feldman, 1992). Through its focus on the question 'who takes decisions and with what authority' (Booth, 1996: 10), discretion is closely linked to agency. In planning, discretion has primarily been addressed as part of discretionary

planning systems, for example, in the United Kingdom. Here, planning permissions are decided on a case-to-case basis, considering context-specific merits, and provisions of the plans (Tewdwr-Jones, 1999). Planning is thus characterised by administrative powers, flexibility, and discretion, and planning organisations or even individual officers have considerable leeway in their decisions. This is considered necessary to respond to complex and unforeseeable developments but also puts considerable pressure on actors within the system. However, as Booth (1996; 2007) has highlighted, discretion also exists in regulatory planning systems, although it might often go unnoticed. In France, for instance, Booth observed discretionary behaviour in administrative officers, who interpreted and, at times, circumvented rules as part of their daily work (Booth, 1996).

While in the legal sciences, discretion tends to be viewed as troubling and peripheral to the law (Booth, 1996), social scientists, including planning scholars, largely agree that discretion is both inevitable and necessary and that complex, multi-faceted problems, such as those faced in urban and regional planning, require some discretionary freedom (Booth, 2007). Discretion is also essential in the process of translating complex and potentially contradictory policy goals into variable local and regional contexts (Catney & Henneberry, 2012). While being less transparent, less fair, and even potentially arbitrary, decisions taken through discretion can also be more relevant, context-sensitive, and efficient than decisions directly derived from rules. Discretion thus needs to be seen as an inherent component of activities derived from the law, including urban and regional planning.

2.3 Pragmatism and practice-orientation

The pragmatist literature in planning research has taken up a practice-oriented perspective to understand better 'what planners do' (Hoch, 1994). Actors play a central role in the pragmatist research tradition. The basic premise is that conclusions can be drawn from observing, analysing, and theorising how planners approach their daily work (Forester, 1999). The focus on practice has been especially prevalent in the United States (see, for example, Fischer & Forester, 1993; Forester, 1999; Friedmann, 1997; Hoch, 1994; 2019; Krumholz & Forester, 1990).

The idea of planning as a practice is motivated by the assumption that both specific contexts and instances, as well as wider relations and consequences are crucial for public policy (Healey, 2008). Forester (1993) sees social interactions as a practical approach to make sense of a politically complex world. He is, thus, specifically interested in the 'micropolitics' of planning practice to understand the construction of governance cultures and politics. Building on Forester's work, Hoch has argued in favour of striving for sensitive and comprehensive planning by making room for practical wisdom, public sentiment, imaginative conjecture, and the power of agency (Hoch, 2007).

Learning holds a key position in the pragmatist tradition. Schön (1983) has encouraged planners to be 'reflective practitioners'. Forester (1999) has developed this idea further and described the 'deliberative practitioner', emphasising that knowledge and understanding are increased as people learn about challenges and possibilities from interaction with each other. Thus, planning work is about

routinely reflecting on one's doing while looking for transformative potentials (Healey, 2008).

However, Campbell and Marshall (1998) show that a practice-oriented approach towards agency might be more complex than it seems at first sight. They highlight the tensions in planners' work, such as simultaneously serving the interests of political employers, the organisation, personal values, clients, the wider community, future generations, and the profession. They conclude that the organisational culture is of paramount importance for the daily work of planners and that contradictions between individual and organisational values undermine professional autonomy, organisational loyalty, and overall job satisfaction.

2.4 Leadership

The topic of leadership has received surprisingly little attention in the field of urban and regional planning. One main reason could be that the typical work environment of planners used to be in hierarchically organised public sector organisations where someone – often an elected politician – is 'in charge'. Leadership has thus frequently been associated with politicians, rather than public servants. Crosby and Bryson (2005), on the other hand, suggest that planning now occurs in networks of organisations and individuals in which numerous players share power and responsibility for resolving significant public problems. In such a shared-power world, there is a need for assuming leadership and for leaders to foster a collective understanding of a complex problem, to promote participation and collaboration between different actors, to build coalitions for policy change, to engage in political decision making, and to work persistently over a

long time towards solutions to complex problems (Crosby & Bryson, 2005).

In the literature on regional development, leadership has become an increasingly acknowledged theme. Sotarauta (2016) characterises leadership as a hidden form of agency that could be the ‘missing piece’ in understanding local and regional development, and specifically in answering ‘the eternal questions of how and why some places can adapt strategically to ever-changing social, economic and environmental circumstances while others fail to do so’ (Sotarauta, 2016: 45). ‘Place leaders’ can be understood as the actors who look for shared interests and opportunities to collaborate, promote or co-create shared visions, frame issues, and bring them to the agenda, connect various actors with different skills and positions, and mediate between them (Sotarauta, 2016). This breadth of activities does not typically correspond with a person’s job description. Instead, these actors often work beyond their organisational boundaries, or sometimes they are influential without holding any formal position, but act out of conviction rather than duty.

The debate on leadership relates to the duality of structure and agency, as governance structures both enable and constrain leadership. However, the relation between structures and leaders should not be viewed as deterministic, as place leaders not only show the ability to work within the system but also to change the rules of the game (Sotarauta, 2016). Consequently, there is a need to find an appropriate balance between over-emphasising the actions of a few individuals, on the one hand, and the structural factors, on the other hand (Sotarauta & Beer, 2017).

2.5 Planners as humans

Relatively recently, the question of agency in planning has also been repeatedly approached from psychoanalytical and psychosocial perspectives (Baum, 2015; Ferreira, 2013). This school of thought suggests humanising our view of planning actors by explicitly acknowledging the influence of emotions in planning processes (Mladenovic & Eräranta, 2020). Planners might experience considerable emotional strain and fear, originating from political conflicts, interpersonal challenges, intricate dilemmas, and demands posed by increasingly multicultural societies, when facing ‘wicked problems’ (Ferreira, 2013; Sturzaker & Lord, 2017).

However, emotions are not ‘mysterious and dark psychological forces’ (Ferreira, 2013: 714), as some psychoanalytical approaches might suggest, but rather a vital element of being a human, and thus needed for sense-making, reasoning, and social interaction. Emotions influence how individuals process information and decide their course of action. The capacity to be aware of one’s own perceptions, thoughts, and emotions, accept them, and reflect upon them are crucial emotional skills that constitute an essential factor in determining professional success and good leadership.

This view of emotions is at odds with the prevailing perception of emotional behaviour and rational behaviour as opposites. Hoch (1994) was among the first to argue in favour of integrating emotional and cognitive approaches in the context of planning, suggesting that emotions would increase rationality instead of deviating from it, as commonly claimed. Consequently, he criticises the tendency to treat emotions as a source of bias or distortion that should be reduced or eliminated (Hoch, 2019).

Although the literature focusing on psychosocial elements in planning, and specifically on the psychological skills and demands of planners, is limited, these contributions highlight the need for acknowledging emotions in planning research and practice. Or, as Sturzaker and Lord (2017) put it, ‘neglecting emotions in planning means that we miss an important explanatory factor in decision-making’ (359).

3. Agency as a key concern in planning practice and education

The previous section has shown no ‘theory of agency’ in planning but that actors are an inherent element of many planning theoretical perspectives. Returning to the subject of sustainable urban development, this section aims to highlight why agency is a critical concern in planning practice and planning education.

Achieving sustainability and sustainable urban development has turned into an ubiquitous and simultaneously ambiguous challenge for the field of urban and regional planning (Davoudi, 2000; Gunder, 2006; Gunder & Hillier, 2009). While the idea of sustainable urban development sounds ‘immediately appealing’ to planning actors, it remains unclear how actors construct an understanding of the concept and what practical and political implications these interpretations bring about (Griggs, Hall, Howarth, & Seigenuret, 2017; Williams, 2010). Griggs et al. (2017) demonstrate the variety of interpretations actors hold when it comes to the idea of a ‘sustainable city’ and argue that abandoning singular ideals which generate immediate consensus

in favour of more engaged, if complicated, negotiations could deepen understanding and increase acceptance among actors and communities. Similarly, Gunder and Hillier (2009) argue that hegemonic interpretations of sustainability are potentially detrimental. They claim that governments have used these interpretations to ‘justify policies that are not necessarily either environmentally sustainable or socially just’ (136). Therefore, the reworking of abstract concepts to fit the spatial and governance reality of specific places is an essential step when planning ideas travel (Healey, 2011). Without local and regional interpretations, sustainable urban development runs the danger to remain an empty signifier (Brown, 2016).

3.1 How can we better understand sustainable urban development through the literature on actors and agency in planning research?

Institutional perspectives remind us of the mutual interdependence of structure and agency. Actors are thus not unfettered in choosing their actions towards sustainable development but might be strongly influenced by the culture and habits of the organisation within which they work. However, new ideas and innovative actions can reshape established structures and institutions, potentially resulting in long-term effects and changes in many cities and regions. The research on discretion highlights that individual planners might enjoy significant leeway in their daily work. This means that abstract objectives, such as sustainability, can be interpreted in many ways, policies can be implemented in different manners, and funding

tools can be instrumentalised to serve various purposes (Purkarthofer, 2018). These processes of contextualisation should not be understood as bad practice. On the contrary, they are necessary to make abstract objectives relevant in a specific context. The pragmatist research tradition reminds us that we can learn from what planners do on a daily basis. Engaging with practice is especially crucial to understand why similar policies on paper might lead to considerably different results in the built environment. The discourse on leadership highlights the importance of assuming agency in complex, non-linear processes where no single actor is in charge. Sustainable urban development as ‘wicked problem’ describes such a shared power situation that requires commitment from various actors and especially needs ‘leaders’ who facilitate, co-create, and connect various actors and organisations. The psychosocial and psychoanalytical perspectives on planning actors remind us that planners are humans who can be overwhelmed, fearful, and overburdened, but who can also use their emotional intelligence to create better planning solutions together with others.

All these perspectives are essential to understand that sustainable urban development is not a planning solution but an objective that can be achieved through various strategies. The interplay of individual actors and the influence of the organisations and systems they work in shape these strategies and ensure that context-specific meanings are found.

3.2 Why is it essential to address the dimension of agency in planning education?

Discussing agency is also crucial with a view to planning education: there is a need to convey to students that it is possible to make a difference as a planner and that there is a need to show initiative and take responsibility, even when there is no immediate obligation to do so (Purkarthofer, 2020). At the same time, (future) planners should not feel as if they carry the weight of the world on their shoulders. It is not a planner’s job to single-handedly take decisions on the development of our built environment and society. However, by bringing together various stakeholders, critically discussing ideas and ideals, and being aware of the varying interpretations associated with sustainability, planners can play a decisive role in the strive for sustainable urban development.

At TU Delft (and other planning schools around the globe), planning curricula aim to prepare students to assume agency as future planners. Studio courses are common in planning education and follow the idea of problem-based learning (Németh & Long, 2012). In addition to teaching subject-related skills, such courses often also support the acquisition of procedural knowledge. In other words, students obtain expertise in their field of study and learn how to find information and review it critically, work in a group with differing opinions, and present their ideas and arguments persuasively. If such courses are based on real-life cases, students also get the opportunity to learn from and get inspired by the work of practitioners in the field. The role of actors has also been emphasised in ‘serious games’

developed and incorporated into education at TU Delft (Pojani & Rocco, 2020; Rocco & Rooij, 2018). Games as pedagogical elements present opportunities for students to role-play and put themselves in the shoes of various actors involved in the planning process, or test the behaviour of different 'types of planners' (Rocco & Rooij, 2018). This helps students to discern new aspects of planning which they may not have considered before, and enables them to discover the pluralist and political nature of planning.

Such courses enable deep and student-centred learning. Let us go one step further towards student-led learning and give them an active and leading role in their education (Purkarthofer & Mäntysalo, 2022). Doing so, we can better prepare future planners for assuming ownership of processes. By practising how to take responsibility, students grow more confident and become more courageous about seizing opportunities in their work life. Moreover, when part of a group of learners, students will improve their communication, collaboration, and negotiation skills and will become more confident to manoeuvre challenging situations as a team. Transferring responsibility to students, for example, by allowing them to decide as a group how to solve a task, propose a solution, or organise cooperation with their peers, boosts student engagement and transforms a course into a collaborative project for the students.

4. Conclusions

This chapter has shown that context matters when we talk about sustainable urban development and that actors play a crucial role in developing local interpretations of a generally accepted goal. I have argued that by reading about actors and organisation in planning studies, we can gain a deeper understanding of abstract objectives. In planning research, actors have been viewed through various analytical lenses to reveal different aspects of their responsibilities, behaviours, and challenges in planning processes. Actor-centred research highlights that actors show creative responses to particular contexts and situations rather than follow predetermined technical procedures or standard routines.

This contribution could not reveal the various interpretations about sustainable urban development that prevail in communities, cities, regions, and countries worldwide. Context-sensitive research is needed to give a voice to planning practitioners and their context-dependent and individually grounded understandings of sustainability. Such research can add greater depth to the ongoing discussions on sustainable urban development in planning and help to understand why some cities and regions fail to achieve their sustainability goals while others succeed.

We know with certainty that achieving sustainability and sustainable urban development will continue to be a major challenge for planning in the future. Solutions will not be found from one single top-down organisation, such as the United Nations, the European Union, or national governments, neither will it come in a bottom-up manner, from individual cities and regions. Instead, success will depend on the actions of various actors and organ-

isations at all levels of government and in all parts of the world. Such non-linear and shared power situations, where no one is in charge, but everyone needs to act, make it especially crucial to acknowledge the role of actors.

When focusing on actors, however, we also need to remind ourselves to not study micro-practices that are entirely detached from their context. As the discourse on structure and agency shows, a better understanding of the relation between individuals, organisations, institutions, and administrative systems, and of the relationships between actors, is needed to grasp how actors do their work, which ideas and ideals they pursue, and which tools and strategies they use to do so. Research and teaching can make a significant contribution to better understand which challenges actors face in planning practice, how actors are influenced by organisations, and administrative systems they work in, as well as how we can help (future) planners to cope with wicked problems.

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(Re)-positioning Spatial Planning History and Historiography

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Since its emergence in the 19th century, modern spatial planning has served as a tool to address public health issues, to organise infrastructure, or to structure cities and landscapes. Throughout this period, planning has been both praised and challenged by the different actors involved. Governments and corporations have historically used planning tools to advance the political, economic, or social interest of select groups. In some cases, public and private planning authorities have implemented planning for the greater good of the local population. The history of planning contains many examples for better cities, for example, with green spaces for the whole population, public spaces and transportation or healthy neighbourhoods that benefit the society at large. In other cases, planning has created segregated spaces. Colonial planning of infrastructures for the extraction of raw materials or the generation of energy, the segregation of local and foreign populations, of rich and poor, the settlement of low-income populations in the vicinity of polluting industries are just some of the examples where planning has created and supported spatial injustice, often across the globe. Students of spatial planning need to be aware of the background of current planning systems and planned spaces and their global interrelationships to assess the impact of these histories on current and future planning practice. They need to understand the role that planning historiography plays in the promotion of select planning approaches over time and space as a foundation for responding to contemporary societal challenges, informing long-term spatial planning on multiple scales.

SPATIAL PLANNING, HISTORY, HISTORIOGRAPHY, EDUCATION, SOCIETAL CHALLENGES

1. Introduction

In the late nineteenth century, one form of planning emerged as a discipline in England, continental Europe, and the United States. It was conceived as a rational, modernist pursuit for societal improvement in response to the urban ills – overcrowding, pollution, unhealthy living environment – produced by the Industrial Revolution. Planning practitioners tried to respond to rapidly transforming cities, to new forms of production and consumption, to uncontrolled population growth, and to new types of transportation and communication. In short, planning targeted hygiene, housing, and transportation. As industrialisation and colonial empires spread, various planning approaches – land readjustment, building lines, zoning – followed often colonial geographies of power.

Planning has been called upon since the mid-nineteenth century to propose interventions that would steer future development based on calculations, assumptions, and formal criteria from the past. Planners have taken up this complex challenge, often with the best of intentions. They have worked with national governments and local elites, occasionally involving civic society. They have responded to the needs of expanding cities and of transforming nations. They have provided new infrastructure and identified functional zones. They have projected urban futures in times of war and disaster as well as peace. They have worked to integrate existing (planned) spaces and established (planning) cultures into their interventions. At a time when informal urbanism is becoming more prominent notably in recently industrialising and urbanising countries of the Global South, planning

history provides an opportunity to understand the motivations for future interventions.

Planning history is an interdisciplinary field with contributions from multiple disciplines. Urban historians, economic historians, social historians, architectural historians, and historians of landscape and the environment, have all tackled questions of plans and planning including housing, construction, local government, social policy, utopianism, urban form, and so forth. Some authors define planning history as describing the formal, aesthetic appearance of the built environment, taking an architectural or urban design approach. For others, planning history comes out of the social sciences, and for yet other scholars it is the focus of urban geography or situated in political, social, and economic histories.

Planning history as a field has existed since the 1970s, and several institutions and journals focus on it, including well-known ones such as wide-ranging English-language books like Peter Hall's seminal *Cities of Tomorrow* (Hall, 2014 [1988]). While being one of the first books to explore the history of planning, and its theory and practice, Hall's work did not reflect on the field of planning history itself. Several collections include original texts of nineteenth- and twentieth-century planning (Birch, 2008; LeGates & Stout, 2003; Larice & Macdonald, 2012; Wegener, 2007). Broader questions of global planning cultures, as tackled in other works, also include reflections on historical trajectories and their relations to specific national and local traditions (Sanyal, 2005).

A wider range of narratives is important to the re-writing, re-thinking, re-orienting of planning history itself. If Sub-Saharan African planning, for

instance, has largely been left out of the canon of planning history, a more expansive understanding of these histories can prove transformative (Silva, 2015). Such a rethinking also involves acknowledging the places and languages from which planning history is written and questioning the underlying premises. It acknowledges the extensive historiography of planning, and that much of the important writing on planning history came out of England and the United States first. It also emphasises that, in the end, these are regional or national stories that need to be paralleled with other approaches guided by different language patterns and by different political, economic, social, and cultural approaches to planning. Reflecting on the multiple planning histories and historiographies of Southeast Asia and South Asia, for example, requires that authors understand planning as an expression of state power and corporate development.

Recent research in planning history aims to overcome the limitations of different disciplines and geography (Hein, 2018). Some authors have started to address the challenges of planning history writing, including the need to overcome national stories that are bounded by specific archives, languages, and cultures, towards transnational understanding, to go beyond empirical and narrative-driven research to develop critical theories and broader contextualised perspectives (Ward, Freestone, & Silver, 2011; Nasr & Volait 2003; Hein, 2014; 2018). While such an approach cannot be comprehensive, we need global planning histories, giving insights into different approaches, geographical patterns, languages, and principles, connecting the parallel worlds of academic planning history in different disciplines and facilitating the emergence of collective languages, terminologies, methodologies, and

theories. This chapter aims to provide some insight into the 'Why', 'How', and 'What' of planning history, to conclude with its role for research and education in the field of planning.

2. Why planning history?

The discipline and focus of planning have shifted in tune with political and economic developments as well as societal changes across the decades. Today, planning is primarily a forward-looking discipline, in which past developments and approaches play a limited but changing role. Over time, some architects and planners have looked to the past as a toolbox, using historical references, for example, by copying historic squares, while others cite prior plans only in passing, or ignore them altogether. This change is also reflected in planning education. A brief look at curricula and their changes over time indicates that planning schools increasingly prefer to teach planning theory rather than planning history, and most planning schools do not train planning historians. But discerning what planning is, and what the city is in time and place, planning history builds awareness of diverse ideological and theoretical positions. It also allows for new transnational, conceptual, methodological, or theoretical approaches to emerge, for instance about informality, that challenge the ideas of modernity in urban form and function, and that call into question the concepts of planning and representations of space.

Planning history helps us to understand planning's past influence on our cities, regions, and nations, and to imagine the future of planning as a professional practice as the past or even current performance of the discipline is being questioned and global challenges require comprehensive new

measures. As a means to better understand the role of planning in the historical transformation of cities and regions, planning history can also help us understand the downsides or shortcomings of historic planning practice and the needs for novel approaches. For example, in some areas of the world, planning has created more economic, social, or ethnic inequalities rather than solving them, think of infrastructure planning for the extraction of minerals, petroleum, or agricultural products and their transportation to industrialised countries – the extraction of petroleum from Iran and other countries of the Middle East and its export to Europe and the United States stands as an example, and a close analysis can help understand the reasons for these shortcomings. In other areas, attempts to undo former colonial planning practice can benefit from a comprehensive understanding of the complexity of colonial planning practice, ranging from legal practices to aesthetic and symbolic interactions. For example, the highly publicised destruction of colonial Japanese heritage buildings in Korea, such as the Government General Building, did not go hand in hand with an undoing of colonial laws. Furthermore, the emergence of informal settlements that in some areas of the world are more extensive than planned ones raises questions about the necessary flexibility of planning and the changing intersection between planned spaces and informal urban development. Many planning interventions have simply failed, or have been too inflexible to accommodate urban change.

Planning has shaped our environment extensively but it has also faced extensive criticism. Zoning, originally developed to improve health in a time of industrial development in the nineteenth century, destroyed multifunctional neighbourhoods, and

became a target for citizen movements such as the *Atelier de Recherche et d'Action Urbaines* (ARAU) since the 1960s (ARAU, 1984). Over the last decade, cities and regions around the world have been facing increased challenges ranging from climate change and global sea level rise to migration and population growth, and comprehensive solutions are needed to create resilient planning systems. Planning history can be an important and valuable tool for conceptualising such systems for the future, speaking to the challenges of the future and integrating lessons from the past.

The American planning historian, Larry Vale, introduced the concept of critical resilience, arguing that such discussions need to be more attuned to issues of power and politics in moments of disaster and post-trauma (Vale & Lamb, 2016). Pointing out that planning historians are well trained in analysing historical disaster recovery, Vale believes that this analytical tool should be applied more widely when thinking about contemporary and future resilience. We do not need ideological answers or engineers who engage only with future challenges – we need planners with a sense of history and historians with a sense of planning.

Planning historians also have an important role in analysing past plans for a bygone future, pointing out challenges for the future. As they evaluate and sometimes revive future visions, they provide grounding for contemporary design. The planning of Berlin as a capital is just one example of the impact that visionary plans have had on planning discussions worldwide. Numerous visionary projects for Berlin that did not become reality – from monumental plans under Albert Speer, Adolf Hitler's favourite architect, to megastructural projects for the Capital Berlin competition 1957/58 – have informed



Figure 1: Albert Speer Plan for Berlin. The Volkshalle's Great Dome can be seen at the top of this model of Speer's plan. Author of the photo unknown. Image available at the Bundesarchiv, Bild 146III-373 / Retrieved from: <https://commons.wikimedia.org/w/index.php?curid=5484311> CC-BY-SA 3.0.



Figure 2: A small part of the huge underground shopping mall underneath Tokyo Station. Photo by author.

projects in later decades. These can have as much or longer standing powers than realised plans; they can travel through time and space, influencing later decision-making or flourishing where they find fertile ground. Speer's projects, while not realised, would shape planning decisions in West Berlin from the end of the war until after the fall of the Wall in 1989, with subsequent planners avoiding all monumental or axial designs. Other concepts live on, and many have since been realised in piecemeal fashion at the hands of public institutions and corporations: megastructural visions established in Europe and Japan can be seen as predecessors of extensive underground shopping malls, huge skyscrapers connected by pedestrian bridges, and large infrastructure such as floating airports.

3. How to write and teach planning history?

The notion of planning is intimately related to the concept of modernity and modernisation after the Industrial Revolution, and to the assumption that changing the physical spaces of a city would change its residents' life conditions, and social and cultural patterns (Scott, 1998). Planning historians have contributed to writing the history of modernity, documenting the efforts of leading planners, strains of practice, and interventions. Rethinking the definition of modern as being related to industrialisation, Scott's book both defines the concept of planning and revises that definition, going beyond the concept of planning as 'progress' and the activity of the historical 'avant-garde' and exploring planned interventions in conjunction with vernacular or unplanned spaces.

Questioning the concept of the modern in planning brings new themes and questions to the forefront of research. Planning has presented itself as a science, employing social engineering, traffic engineering, and other supposedly objective methodologies. However, few planners or historians have questioned or tested the results of specific interventions. Perhaps even worse, what was presented as a scientific response to health in one era later itself became seen as a health hazard. For example, blocks and slabs in greenery-type housing projects of the 1920s and 50s are now condemned for reasons of security and aesthetics, elements that are important to walkability, a topic that scholars today have recognised as essential to combat obesity and foster a sense of community.

As a result of the prominence of a Western approach in history writing, there are lines of influences that are taken for granted rather than being critically explored and reflected. Mesopotamia and Greece and the Roman empire were interconnected, but they often appear as disconnected in contemporary writing, as the two areas today belong to two different cultural areas; similarly, Japan has long been considered a recipient of planning rather than a translator and generator of concepts for Asia, mostly because Asian languages and approaches to planning history do not easily intersect with those in English or other European languages. A global view of planning history critically challenges some traditions and raises questions of periodisation, overcoming established narratives.

Historiography is never objective, but we have to be very careful to make sure that it does not become only subjective. To do that, historians (including those of planning) provide evidence that is significant and appropriate. The 'history of practice'

as examined by historians focuses on how people acted in the past, but typically does not consider the past's implications for the present. In contrast, practitioners 'practice history', that is, they turn to history for their work in the present, but they do not always consider the past on its own merits. This is also true for analysis of how planning practices cross borders: often books on 'learning from' other cultures are about creating an argument for certain planning approaches rather than gaining deeper understanding (Shelton, 1998). Treating planning history explicitly as the history of a future-oriented discipline, allows scholars and practitioners to explore how the discipline has narrated the past and how planning practitioners have mobilised the past for the future.

Questions of planning's authorship, spatiality, and temporality are reproduced in planning history as it has traced the development of planning and its targets, focusing on issues of hygiene, infrastructure, and housing, and on capital design, infrastructure planning, and heritage (the use of the past itself). But planning histories have not addressed all areas, time periods, or practices in the same ways. The writing of history at times went hand in hand with the making of history. Some of the early planning histories have been written to legitimise a group of planners or a specific ideology, notably of the modernist movement, the CIAM movement, or megastructures (Kultermann, 1986). Even attempts to counter the focus on modernist architecture and planning have started with the focus on single architects, including Albert Speer (Larsson, 1983). Occasionally (architectural or urban) historians were even part of iconic movements: Kenneth Frampton famously documented the modern movement and Noboru Kawazoe wrote for and with the Japanese

Metabolists. These engagements raise the question of how historians more generally have created an official narrative of the modern city and its planning while being affiliated or intellectually connected with certain movements.

When planning historians narrate the past, they risk creating heroic histories. The actors of planning and thus the heroes of planning history were often elite white males who followed their 'interest' or 'genius'. Emphasising these stories – not necessarily historians' conscious goals but rather the result of a specific cultural moment – ensured that other plans and planners would be ignored and that a celebratory track record emerged. The resulting planning history can be read as a listing of their achievements without acknowledging the specific political, social, economic, cultural context. Studies abound of Baron Georges-Eugène Haussmann, Ildefonso Cerdà, Ebenezer Howard, Le Corbusier, Robert Moses, and the Congrès Internationaux d'Architecture Moderne (CIAM), and their respective plans. Even when these accounts are critical, these are often still the types of projects and images that figure prominently, influence opinion, and may even become cliché.

Heroic stories also risk perpetuating gendered structures. But women have always been present in planning. While fewer women were active as planners in the early years, upper-class women tried to help the poor, such as the German writer and social activist Bettina von Arnim who worked with the architect Wilhelm Stier to project for a city of the poor, establishing a well-recognised line of intervention in planning by women. By the 1920s and 1930s, women started to become professional planners: Catherine Bauer and her sister Elisabeth Bauer Mock, and Jaqueline Tyrwhitt are just some

examples. Planning history also has its female leaders, from Françoise Choay to Annie Fourcaut, Susan Fainstein, Leonie Sandercock, Donatella Calabi, and Helen Meller, who have contributed innovative approaches. A full account of planning history from a female lens is increasingly important but currently still missing.

Other patterns of planning that have yet to be fully acknowledged in planning history include the history of engineering. The history of engineering has been closely connected to that of planning, but historians have yet to recognise engineers' contributions to planning. Studying the ways in which planners have picked up new technologies in attempts to promote organised, planned spaces over unplanned ones may reveal new connections in the long-term narrative of planning. Planners have not been initiators but have picked up on engineering responses as drivers and executors. Visionaries like Le Corbusier promoted engineering, and dressed it up. Elevators, trains, cars, and planes, all these different means of transportation have provided the incentive for extensive changes of urban form and function. Trains and cars provided the opportunity and tools for suburbia, while planes allowed for the creation of networks of cities more closely connected to each other than each city was connected to its surrounding urban area. Engineers made it their goal to counter the forces of nature while planners and architects provided the designs and rationales that sustained the transformation. New materials made possible buildings and entire cities that could be defended against water, earthquake, or climate, in river deltas once flooded on a regular basis, on coastlines or next to rivers, in areas that were prone to earthquakes or tsunamis, ones located in punishingly hot or cold climates. But the engineer's

preferred focus remains narrow, whereas planning implies some degree of comprehensiveness, a social or environmental function. Understanding the pitfalls of engineering-based planning merits further investigation to also learn from failures and missed chances.

Moreover, critical planning histories and awareness of missing narratives can provide a foundation for planning that addresses the challenges of the future. For example, historical analysis of the physical and financial flows of petroleum can help us understand the formation of modern cities, making visible that industry's need of industrial, administrative, retail, and ancillary spaces as well as its representation of the built environment in advertisement, art, architecture, or urban form. Such a study can also help us anticipate and design for changes in an imminent post-oil future: remediating and repurposing defunct refineries and storage tanks, rethinking infrastructural and other linkages between oil industries and headquarters, reorganising global towards more circular economies. Understanding how and these systems and dynamics developed historically will help planners imagine new futures for them.

4. Imagining the future(s) of planning history?

In order to imagine the future of planning history, we need to develop new concepts and challenge the teaching of planning and its history in diverse educational systems, in planning schools, and in other academic departments. That might also mean integrating and teaching design thinking, not only in the context of planning education, but also in social

science departments, and developing relevant curricula that engage with new perspectives.

Acknowledging biases in terms of culture, colonialism, gender, and fields of inquiry is a necessary foundation for planning historians. For example, they will have to reflect on the writing of planning histories involving countries that have fought wars against each other. Questions of gender will be central, especially when they engage with planning in societies where men dominate the public realm, considering not only questions of exclusion and the role of women but constructions of masculinity itself. They will have to reflect on the role of Western theory in the analysis of megacities in countries like China, for instance, as it ignores the specificity of these cities and theories related to the cultures in which they emerged. Other boundary-pushing work for planning historians will concern the 'urbanisation' of oceans – the proliferation of drilling platforms, energy parks, and other floating structures – and questions of energy networks, food landscapes, and the study of commodity flows and their influence on the built environment.

Planning history scholars have recently made new steps towards overcoming biases such as the focus on English-language sources, and developing novel interdisciplinary, trans-cultural, and post-colonial approaches (Hein, 2018). The *Planning History Handbook*, for example, examines sites, dynamics, and typologies, and explores the state of the field, its achievements and shortcomings, and future challenges. Such novel approaches can serve as a foundation for defining the field and as a springboard for scholars, practitioners, and students engaging in innovative research. Writing and teaching planning history can build on this to provide both new global standpoints and new approaches, querying official

iconographies, including other disciplines, investigating different parts of the world.

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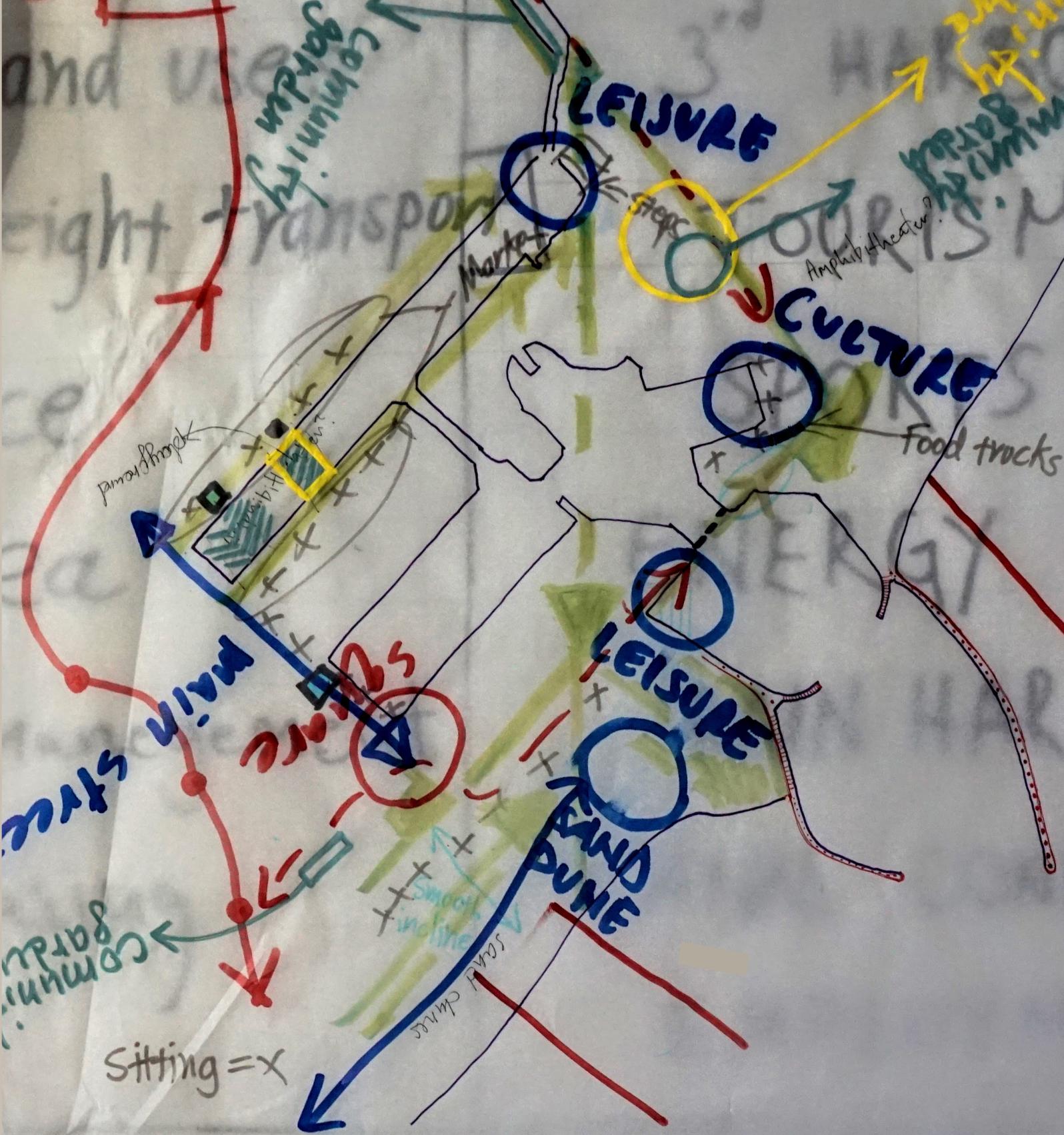
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Amsterdam street scene. Photo by R. Rocco.

Current Issues





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Strategy map made by participants of the Summer School Planning & Design with Water. Photo by R. Rocco. Printed with permission.

Four Clusters of Thought on Flood Resilience and Climate Adaptation

The state of the art and new directions for spatial planning

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The need to respond to increasing flood risk, climate change, and rapid urban development has shaped innovative policies and practices of spatial planning in many countries over recent decades. As an instrumental–technical intervention, planning is mainly used to improve the physical environment (through concepts such as regulating waterproof facades of architecture, setting buffering zones, and designing green-blue corridors). However, the implementation of the proposed physical interventions is often challenging and necessitates assistance from practices such as climate assessment, policy disciplines, civil societies, and economic resources. These extensive perspectives have spawned many new research domains in the realm of spatial planning. This chapter provides a review of the recent developments in flood resilience, risk management, and climate adaptation; based on this, it positions planning research and practice within these works of literature. Four clusters of thought are identified, mainly in the European and American scholarship of the last two decades. They are environmental concerns, disaster management concerns, socio-economic concerns, and institutional concerns. Current planning research concentrates on disaster management in the underlying belief that planning is functionally efficient. The attention to environmental concerns, socio-economic concerns, and institutional concerns of planning research remains insufficient but has been growing. This, in turn, enlarges the scope of planning research and indicates future directions for study. These new concerns relate to spatial planning’s ability to operate effectively in a multi-sectoral setting, despite limited resources and in the face of uncertain risk.

1. Introduction

There are lively scholarly and policy discussions on how to solve the growing flood threat and climate change, on which approaches are usable, and on how different actors can contribute to addressing these concerns (Vis et al., 2003; Economics of Climate Adaptation Working Group, 2009; Hegger et al., 2013; Löschner & Nordbeck, 2020). Although spatial planning has been recognised as a source of valuable tools to handle flooding hazards and make human settlements more resilient, most studies appraise its physical function, as an instrumental–technical intervention to arrange the spatial layout and land use, such as regulating waterproof façades of architecture, setting buffering zones, and designing rainfall gardens and green-blue corridors (Davoudi et al., 2009; Roggema, 2009; 2012). This chapter argues that the role of planning goes beyond this and can be extended into, for instance, environmental, social-economic, and institutional issues. To support it, the study reviews a wide range of literature to 1) outline the state of the art of the planning literature dealing with floods in policy, research, and practice, and 2) point out the progress and development of planning in different aspects. The aim here is to sketch out a wide landscape of scholarship from different research perspectives that can be used to understand and clarify the role of the planning field. This chapter concentrates on multiply source of flooding events, including: 1) fluvial floods (river floods), 2) pluvial floods (surface water floods occurring when rainfalls exceed the capacity of drainage systems), and 3) coastal floods (including extreme storm surges and gradually rising sea levels).

This chapter consists of three sections. Firstly,

it introduces a four-pillar conceptual framework for the literature review developed in this chapter. Secondly, it applies this framework to review the planning literature of relevance in the recent 20 years (the 1990s–late 2010s). It explores the *status quo* in the spatial planning research in relation to each of the four clusters of thought to identify the well-developed and neglected perspectives. The latter create scope for planning to contribute to the advancement of scholarship on flood resilience. The study closes with an outline of future research directions and concluding remarks.

2. The four pillars of resilience agendas through the lens of sustainability

The starting point for organising the review is the literature on resilience and sustainability in urban development. The 17 Sustainable Development Goals (SDGs) associate resilience with sustainability in Goal 11 and propose to ‘make cities and human settlements inclusive, safe, resilient, and sustainable’ (United Nations, 2015: 24). Diverse actions are envisaged to reach this goal which can be summarised in five perspectives: environmental concerns (the reduction of the adverse environmental impact of cities); social concerns (the protection of poor or vulnerable people, including women, children, and elderly people); economic concerns (the decrease in financial loss); disaster management concerns (access to safety through, for instance, transport infrastructure and resilient buildings); and institution-

al concerns (participatory and integrated planning and management). Similar categories have been proposed, for example, a fourfold categorisation of benefits: environmental benefits (e.g. land, water, climate change), social benefits (e.g. safety, risk reduction, welfare), economic benefits (e.g. resources, payments), and institutional and governance benefits (e.g. stakeholders, institutions, networks) (Grafakos et al., 2016).

Inspired by these groups, we have adopted a four-pillar framework to organise the review of research and practice on the connection between flood resilience and spatial planning. These pillars are 1) environmental, 2) disaster management, 3) socio-economic, and 4) institutional (and governance) concerns. Social and economic perspectives are merged on account of the intertwined negative impacts caused by floods, for instance, the poor (a financial problem) having limited access to safe shelter (an inequity problem). A disaster management perspective is highlighted here referring to physical interventions (e.g., infrastructure layout designs, land use allocation) and related regulations that manage physical changes (e.g., building codes).

3. The development of spatial planning research, policy, and practice across the four pillars of flood resilience literature

This section provides a brief account of the development and challenges of spatial planning in relation to the proposed four pillars of flood resilience and climate adaptation, based on extensive (academic and grey) literature across the fields of literature from climate science, disaster mitigation, water

management, flood risk management, hydrological engineering, economics, adaptation planning, public participation, administration, and governance. Here, the subtle difference between spatial planning and similar terms like land-use planning or urban planning is neglected for simplification. Some early research has indicated that these similar terms are more technical and concerned with zoning and setting parameters for land development, while spatial planning is broader, not only technical but also relating to the coordination of spatial activities (Fleischhauer, 2008; Stead, 2008).

3.1. Limited attention paid to environmental concerns

The literature focusing on environmental concerns aims to unpack how social-ecological systems—encompassing all ecological goods, (built) assets, services, and even populations—are threatened by flood hazards that can be exacerbated by climate change and human activities. These concerns arose from the uncertainty of climate change, extreme weather, and the risks they entail. At the global level, this strand was promoted by the projection of ecosystem-based risk such as the changes in precipitation and sea-level rise (Tegart et al., 1990) and the identification of the gains and losses (vulnerability) of human settlements in different regions, nations, and areas (Lehner et al., 2006; Intergovernmental Panel on Climate Change, 2007; Katsman et al., 2009; Forzieri et al., 2016; Jana & Hegde, 2016; Barnard et al., 2019).

In terms of planning scholars and practitioners, environmental concerns have not been a main focus. In practice, agencies dealing with climate science, meteorology, environmental science, and hydrology

are forerunners in flood resilience, having more experience in monitoring, weather forecasting, and climatic assessment. As a result, these agents are mainly responsible for observing, modelling, and projecting climate change impacts and leading flood events. For instance, in the United Kingdom, the Environment Agency in England, the Natural Resources Wales, the Scottish Environment Protection Agency, and the Department of Infrastructure in Northern Ireland launched their flood maps within their jurisdictions (Department of Infrastructure in Northern Ireland, n.d.; Environment Agency in England, n.d.; Natural Resources Wales, n.d.; Scottish Environment Protection Agency, n.d.). Similarly, in the Netherlands, the Foundation Climate Adaptation Services launched the Climate Impact Atlas, which indicates the potential flooding areas (Foundation Climate Adaptation Services, n.d.).

Due to a lack of professionalised knowledge, planning institutions often step behind the above-mentioned institutions. Even so, they can still make a contribution to this stream by building strategic cooperation with those forerunners and overlaying hydrological maps (e.g. flooding maps) with socio-spatial data (e.g. age, incomes, land uses) to identify gains and losses of flood-exposed entities in different regions, nations, and areas. The findings then allow the planning sector to offer solutions to reduce flood loss. Typical cases are the Urban Waterfront Adaptive Strategies in New York (New York & Connecticut Sustainable Communities Consortium, 2013) and Climate Change Adaptation Strategies in Rotterdam (Rotterdam Climate Initiative, 2013), in which flooding maps and socio-spatial data were used to identify the vulnerabilities of communities and neighbourhoods caused by coastal floods and rainfalls and further develop strategies for flood resilience.

3.2. A focus on disaster management concerns

The literature focusing on disaster management concerns aims at identifying effective solutions to reduce the negative impacts of flood hazards. Since the early 2000s, this cluster witnessed a transition from hydrological engineering defences toward integrated solutions, considering the increasing damage potentiality in a basin where confidence in safety is miscreated by traditional flood control infrastructure (Takeuchi, 2001; Vis et al., 2003).

According to our observations, extensive planning literature has developed rich experience in disaster management concerns. The main aim of this literature is to identify and implement measures that planning can use to deal with floods. As with the former goal, the proposed measures in the more recent literature since the 1990s can be categorised into five aspects, based on the early study from Hegger et al. (2014), including avoidance, defence, mitigation, preparation, and recovery in terms of structural and non-structural interventions (see details in Table 1).

Nature-based infrastructure for flood mitigation has been a major solution widely promoted in the planning literature to decrease flood loss: ecological buffer zones at the macro-scale; mangroves, dunes, marshes, wetlands, lakes, and green-blue river/waterway/canal branches at the meso-scale; and rain gardens, permeable paving, green roofs at the micro-scale. They are proposed to protect shorelines, ensure drainage of excessive river waters as fast as possible or retain rainwater (Kang et al., 2009; Sayers et al., 2013; Wingfield et al., 2019).

Some measures adopted by planning can be de-

Measures	Statements in Planning Policies/Regulations	Affected (Non-) Structural Interventions in Practice	References
Avoidance/prevention	Floodplain zoning plans; land acquisition and relocation plans	<ul style="list-style-type: none"> - Watershed management and retreating from waters (avoiding urban development in flood-prone areas) - Function arrangement (economic enterprises, residential areas and recreations) - Population move and building (re)locations 	(Thampapillai and Musgrave, 1985; Kang, Lee and Lee, 2009; Sayers et al., 2013)
Defence	Multipurpose/multifunctional engineering measures to deal with coastal and fluvial floods with the consideration of leisure, landscape, and commerce	<ul style="list-style-type: none"> - Dykes, floodwalls or quay walls (setting back, combined with residential buildings, commercial development, greening, and transportation) - Reservoirs (water storage, supply, natural landscape, and recreation) 	(Van Veelen, Voorendt and Van Der Zwet, 2015; Voorendt, 2017; Wingfield et al., 2019)
Mitigation	Nature-based infrastructure for coastal flooding reduction, rainfalls detention, retention, and a river discharge passage	<ul style="list-style-type: none"> - Creation of green buffers and flood detention areas - Creation and preservation of mangroves, dunes, marshes wetlands, lakes, and green-blue corridors - Waterways and channels de-culverting, greening, and improvement - Sustainable Drainage Systems (SuDS)/Low impact development measures (rain gardens, permeable paving, green roofs) 	(Kang, Lee and Lee, 2009; Sayers et al., 2013; Wingfield et al., 2019)
Preparation	Building codes and building controls; evacuation plans; safe havens arrangement	<ul style="list-style-type: none"> - Building waterproofing (removable stop logs, water-retaining walls, mobile barriers, the lowest flood elevation for footings, structural requirement to withstand water pressure, prohibiting basements, flood-proof facades, standards for buildings anchored to foundations) - Road networks optimization - Safe havens creation 	(Water Resources Council, 1971; Elsergany et al., 2015; Coutinho-Rodrigues, Sousa and Natividade-Jesus, 2016; Voorendt, 2017; Jamrussri and Toda, 2018)
Recovery	Post-recovery plan; critical infrastructure protection	<ul style="list-style-type: none"> - Building reconstruction - Re(location) and reinforcement of supporting buildings such as power plants, healthcare centres, and police stations 	(Olshansky et al., 2008; Sayers et al., 2013; World Health Organization (Regional Office for

Table 1: Five types of measures to deal with the flood risk when planning is taken into consideration.

batable and are not universally used. For instance, floodplain zoning plans in the avoidance category, which suggest retreating from waters (often coastal and fluvial floods), have faced criticism of losing valuable lands for urban development in countries and areas with high population density, like those that are members of the Organisation for Economic Cooperation and Development (OECD) (Sayers et al., 2013; Chiabai et al., 2015). Another case is the synergy of dyke systems and transportation or residential development in the defence category. This synergy has been a context-specific experience. In the Netherlands, this measure has been highly appraised, where the integration between planning and flood risk management and un-embanked area development (urban development beyond dykes) is well-established and rooted in deeply embedded traditions in water management and planning (van Veelen et al., 2015; Voorendt, 2017). Thus, these experiences cannot be used in other contexts without modification.

Preparation and recovery measures, such as evacuations and safe haven establishments, have received little attention in the planning literature (emergency response). A few papers based on Geographic Information System (GIS) methods, transportation, and urban simulation, opened windows for the domain of spatial planning to optimise evacuation plans and shelter locations arrangements in the face of coastal and fluvial floods (Tagg et al., 2013; Elsergany et al., 2015; Coutinho-Rodrigues et al., 2016; Jamrussri & Toda, 2018). Similarly, critical infrastructure protection is an under-researched issue in planning literature, which calls for paying more attention to protecting essential buildings in the flood events, such as power generation plants, healthcare centres, and police stations (Sayers et

al., 2013; World Health Organization, 2017).

The implementation of the proposed measures, however, often faced challenges, given the enormous investment entailed, as well as data and predictive uncertainty in modelling (Vis et al., 2003). Additionally, current successful solutions may no longer be valid when hazards exceed a threshold (the maximum capacity of a system to keep safety, e.g., drainage systems) in the future. Thus, static or on-off resilient measures are not advisable in the face of the unpredictability of climate change, and the flexibility to shift from one to another alternative is significant (Reeder & Ranger, 2010; Barnett et al., 2014; Siebentritt et al., 2014; Buurman & Babovic, 2016).

As a result, since the 2010s, the planning literature has increasingly shifted its focus to the concept of 'adaptive planning,' taking into account the economic utility of resilient measures and wise funding allocation. This notion calls for 1) planning to keep options open to changing circumstances, avoiding locking in rigid decisions; and for 2) local societies and policymakers to remain flexible and adjust their strategies and measures in the face of the uncertainty of floods and climate change (Haasnoot et al., 2013; Walker et al., 2013). Even so, this literature has been criticised due to its idealised assumptions that decision-makers would like to make decisions based on long-term visions and seek opportunities to adjust plans and strategies in the face of the failure of some measures or their unintended negative effects ('maladaptation') (van Veelen, 2016).

3.3. A weak but emerging focus on socio-economic concerns

Despite the growing knowledge on the effects of climate change and flood hazards and available measures to deal with the effects, substantial economic uncertainties still hinder the design and implementation of adaptation measures in practice. These uncertainties include: 1) the potential loss of threatened systems under pressures (McCarthy et al., 2001), 2) the extent to which the resilient (or adaptation) measures could ameliorate the negative effects and enhance positive effects, and the extent of the cost of actions (de Bruin et al., 2009; Debels et al., 2009; Mechler et al., 2014), and 3) the distributional effects of the proposed resilience measures (Anguelovski et al., 2016). The literature focusing on socio-economic concerns, strongly supported by economic scientists and economic analysis institutions, provides some insights into these issues by 1) estimating financial losses of climate change and flood hazards (Stern, 2007), 2) calculating investment and payoff of flood resilience measures (Hallegatte et al., 2011), and 3) allocating the responsibilities of a flood (or pre-flood) loss compensation (Doorn-Hoekveld et al., 2016).

In the planning literature, the discussion of socio-economic features of resilience measures has been largely neglected. It has been partly covered in a few planning papers that concentrate on the economic issues of flood resilience measures in urban development projects, such as the calculation of investment and payoff (Raaijmakers et al., 2008). An early study from Bruin and Goosen (2014) used cost-benefit analysis (CBA) to verify the economic efficiency of flood resilience measures to deal

with precipitation. They found that rainfall gardens, raised roads, and building codes were not economically efficient compared to ecological networks in a Dutch case. The institute Urban Floods Community of Practice confirmed the significance of regulatory instruments in Florida relying on cost-effectiveness analysis (CEA), where risk-based building codes reduced severe flood loss from Hurricane Charley by 42% (Urban Floods Community of Practice, 2017). Similar applications of cost-effectiveness analysis also appear in papers that confirm the effects of zoning plans and development controls in England, Colombia, Japan, New Orleans, Seoul, etc. (Urban Floods Community of Practice, 2017). Raaijmakers et al. explored ways of using multi-criteria analysis (MCA) to decide either a continuation of housing development in flood-prone areas for profits or a change of cultivated lands to natural lands to face the flood risk (coastal floods caused by storms) given the public and private stakeholders' worries and their individual risk perception (Raaijmakers et al., 2008).

Economic reports have given a more critical assessment of different flood resilience options available for planning and pointed out that the benefit-to-cost ratio is variable. For instance, mangroves as a natural option to create buffer zones to reduce coastal floods, supposed to have a high benefit-to-cost ratio by the Economics of Climate Adaptation Working Group (ECA) report (Economics of Climate Adaptation Working Group (ECA), 2009), was criticised by Sanghi et al. (2010) on account of an exponential increase in costs in high-income countries, like the United States. Similar discrepancies also appeared in options like retreating from low-lying areas, and building codes (see Table 2).

The inconclusive cost-benefit results are partly

Resilience Interventions		Calculation Methods	Findings	References
Watershed management and function arrangement	Retreating from low-lying areas *	CBA	A high benefit-to-cost ratio for hurricane protection and storm-surge; yet involving high opportunities in costs of lands, like OECD countries	(Economics of Climate Adaptation Working Group (ECA), 2009; Chiabai et al., 2015)
	Zoning plan with a functional arrangement	CEA	High benefits	(Urban Floods Community of Practice (UFCOP), 2017)
	A change of cultivated lands to natural lands to mitigate loss	MCA	High acceptance of public and private stakeholders in individual risk perception	(Raaijmakers, Krywkow and Veen, 2008)
Building codes/controls	Mobile barriers *	CBA	A high benefit-to-cost ratio	(Economics of Climate Adaptation Working Group (ECA), 2009)
	Houses with waterproof glass or windows *	CBA	A low benefit-to-cost ratio	(Bruin and Goosen, 2014)
	Retrofitting building materials against floods *	CBA	High/low benefit-to-cost ratio depending on differences in risk levels, the costs of resilience, existing costs and asset lifetimes, and assumed discount rates locally	(Hochrainer-Stigler et al., 2010)
	Residential building controls reducing severe flood loss from Hurricane Charley by 42%	CEA	High benefits	(Urban Floods Community of Practice (UFCOP), 2017)
Multi-purpose engineering measures	Construction of dykes combined with transportation	CBA	A low benefit-to-cost ratio	(Bruin and Goosen, 2014)
	A change of cultivated lands to ecological networks	CBA	A high benefit-to-cost ratio	(Bruin and Goosen, 2014)
Natural coastal and waterfront buffer zones	Mangroves *	CBA	A high benefit-to-cost ratio; yet an exponentially increase in costs due to land transformation and policy enforcement costs in high-income countries, like the US	(Economics of Climate Adaptation Working Group (ECA), 2009; Sanghi et al., 2010)
Water detention	Rainfall gardens for	CBA	A low benefit-to-cost ratio	(Bruin and Goosen, 2014)

Table 2: Economics of flood resilience measures available for spatial planning. Grey coloured blanks are the findings indicating variable benefit to cost ratios

CBA: cost-benefit analysis; CFA: Cost-effectiveness; MCA: multi-criteria analysis

* The findings come from economic reports

due to the uncertainties related to flooding extremes and the high site-specificity (Chiabai et al., 2015). Risk levels, the costs of resilience measures, land prices, policy enforcement costs, maintenance expenses, and asset lifetimes, etc., are different from a place to a place. It leads to a variation in cost-benefit ratios in different areas even for the same implemented measures (Hochrainer-Stigler et al., 2010; Sanghi et al., 2010). Also, the calculation can be affected by the definition of 'cost' and 'benefit' which can greatly alter the mathematical results (Sanghi et al., 2010; Chiabai et al., 2015). Even so, the analysis in the economic literature still provides insights for the planning literature on how to calculate the economic payoffs and profits of resilient measures that support option selection according to local conditions.

3.4. An increasing focus on institutional and governance concerns in the planning literature

The strand of the flood resilience scholarship concerned with institutional and governance issues is a mixed body of literature spanning across the disciplines of social science (Aylett, 2015), political science (Fraser and Kirbyshire, 2017), and policy studies (Keskitalo, 2010; Bulkeley, 2013). It explores how an institutional system at the national, regional urban, or community level responds to flood risk and natural hazards. The literature observes resilience policies and adaptation activities as a result of collective behaviours in multi-level, multi-domain, and multi-actor settings (Bulkeley, 2010; 2013; Keskitalo, 2010).

This strand has attracted a growing (albeit lim-

ited) number of planning researchers concerned with institutional and governance issues (Mileti, 1999; Storbjörk, 2007; Deyle, Chapin & Baker, 2008; White et al., 2016; Francesch-Huidobro et al., 2017). One stream of the literature suggests exploring the involvement of planning in flood affairs as a by-product of water management governance under the notions such as 'integrated water resources management' (Mostert, 2006), 'synergy between flood risk management and spatial planning' (Sayers et al., 2013; Ward et al., 2013; Ran & Nedovic-Budic, 2016; van Buren et al., 2016; Driessen et al., 2018), 'multi-level governance and boundary spanning planning for adaptation' (Dąbrowski, 2018a), and 'diversification of flood risk management with spatial planning's involvement' (Driessen et al., 2018). Another stream of research, although represented only in a few papers, positions planning at the centre of flood resilience and calls for the incorporation of flood risk management and climate adaptation in land use planning or spatial planning (Mileti, 1999; Storbjörk, 2007; Deyle et al., 2008; White et al., 2016; Francesch-Huidobro et al., 2017).

These emerging studies share a focus on identifying the facilitators and barriers for planning institutions to play a meaningful role in flood governance and exploring how and why they emerge. The main points include four aspects (see Table 3). The first aspect is about the products of flood governance. Some studies reported that policies, strategies, codes, standards, and planning rules provided legal supports and frameworks for planning to be involved in flood agendas (Wilby & Keenan, 2012). Empirically, policymakers and researchers argued that planning for adaptation can be impaired by 'fragmented and convoluted' frameworks and legislation (Wamsler & Pauleit, 2016). They believe

that the ways of framing or interpreting climate adaptation and flooding in planning discourse are significant (Brouwer et al., 2013), which is relevant not only to the definitions of problems and intentions of acts but also to the expected means to do so (Foxell & Cooper, 2015). However, in practice, it is still not easy to avoid insufficient framing (for example, no detailed guidelines for local practice and the lack of corresponding explanations at the regional and national levels), incomplete framing (for example, thinking merely flood defence in flood risks management) and disconnected framing (for example, initiating detached policies failing to mainstream adaptation) (Storbjörk, 2007; Ward et al., 2013; Wamsler & Pauleit, 2016; Driessen et al., 2018; Runhaar et al., 2018). More empirical knowledge is needed of how framing works in practice.

The second aspect is about the collaborative process between divergent agencies. Increasing numbers of planning studies stress the joint work between planning and extensive actors in the formulation and implementation of resilience and adaptation policies, albeit pointing out that trade-offs are difficult between governments, planning agencies, hydrological engineers, scientists, civil society, and markets due to divergent interests and political positions (Storbjörk, 2007; Francesch-Huidobro et al., 2017; Dąbrowski, 2018b; Driessen et al., 2018). A few papers added to this line of argument and reported that mismatches in time-spans and procedures between professions could impair the transboundary cooperation between the planning sector and other sectors (Mostert, 2006; Davidse et al., 2015; Ran & Nedovic-Budic, 2016). More research is needed to explore the means to facilitate these co-determined processes.

The third aspect is about the start-conditions for

planning to participate in flood governance: A small number of studies have cast light on the complexity of the collaborative process in terms of authority, resource and organisation conditions and indicated these pre-sets could affect planning's performance in the collaborative governance (Mileti, 1999; Deyle et al., 2008; Driessen et al., 2018). For example, the legal clarity and versatility of planning tools may affect land use restrictions and policy changes in response to climatic uncertainty (Mileti, 1999; Deyle et al., 2008; Driessen et al., 2018). Also, suitable allocation of finance and access to information in relation to planning is required to deal with distributional effects of floods (fairness), information sharing between sectors, and the public's right to be informed (Intergovernmental Panel on Climate Change, 2014; Driessen et al., 2018). Last but not least, the establishment of technical co-working platforms, clarification of planning's accountability (or responsibilities), and the planners' knowledge determine the planning agencies' capacities in flood governance (Mileti, 1999; Storbjörk, 2007; Ward et al., 2013; Ran & Nedovic-Budic, 2016; Driessen et al., 2018). However, the means to improve these start-conditions remain an under-researched issue.

The fourth aspect is about the contextual factors shaping the start conditions for planning in flood governance: This stream of research on the contextual factors that could affect the pre-conditions for planning in flood governance—from the fixed administrative structures and shared perceptions, to notions, values, and traditions embedded in history—is limited in the planning literature. Early studies reported that fragmented structures in political administration, asymmetries of powers, and persistence in the old paradigms in flood governance could weaken the capacities of planning agencies in

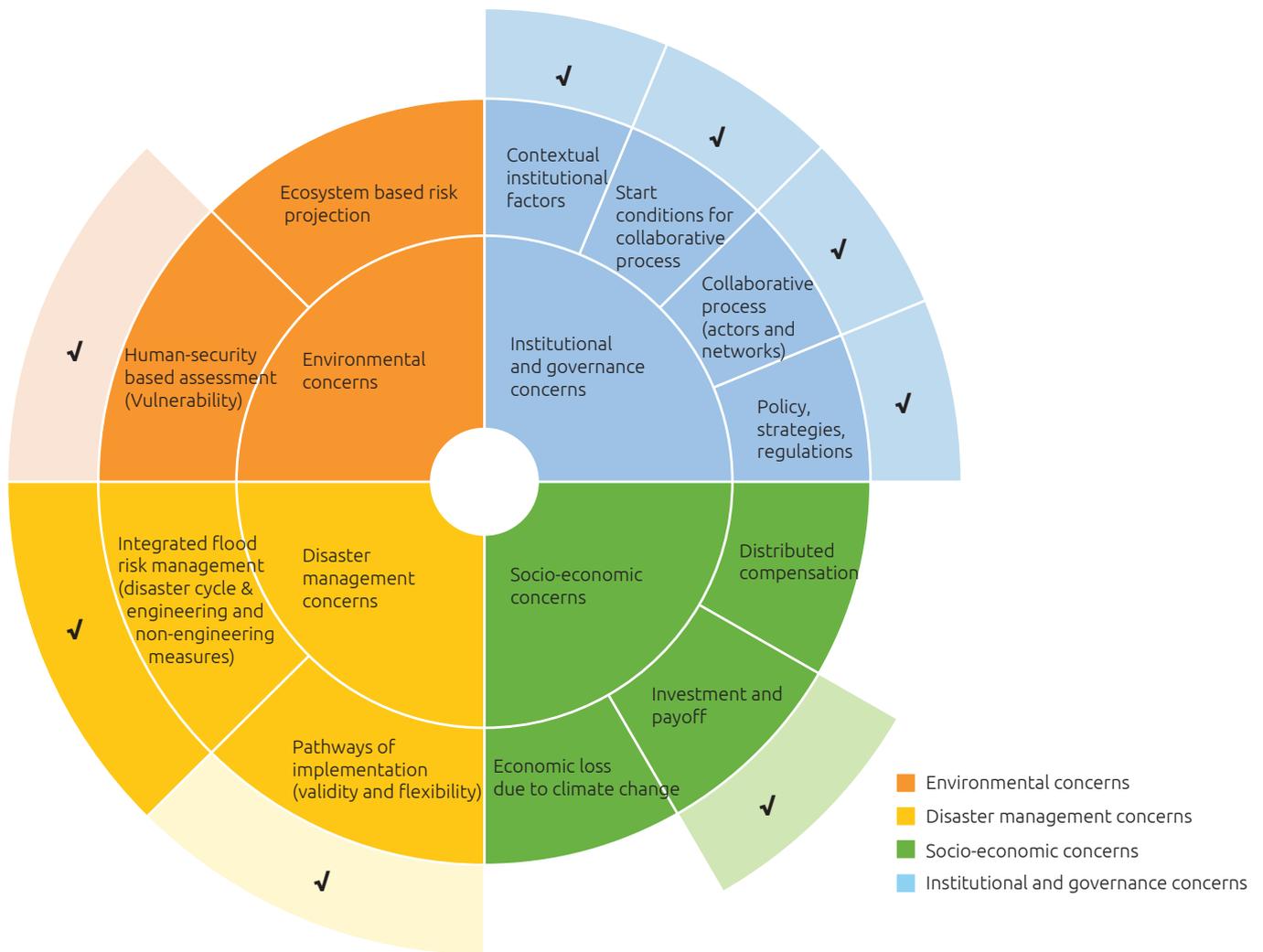


Figure 1: The developments of planning literature in the four pillars (the third ring).

Note: The dark colours mean that there are many studies, pale colours mean that there is a limited but increasing amount of studies, and white means that there is a gap here and the topic is under-researched in planning literature

implementing a broader set of adaptation measures in flood agendas (Mileti, 1999; Ward et al., 2013; van Buren et al., 2016). However, to change these contextual factors is often difficult, which need more explorations about their continuity and way out. See Table 3 on the next page.

4. Discussion

As an indispensable approach for flood resilience, planning makes a contribution through a broad range of inter-disciplinary experience. Figure 1 present planning’s recent roles in environmental concerns, disaster management concerns, socio-economic concerns, and institutional and governance concerns. The darker the colours are, the deeper the relative

Key Topics	Sub-Topics	Challenges for Spatial Planning	References
Outputs of flood governance	Policies, strategies, codes, standards, planning rules	<ul style="list-style-type: none"> - Mainstreaming flood risk issues in local agendas - Diversifying adaptation measures in discourse such as non-structural measures - Aligning the mismatches between local, regional, and national policy discourse - Short-term vs. long-term benefits 	(Storbjörk, 2006)
Collaborative process	Actors/ stakeholders	<ul style="list-style-type: none"> - Enhancing the roles of planning in the decision-making process (proactive participation) - Resolving misaligned interests of parties, - Converging conflicting understanding of parties in flood resilience and climate adaptation (awareness of risk, cognitions of adaptation measures, priorities on short- and long-term benefits), - Strengthening the weak abilities in using climatic knowledge to predict future scenarios 	(Storbjörk, 2006; et al., 2018)
	Networks	<ul style="list-style-type: none"> - Aligning the conflicting timespans and planning procedures in contrast to water management and environmental planning - Strengthening communications and cooperation between governmental and private actors in planning and flood-risk management 	(Mostert, 2006; Budic, 2016)
Start conditions for planning to participate in flood governance	Authority condition	<ul style="list-style-type: none"> - Balancing legal certainty and flexibility to regulate restrictions or change land-use functions for flood resilience 	(Mileti, 1999; Driessen et al., 2001)
	Resource condition	<ul style="list-style-type: none"> - Adopting appropriate principles in dealing with distributional effects of planning layouts (fairness in the distribution of cost and benefit), - Enabling information sharing and knowledge communications between governmental sectors - Facilitating public access to spatial planning information. 	(IPCC, 2014; Driessen et al., 2001)
	Organisation condition	<ul style="list-style-type: none"> - Establishing a technical information platform for interactions between territorial, institutional, and policy cooperation - Clarifying blurred accountability (responsibilities) and powers between national authorities, local planning actors, and other stakeholders for flood events - Personnel skills 	(Mileti, 1999; Driessen et al., 2001)
Contextual factors shaping the start conditions for planning in flood governance	Institutional design	<ul style="list-style-type: none"> - Facing fragmented administrative and political structures 	(Mileti, 1999; Wessels et al., 2001)
	Notions, values, and traditions embedded in history and traditions	<ul style="list-style-type: none"> - Facing the persistence in the old paradigms (institutional inertia and path divergence) - Facing the asymmetries of powers 	(Van Buren, Ellingma, & Wessels, 2001)

Table 3: Key challenges for planning to play a role in flood governance.

7; Ward et al., 2013; Driessen et al., 2018; Runhaar et al., 2018)

7; Francesch-Huidobro et al., 2017; Dąbrowski, 2018b; Driessen

Davidse, Othengrafen and Deppisch, 2015; Ran and Nedovic-

eyle, Chapin and Baker, 2008; Driessen et al., 2018)

essen et al., 2018)

torbjörk, 2007; Ward et al., 2013; Ran and Nedovic-Budic, 2016;
(2018)

Ward et al., 2013)

en and Warner, 2016)

exploration by the publications in relation to spatial planning. The four-pillar model indicates that the planning literature pays more attention to disaster management concerns. This reflects the perspective on planning as a design approach, technically efficient in dealing with floods, which corresponds to one origin of planning as a physical intervention approach organising city development and property.

Meanwhile, the influence of climate, economic, social, and policy sciences on planning is emerging, even though few planning studies investigate these concerns. They inspired planning research, policy, and practice to broaden their scopes to include new topics such as vulnerability identification, investment and payoff, and governance. Planning, thus, is adapting its role as an integrated approach to contribute to flood resilience.

5. Conclusions and ‘opening up’

The growing threats of floods and climate change necessitate long-term safe, fair, economically efficient, and institutionally coordinated circumstances for human settlements. For this goal, this chapter proposes a four-pillar framework to understand environmental, disaster management, socio-economic, and institutional challenges that need to be considered in flood resilience and climate adaptation. It is applied here to conduct an extensive literature review spanning across the fields of climate science, disaster mitigation, water management, flood risk management, hydrological engineering, economics, climate policy, adaptation planning, public participation, administration, and governance. The proposed framework aids in identifying and assessing spatial planning trends concerning flood resilience and climate adaptation against the disciplines listed above.

Our analysis of the literature indicates that the domain of planning concentrates on improving the physical environment mainly in relation to disaster management concerns, in the belief that planning is an instrumental–technical

intervention shaping human settlement patterns. However, planning is a broad discipline increasingly including the environmental, socio-economic, and institutional topics in the wider policy context. This trend is spurred by insights from climate change analysis, economic analysis, social science, governance and policy studies, and promoted by pioneering planning scholars.

Our analysis also indicates that emerging topics could bring valuable insights informing the implementation of physical planning in practice, which remains challenging due to uncertainty about the future risks, limited resources, and complex social and institutional relations. Relevant research can add to spatial planning's ability to 1) enhance the evidence-based evaluations of flood hazards and evidence-based strategies for resilience, 2) act on uncertainty in the face of a shortage of financial resources, 3) address the unfair distributional effects of flood damages with adequate and equitable compensation, 4) manage societal concerns and divergent interests, 5) improve the coordination of resilience measures across sectors and spatial scales, and finally, 6) propose spatial resilience strategies that respect and take advantage of knowledge and values embedded in local history and traditions.

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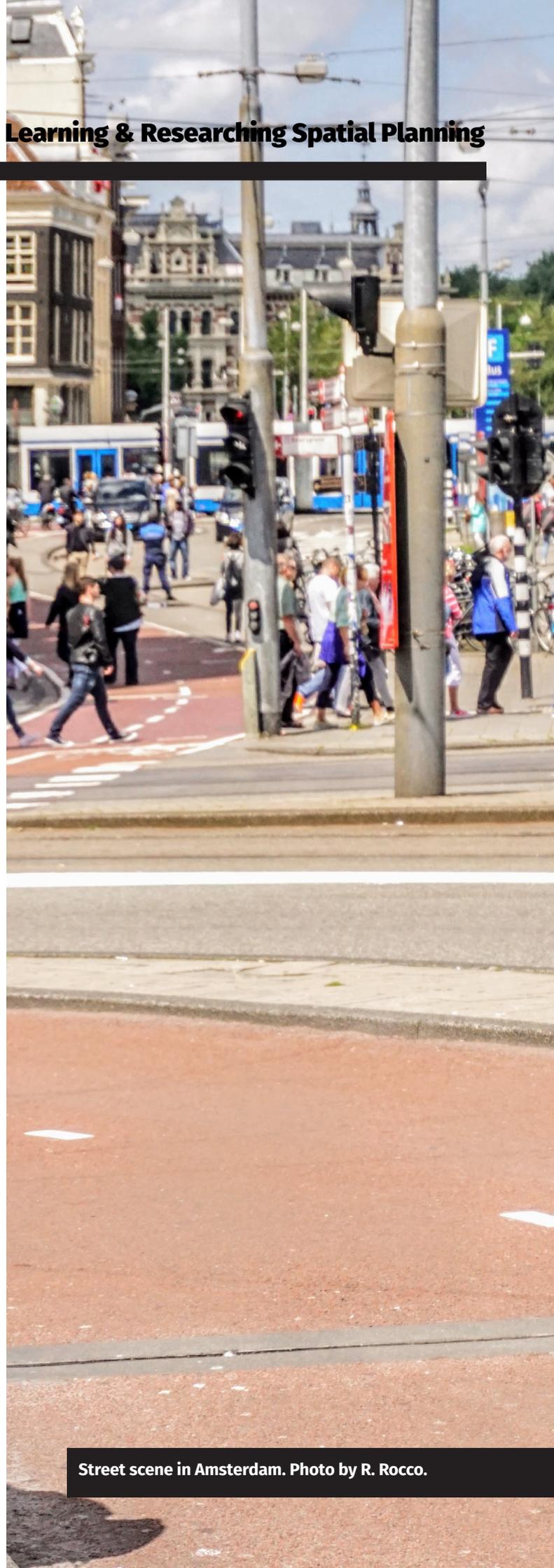
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Street scene in Amsterdam. Photo by R. Rocco.



Urban Mobility in Planning

**An exclusionary or a uniting force?
Conceptualising urban mobility for
the planning discipline**

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The mobility transition is increasingly viewed as a tool to improve social and environmental qualities of cities. Despite the vital role of mobility systems in connecting people and places, many elements of their current design also create socio-spatial exclusions and aggravate climate change and liveability challenges. Mobility and transport planning, however, have often worked in a disconnected way. This chapter sheds light on this dichotomy and outlines the contemporary shifts surrounding urban mobility and planning. Using mobilities theory and new conceptualisations of urban mobility, it argues that urban spaces are better off when city planning – rather than transport planning – is at the heart of their design. This offers a clear remit for planning students and practitioners to engage with urban mobility, appreciate its spatial imprint on cities and regions, and explore new tools and research methods to make sense of people’s individual and collective mobility practices. This chapter concludes that urban (mobility) design needs to take account of the softer elements that constitute lived urban mobility experiences of diverse population groups. These elements include social, behavioural, and life course factors, but also the wider meanings of mobility, embodied experiences, and its environmental impacts. It suggests tools for research and practice to closely engage with the mobile subject and seek the assistance of big and small data sources. In line with the sizable role urban mobility transitions can play to address contemporary urban challenges, it introduces the key debates with the intention to provide food for the planning thought and practice.

**URBAN MOBILITY, SUSTAINABLE TRANSPORT, URBAN TRANSITIONS,
SOCIAL EXCLUSION, MOBILE METHODS**

1. Introduction

Current UN forecasts predict that nearly 70% of the global population will be living in cities by 2050 (UN, 2019). Continuing urbanisation propels cities' economic activity and mobility, while they are prime locations for public, health, and educational services. The ever-diversifying composition of urban living, working, visiting, commuting, and other forms of dwelling pressurise cities' public spaces. Although the nature of these pressures takes different forms due to cities' different development trajectories, planning systems and urban functions, mobility has a major bearing on urban space, human abilities (e.g. health), and even shapes urbanisation itself. The advent of private car travel has, for instance, facilitated suburban sprawl (Kasraian et al., 2019; Dieleman & Wegener, 2004). Other, denser urban areas endure the negative effects of urban mobility through increasing levels of air and noise pollution (Banister, 2008). This chapter critically describes how multiple mobilities have come to shape urban space, the opportunities of those living and working there, and eventually the systemic challenges that are prompting mobility transitions.

Against this background, urban mobility research is being mobilised to address two of today's main (urban) challenges: demographic shifts and climate change. First, societal developments, such as migration and population ageing, have started to transform urban mobility thinking. The needs and preferences of people traversing the city are fundamentally changing in many parts of the world, affecting mobility patterns as well as individuals' mobile capacity. Over time, high mobility levels have become the norm for citizens' economic and well-being opportunities. This means that 'mobility poverty' may easily lead

to exclusion, particularly of already disadvantaged groups (Cass et al., 2005; European Parliament, 2015). Very recently, some cities, either driven by economic reasons or spatial justice arguments, are giving increasing attention to the interests of groups with potentially lower mobility opportunities. Their interventions foreground mobility as fair and just, assuming that every citizen should have the same access to urban facilities, regardless of age, gender, income ethnicity and ability.

Nevertheless, a plenitude of examples of 'mobile practices' remains, in which mobility is not available to everyone nor tailored to diverse mobility needs (Sheller & Urry, 2006; Mattioli, 2014). In addition to this potentially exclusionary role, the grand challenge of climate change highlights that the limits of urban mobility growth have been reached. These two challenges go hand-in-hand: the unequal distribution of mobility opportunities and their intense imprint on urban spaces have created negative externalities for both people and planet. Cities have evolved along the lines of unrestricted mobility opportunities, following the logic of private and motorised travel options, thus increasing the provision of intense flows of vehicles and goods. In fact, the entrenched car dominance has produced the outlook of urban landscapes for the better part of a century. Alongside the overall contribution of urban transport to climate change, this development also reduces liveability and safety. This underlines a twofold problem with current urban mobility systems: they produce large amounts of greenhouse gases and air pollution, while also laying a great claim on public spaces and cities' sensory landscapes.

Among these multiple and growing challenges,

however, there is a place for cautious optimism. In recent years, cities have also emerged as core centres and early adopters of climate-friendly and sustainable mobility transformations, such as the reduction of private car ownership, the emergence of mobility-as-a-service, new rail connections, and 'cycle booms' (Schwanen, 2015). Cycling mobility, for instance, particularly suits the urban scale, given its relative speed, low space claim, and benefits for public health, climate, and sociability (Nixon, 2014). On the whole, these innovations can trigger a socio-technical transition toward more sustainable and socially inclusive urban mobility systems. At the same time, however, they require urban and transport planners to re-think the parameters of mobility spaces and the built environment features that underlie mobile behaviour, as well as to develop research practices that fit new multi-modal and social realities.

Accordingly, this chapter intends to take a step back from mobility practices and transport realities, and start by revisiting the building blocks of sustainable and inclusive urban mobility. In the next sections, I will attempt to unravel the workings of urban and transport planning, shed light on some of the theory around urban mobility, and interpret their value to address contemporary urban challenges. I outline the main developments and gaps in research, with a view to make mobility concepts accessible to planning education. In section two, I will present a number of theoretical concepts that are used to understand mobility as part of wider urban and social structures. In section three, I will apply these concepts to recent urban challenges and explore the position of spatial planning and possible planning tools. Section four, in conclusion, will summarise the most salient issues and outline remaining challenges for urban mobility research and education.

2. Mobilities theory and urban planning

Urban mobility is central to cities' functioning as places of work, education, recreation, consumption, and simply of everyday living. It connects different places, people, and activities, and has become an urban practice in itself. Think for instance of a walk with a friend, a jog in the park, a bus ride, or a strolling urban tourist. The term 'urban mobility' includes three related elements: the ability to move the human body, be it human-powered or through vehicle use; the physical system that moves people and goods into and within cities, governed by city and national authorities, logistics engineers, and transport operators; and the social-emotional experience of traversing urban space, intersecting with cultural identity, belonging and citizenship (Cresswell, 2006).

In recent years, (transport) geographers and planners have started to bring these three elements together under the plural headings of mobilities studies or mobilities theory. In the past, the term 'mobility' had been reserved for residential movement by individuals and households (e.g. social mobility) and migration of humans and animals. In the early 2000s, however, sociologists Mimi Sheller and John Urry (2006) noticed that the movement of people, goods, and ideas had permeated in so many elements of human life that it in part defined how we come to think of the world. Studies following this 'mobilities turn' have noted that the increased availability of travel options in terms of frequency and distance travelled was such that mobilities, rather than specific sites and settings, shape the urban experience. As a result, the presumed un-

derstanding of cities as being a set of places (A, B, C, etc.) has shifted to a conceptualisation of cities as amalgamations of mobilities (from A to B, between A and B, and onwards). As a new paradigm, this drew urban research away from studying those place dynamics in isolation to, instead, attend to the lived experiences of being on-the-move and to the entanglement of the objective and subjective elements of different travel modes, mobility environments, and temporalities (Kwan, 2015).

Although mobilities theory has led to new insights, applications, and even methodologies (Büscher et al., 2011), it has also clashed with transport planning traditions. Transportation and engineering studies had generally understood mobility as the short-term, repetitive, and systematic flows of people situated around circulation rather than migration (Law, 1999). The plural and ever-changing nature of co-constituted mobility practices, in which the transport system is just one of multiple agents, created a juxtaposition. In fact, mobilities did no longer exclusively consist of objective bodily movement, but also draw upon the *imagined*, through images and discourses that represent mobility opportunities, and the *potential* of agents to be mobile (Kaufmann, 2002; Urry, 2007). In an attempt to combine the best of both worlds, Kwan and Schwanen (2016) called for the appreciation of mobilities as an entanglement of physical movements and the rich meanings or embodiment through which they are sensed, perceived, and felt.

In concrete terms, mobilities scholarship is now pursuing new ways to conceptualise the interface of transport systems and social processes of exclusion or marginalisation. Car ownership, for instance, is seen as a cornerstone of the 'frictionless mobility' that also creates social privilege, defining the

mobility as well as immobility that people face in daily lives (Mattioli et al., 2020). Figure 1 shows the ultimate expression of the (im)mobility and marginalisation these systems can bring about. In the context of race, subsequently, Sheller argues that 'our capacities for movement shape our bodily experiences and identities within normative social orders and hegemonic mobility regimes' (2018:45). Other contributions have prompted the decolonialisation and decentralisation of mobilities, both within the Western world (e.g. Best, 2016; Golub et al., 2016) and in emerging economies (Schwanen, 2018). Lastly, in terms of data, the flexible, interdisciplinary nature of mobilities research offers a way to analyse urban transport relationally. Through big or 'small' data and qualitative or mixed 'mobile methods', individual and collective mobilities have shed light on social and material realities of movement, and found new ways to understand movement, constraints, and place-making (Jensen, 2010).

2.1. Making the 'mobilities turn' work

The mobilities turn has a variety of implications for the planning discipline. The prominence of environmental and transport policy in spatial planning in most countries, at the expense of other sectors and policy domains (Nadin et al., 2020), means that planning has acted as both a driving and restraining force for sustainable mobility transitions. Freudendal-Pedersen (2020), for instance, outlines how car-centred thinking has permeated in planning to the extent that it now threatens sustainable urban futures. Planning discourses of (economic) expansion, accessibility, and efficiency have pivoted around motorised travel and thus inadvertently allocated large plots of (public) city space to exclu-



Figure 1: Where urban transport systems and residential functions meet. The picture shows the construction of the Teraet Al-Zomor Bridge in Cairo. Its edges are within arm's reach of people's balconies and it overshadows at least four storeys. Image credit: Mostnir Shady Ahmed (2020), <https://www.facebook.com/mostnir/posts/10221856461623192> (Accessed on 26 Feb 2021). Printed with permission.

sive (private) transport modes. This mechanism is aptly described by Hugo Priemus (see also Kasraian et al., 2016):

When a parcel of land becomes more accessible through proximity to a motorway or a high quality public transport connection, the land value of this parcel increases. The land parcel becomes more attractive as a location for housing estates and/or offices. This attraction explains the rapid development of industrial estates along the motorways. It also explains the recent interest of spatial planners and public authorities in corridors, [...] functioning as economic development axes and even urbanization areas (Priemus et al., 2001: 169-170).

On the other hand, throughout the 2010s, urban challenges related to social change and climate issues have prompted new forms of spatial planning and alternatives to the 'architecture of automobility' (Sheller & Urry, 2016). The participatory traditions and empirically grounded nature of spatial planning make the discipline well situated to unravel socio-technical systems like urban mobility, to lay bare power structures, and to create the foundations for an alternative use of exclusionary mobility spaces. A planning framework that successfully integrates the technical and social elements of urban mobility is Jensen's (2013) Staging Mobilities model. He argues that mobile practices are not only the outcome of staging 'from above', through planning, design, engineering, and institutions, but are also acted out 'from below' through social interactions and embodied performances (whether on the move or stationary).

Yet, the overall dominance of autologic in urban and transport planning has subordinated other mobilities, and effectively obstructed more balanced

and sustainable forms of planning (Koglin & Rye, 2014; Freudendal-Pedersen 2020). Mobility planning that looks beyond 'hard' factors such as urban form, land use, and infrastructure is, thus far, largely inspired by spatial justice arguments. Although not directly applied to mobilities at first, the debates on the 'right to the city' resonate with the constraining impact of urban environments on groups without access to transformative power that is also found in cycle planning (Lefebvre, 1996; Koglin & Rye, 2014). Similarly, David Harvey (2012) has pointed to the private car as a source of integral alienation, predicated on lifestyles that de-prioritise local ties and public space. The contested effects of urban mobility and liveability costs thus often bear down on those on the margins of economic power, civil involvement, and physical ability. Other applications of these debates are vision frameworks such as the Good City (Amin, 2006) the Age-Friendly City (Plouffe & Kalache, 2010), and the Just City (Fainstein, 2005). These interdisciplinary manifestos depart from the assumption that contemporary cities produce stress, confusion, and health issues for most people, and suggest integrated and human rights-based policy and planning solutions, culminating in a better representation of societal interests.

3. Urban mobility, planning, and disciplinary innovations

In the last section, I introduced mobilities and planning theories that have attempted to understand mobility as part of wider urban and social structures. While coming from different disciplinary viewpoints, they both redefine the material parameters that underlie mobile behaviour and envision sustainable mobility transitions. In this section, I will make these concepts more concrete in the light of urgent urban challenges, mobility innovations, and research and planning on wider urban development trends. Although, for instance, mobility innovations are mushrooming throughout the world, their positive impact on social and spatial inclusion is not always evident. New mobility systems may reinforce social segregation or socio-spatial exclusion, as shown for Bus Rapid Transit (Casas & Delmelle, 2014). Using the case of automated vehicles, Bissell et al. (2020) argue that new systems may primarily serve the 'kinetic elite', who already travels far and fast, and enhance their flexibility and comfort at the expense of those with fewer opportunities.

3.1. The transformative powers of mobility innovations

Similar reservations exist in innovations or planning tools that centre on cycling, such as bicycle oriented development (Fleming, 2012). While cycling ticks many boxes as an environmentally sustainable, healthy, and inherently social form of travel that lays a low space claim, the dominant planning narrative of 'build it and they will come' is increas-

ingly critiqued. Recent literature has casted doubts about the social equity of urban cycling. In many countries, cycling uptake has been persistently low and is structurally narrow in terms of demographics. From a gender and age perspective, children, women, and older people are usually underrepresented (Aldred et al., 2016), and this is unlikely to change when cycle planning starts without considering the mobility needs of all non-cycling public. In addition, emerging studies are getting a grip on the class and ethnicity issues of recent cycle-oriented planning. From a United States perspective, Hoffmann (2020) argues that cycling advocacy has mainly focused on the interests of white and middle-class 'mobile citizens', may contribute to neighbourhood conflicts, racism, and gentrification, and is at risk of misunderstanding the significance of cycling to marginalised groups. Similarly, Lam (2018) signals the risk that technocratic cycling interventions may 'iron out' the multiple ways in which urban spaces may be inhabited, using the case of a high-cycling borough in London.

Indeed, these challenges reflect the position of mobilities at the heart of design and regulatory powers 'from above', and their incongruence with the needs and enactment of mobility 'from below' (Jensen, 2013). Rather than starting by technical interventions, new mobility innovations should recognise that urban mobility is the product of unique, place-specific historical, sociological, and anthropological circumstance. One solution is to marry rather separate planning and transportation concepts into 'networked urban mobilities' (Freudendal-Pedersen, 2020). This would allow, for instance, cycle planners and advocates to look beyond 'spatial fixes', or high-cycling cities for that matter, and consider the 'place-specific politics of urban mobility, so-

cial norms and cultural setting' (Nello-Deakin & Nikolaeva, 2020: 2). As a result, (planning) research is increasingly targeting the temporal dimension and the learned and embodied nature of mobility (Murray & Doughty, 2016), as well as their occurrence in less-able bodies (Den Hoed & Jarvis, 2021; Winters et al., 2016).

As mentioned in Section 2, social and spatial justice arguments have inspired new initiatives at the interface of mobility and urban planning. They explore more inclusive and future-proof approaches to mobility in cities. In Bilbao in Spain, for example, the rationale of the Age-Friendly City has materialised in planning solutions that consider the capacities of older citizens. By installing public lifts and escalators to integrate upland residential areas, the city has improved (vertical) walkability for citizens of all ages and abilities. Furthermore, the construction of cable cars in Medellín, Colombia has made the urban centre more accessible to those living at the fringes of the city and has reduced carbon emissions by prioritising the mobility needs of low-income groups (see Ayuntamiento de Bilbao, 2018; Dávila et al., 2013; Reynolds et al., 2017 for further examples). Importantly, such solutions are often ecologically friendly and use pressing socio-economic needs and low-carbon benefits as principle guides to manage the use and connectedness of urban spaces.

3.2. Urban mobility methodologies

The transformative role of mobilities is not confined to cities' social, economic, and spatial dynamics. Notably, new research methodologies, grounded on the practice of mobilities, have also found their way to academia. As part of the new

mobilities paradigm (Section 2) and building on the foundations of time geography (as explained by Thrift, 2005), so-called mobile methods are used to understand the manifold ways in which people move in the city. They combine physical movement, materiality, sense-scape, meaning, and sociality of mobility to open up new ways to capture lived experiences, thus complementing 'stationary' methods such as surveys and interviews (Dowling et al., 2016; Merriman, 2014). In doing so, mobile methods research links previously separated domains such as transport and health, and engages with the subtler personal and temporal elements that constitute urban mobility practices (Büscher et al., 2011; Murray & Doughty, 2016). They offer new analytical ways to develop the intricate connection between urban mobility, other planning domains, and individual and collective livelihoods. This relational approach to the research object, never separated from the urban and social settings in which mobilities take place, has cultivated mixed participatory and (auto-)ethnographic approaches to mobility and engagements and qualitative enquiry while on-the-move. For instance, Rau and colleagues (2020) show the sensitivity of mobility practices of non-cyclists to personal and temporal biographies and Popan (2019) utilises his own cycling practices to envision slower mobility systems. Figure 2, in turn, shows the 'live' recording of a cycling journey, attempting to better understand the everyday mobility practice by documenting the mobility and safety negotiations of an older cyclist in a car-dominant environment.

A crucial element that mobile methods bring to the table is their ability to gather data in synchrony with the social interactions researched. In this respect, mobile technologies for instance assist (audio and video) recording of 'being with' the



A. Taking primary position



B. Being 'forced' to give priority



C. Taking the outer lane to anticipate a right-turn

Figure 2: Example of a video-recorded 'bike-along', showing the negotiations of a residential area in Newcastle-upon-Tyne, UK by an older person. The subtitles indicate the measures she takes to go safely from A to B. Source: author's images.

mobile subject, elicitation interviews, geo-tracking, and exploration of data science to describe large-scale mobility patterns (Jensen et al., 2015; Jones et al., 2016; Vanhoof et al., 2019). Likewise, this distinctively close engagement with the mundane aspects of everyday life has brought spatial and mobility justice issues to the surface. Mobile methods have been instrumental to provide insight in the qualities of and barriers to more sociable and equitable forms of urban mobility, and to redefine mobility spaces as places for community life and activism. As an example, 'bicycle activism has raised fundamen-

tal questions about how road space is allocated, who determines how public space is experienced and governed, and how change in urban transport and the city is enacted' (Verlinghieri & Schwanen, 2020, p.1; Castañeda, 2020). In the same vein, findings on 'austere mobilities' have instigated discussions on reconceptualising mobility itself – asking fundamental questions and changing the narrative about how and why we move and accommodate our public spaces accordingly (Nikolaeva et al., 2019: 351).

3.3. Integrated planning of urban mobility spaces

The combined engagement of urban geography, transportation, and urban planning studies with the lived experiences of the research object – the (im)mobile citizen – reflects a cautious trend towards convergence between urban planning and transport planning when (re-)designing urban public spaces. Amidst other urban development trends, some cities have begun to rethink the mere transport function of urban space, which has accelerated since the COVID-19 pandemic and subsequent physical distancing measures. As initial research on the topic suggests: ‘the liveable and human-scale city is far from the technocratic planning ideas of speed, efficiency, and accessibility. It has shown that a mobility culture is possible that does not solely fetishize speed and time efficiency. In other words, what we can learn from COVID-19 is how to structure existing and future cities, and the scapes of cities’ (Freudental-Pedersen & Kesselring, 2020: 93). Although the notion of immobility in cities is not new, the pandemic and the pause of urban and global mobilities have reminded us of the importance of our immediate surroundings, such as the house, street, and neighbourhood. Echoing other studies on urban (mobility) infrastructures that increase inequalities (Datta & Ahmed, 2020; Mattioli et al., 2020), immobility and mobility are increasingly entangled in the urban arena.

What are the planning implications of this myriad of urban mobility challenges, innovations, and new research approaches? First, mobile methods and the use of participatory mobile technologies are crucial to increase the public participation and mo-

bilise a variety of voices to influence the planning process (Kleinhans, van Ham & Evans-Cowley, 2015). In line with the debates in mobilities studies (Merriam, 2014), assistive (online) tools should exist next to, rather than instead of, offline engagement and consultation. Second, recent demographic and climate change related challenges, accelerated by the COVID-19 pandemic, have underlined the need for a revision in the hierarchies of urban (mobility) ‘users’. Design and allocation of space to accessible, efficient, and safe forms of active travel should be prioritised over modes that negatively affect the environment and urban liveability, while taking into account the needs of those with less mobility opportunities. Third, urban and transport planners have to pursue an integrated approach to addressing these challenges appropriately, for instance by:

- considering the real costs and opportunities of transportation and accessibility, including those across policy domains (e.g. Vision Zero, health, and environmental trade-offs)
- focusing on reducing (motorised) mobility needs, e.g. in developments of housing, workplaces and other urban amenities, thus breaking the (implicit) link between urban development and motorised accessibility in many parts of the world
- creating and developing overarching imperatives for inclusive and sustainable urban planning, such as bicycle oriented development, the targeting of mobility benefits for specific groups (e.g. children, elderly, migrants), and language use that embraces lived dimensions of the urban environment (see Te Brömmelstroet et al, 2021)

In the light of the urban trends outlined in Section 1, I assert that urban planning sits at the heart

of mobility transitions. When we look at the different literature and methodologies that attempt to unravel the multiple facets of mobility, there is ample evidence of their embedding in urban and social structures, for instance as material infrastructures, social and kinetic mobility practices, embodied and emotional experiences, and as drivers of moments of stillness and immobility. Importantly, the uptake of such a multi-faceted approach is a prerequisite to avoid the reproduction of existing inequalities and negative externalities, as induced by dominant automobility systems, and for instead engaging the multiple publics and sites involved in mobility. One of the specific challenges will be to open the 'black box' of mobilities that may arise when citizens are offered new mobility innovations that will shape the outlook and experience of future cities, for instance through the physical and sensory effects of new structures and interactions, as convincingly demonstrated for automated and electric automobility transitions (Bissell et al., 2020; Hopkins & Schwanen, 2018). Similarly, new, collective and allegedly sustainable mobility innovations can be developed in such a way that they increase spatial exclusion or create a waste surplus. This is becoming apparent in bike-sharing schemes in Spain, which predominantly terminated in poorer regions and smaller towns (Anaya-Boig et al., 2021). The lifecycle of these new systems underlines my call for an interdisciplinary approach to urban planning, in this case to link mobility transitions to the circular economy.

4. Conclusions and implications

The obvious conclusion is that the impact of urban mobility policy and planning on urban structures is a wide-ranging subject. The varied pace of transition and innovation in this area across the globe makes it even more complex to grasp. While this chapter was by no means an exhaustive overview of societal developments and academic practice in the urban mobility domain, I highlighted some of the most problematic trends and made suggestions to improve our understanding and - eventually - our ability to address the challenges at hand. I argued that potential solutions only stem from an interdisciplinary approach to urban mobility, for instance drawing on urban geography, planning, urban design, and sociological perspectives. The close interplay of urban mobility with grand societal challenges such as demographic and climate change underlines the urgency of an integrated approach to revising the parameters of mobility, both the built environment features that underlie mobile behaviour and the use of urban spaces.

I started this chapter by taking a step back from mobility practices and transport realities and revisiting the building blocks of sustainable and inclusive urban mobility. This showed the pervasiveness of mobility in the way cities have developed and are lived. I conceptualised this dominance through the mobilities paradigm, which argues that urban life is shaped by the multiple mobilities taking place within them. It showed how urban mobility has long worked in extension of engineering, zoning and regulatory solutions to transportation, and how this notion shifted to the appreciation of the mobility

experiences as they are acted out from below. By putting mobility at the centre of today's fundamental urban development challenges, I attempted to disentangle the negative role mobility systems have played for sustainable urban futures. Based on the literature discussed above, I conclude that we should start by asking the right questions about mobility. To give examples, what does it mean for the built environment when urban populations are ageing, increase their mobility demand, or - in turn - radically alter their mobile activities (e.g. following a pandemic)? How can spatial planning respond to citizens' diversifying requirements in terms of housing, mobility, and place-making? How can related services meet their needs? Who are the stakeholders who should inform the design of these environments and services?

What follows is that research and planning education have the right tools at hand to advance socio-spatial dynamics. For instance, planning and designing cities with active mobility modes or diverse user groups at their heart has led to positive spatial interventions. At the same time, I showed that mobility transitions are complex. Physical interventions take time (a matter of years) and behavioural and cultural changes usually take even longer. Urban mobility futures are unpredictable, in flux, and people do not always use the urban space in the way it was designed for or thought-out. Mobilities studies and in particular mobile methods offer new ways to grasp this complexity, relationality, and effects on people's lived (im)mobility before, during and after the planning process.

We know that city planning benefits from clear territorial policies that 'look over the fence' at other disciplines (e.g. health, economy). To this end, we should remind governance and policy actors with

political, economic, and material-infrastructure interests of the fundamental role of human behaviour in sustainable urban (mobility) transitions. Supporting these transitions means that we need to accompany adaptive and agile participation processes with the needs and preferences of a heterogeneity of citizens, some of whose voices are heard less often. Importantly, we have to address urban mobility challenges in a functional territory; they usually cross municipal or regional boundaries and planning remits. Lastly, and perhaps most distinctively, we should realise that the planning practice has the ability to break mobility and territorialisation hegemonies instilled in transportation and urbanisation. Existing policies and participation models have often been a cause of these hegemonies, and call for an urgent reconceptualisation of what mobility is. In other words, should we plan to maintain flows and boundaries? Or to allow sensing, exploring, and socialising? As such, the place-based specialism of urban planning will be instrumental to understand, adapt, and fit the mobility innovations on the horizon into the urban and social realities on the ground.

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Street scene in Amsterdam (2015). Photo by R. Rocco.

Spatial Planning Policy Tools

A conceptual model*

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This chapter outlines a conceptual model for understanding the range of policy tools which can be used in spatial planning. The classification of tools builds on the NATO model (nodality, authority, treasure, and organisation) proposed by Christopher Hood (1986) and differentiates between two separate functions of policy tools: substantive and procedural. Substantive policy tools refer to those which directly affect the delivery of the goals of a plan, while procedural policy tools refer to those which affect the process and procedure of developing or reviewing a plan. A further distinction is made between tools used for the activities of plan-making (and review), development control and plan enforcement, since these activities make use of different types of tools.

**SPATIAL PLANNING, POLICY TOOLS, PLAN-MAKING, DEVELOPMENT
CONTROL, PLAN ENFORCEMENT**

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1. Introduction

The governance of spatial planning has been analysed and compared in several recent publications (e.g. Knapp et al, 2015; Reimer et al, 2014; Schmitt & Van Well, 2016; Nadin et al, 2018). Each of these studies illustrates the diversity of planning practices and approaches depending on specific social, economic, environmental, and social contexts. A relatively underdeveloped feature of this literature is the types of policy tools that are used (or could potentially be used) for spatial planning. In general, conceptual thinking about policy tools used in spatial planning is relatively limited and not always consistent (Stead, 2021).

While the policy studies literature contains a number of extensive accounts of public policy tools (e.g. Hood, 1986; Howlett, 2000; Salamon, 2002), this literature has largely been overlooked in studies of spatial planning. Many of the most frequently cited tools of spatial planning are regulatory (e.g. conservation orders, land appropriation, environmental impact assessment). In practice, however, spatial planning involves a much wider range of policy tools than regulation alone, as proponents of communicative and collaborative planning theory have recognised for some time (e.g. Forester, 1993; Healey, 1997; Innes & Booher, 2010). Nevertheless, there is still a general tendency in planning literature to emphasise regulatory tools above most others. According to Rydin (1998), regulation is the 'fundamental policy tool available to the planning system [operating] at different levels and on different aspects of the built environment' (754). At the same time, Rydin explicitly recognises that achieving planning goals such as sustainability and social cohesion requires

more than regulation alone: these goals demand additional policy tools. This chapter sets out a framework for categorising, analysing, and comparing spatial planning policy tools. It does so by building on literature from policy studies which has been applied to other areas of decision-making, including energy and urban policy (Acciai & Capano, 2021).

2. Understanding policy tools

Various taxonomies for categorising policy tools were developed and proposed during the 1980s and 1990s (see for example Hood, 1986; Vedung, 1998; Howlett, 1991). Of the various taxonomies of policy tools that were proposed, one of the most well-known is the model developed by Hood (1986) which classified policy tools into four sets using the NATO mnemonic: 1) nodality (i.e. information-based), 2) authority (i.e. regulatory), 3) treasure (i.e. fiscal), and 4) organisation (i.e. direct action by government). Hood also distinguished between policy tools designed to effect change in a policy environment and those designed to detect changes in it, which he termed 'effectors' and 'detectors' respectively (see Table 1). This model has since gained widespread use in many areas of public policy-making, although Hood's classification of policy tools has seldom appeared in spatial planning literature to date. Meanwhile, Hood's 'effectors' and 'detectors' have largely been replaced by the distinction between substantive and procedural tools (Howlett, 2000). Substantive policy tools refer to those which directly affect the delivery of policy goals while procedural policy tools refer to those which affect the process and

	Nodality	Authority	Treasure	Organisation
Detectors (to detect change)	Surveys Information colla- tion Registration	Registers Censuses Inspections	Consultancy ser- vices Paid informers	Coastguard Public archives
Effectors (to effect change)	Advice Promotion Reminders Training	Certification Licences Prohibitions Patents	Grants Loans Subsidies Taxes	Quarantines Bonded ware- houses Customs

Table 1: Hood's taxonomy of policy tools with selected examples.

procedures of developing policy. These two types of tools are closely interlinked: procedural policy tools support the functioning of substantive policy tools. For example, procedural policy tools structure how policies are formulated, implemented, and evaluated by government actors and agents (Howlett, 2000). In the context of spatial planning, procedural policy tools can be utilised to facilitate interaction and consensus-building between stakeholders in order to generate or strengthen support for policy goals or initiatives (Runhaar et al, 2009; Macintosh et al, 2015).

Three of the four main types of tool (i.e. nodality, authority, and treasure) contained in the NATO model require little further explanation. However, a short explanation is provided about the tool of organisation since its meaning is not straightforward to fully understand from its name alone. The tool has less to do with how government is organised or structured (as might be implied by the name) and more to do with the agencies, services, amenities, facilities, or infrastructure which governments provide directly. While recognising that these types of tools often require a combination of nodality, authority, and/or treasure tools, to put organisation tools in place, Hood classifies them as separate and distinct tools and describes them in terms of the 'stock of land, buildings and equip-

ment, and [...] individuals with whatever skills they may have, in the government's direct possession' (72) which 'enables government to act directly on its subjects, their property or their environment' (73). Hood also refers to some examples of organisation tools that are particularly relevant to spatial planning, stating that government 'may provide for the welfare of its subjects in general by facilities such as parks, gardens, bridges, dykes and dams' (80). In addition to these different forms of physical capital or infrastructure, it is also important to note that organisation tools related to spatial planning can also include the stock of human capital and skills in the government's possession, notably the stock of public officials involved in developing, implementing, or enforcing spatial planning policy. In a number of contexts, the stock of human capital involved in spatial planning under the direct employment of government has been in decline in recent years and/or has been redistributed across public, private, and voluntary sectors as part of the hollowing-out, contractualisation, and outsourcing of government (Grijzen, 2010; Raco, 2013; Lennon, 2019).

Hood's taxonomy, and others developed around the same time, generated a new academic literature on policy tools (Howlett, 2000). Initially, the majority of this literature focused on substantive tools – those that directly affect the production and deliv-

ery of goods and services in society. Less attention was devoted to the systematic analysis of procedural tools – those intended to support substantive policy tools by for example managing state-societal interactions in order to assure general support for government aims and initiatives – despite the fact that they can be categorised in a similar way to their substantive counterparts, and have an equally important role in determining outcomes. Even now, attention to procedural policy tools in the academic literature is less prevalent than attention to substantive tools. This is true for the policy studies literature in general as well as the spatial planning literature in specific (discussed below). However, this is not to say that procedural policy tools have been completely neglected. Bressers and Klok (1988), for example, describe how various procedural policy tools involving the creation, provision, and diffusion of information to policy actors can affect the level of support for policy. Their work helps to identify a range of procedural policy tools, such as education, training, institution creation, the provision of information, formal evaluations, and hearings.

Literature on spatial planning and governance contains very few explicit references to the literature from policy studies (see above). Moreover, there are very few definitions or taxonomies of policy tools in the spatial planning literature. The situation is summarised by Van den Broeck (2008) who states that although ‘planning theory is basically all about planning tools, there is, however, hardly any literature that theorizes the concept of planning tools’ (262). A recent review of literature on spatial planning policy tools reveals substantial variations in how policy tools themselves are understood (Stead, 2021). To date, most discussions of spatial planning policy tools place more emphasis on substantive rather than procedural tools.

3. Categorising policy tools in spatial planning

When considering procedural policy tools for spatial planning, a distinction can be made between the tools used by public officials for distinct parts of the process since different types of tools are required. In this paper, a distinction is made between three parts of the planning process:

1. plan-making (and review)
2. development control
3. plan enforcement

Plan-making refers to the genesis, approval, and subsequent evaluation and revision of a spatial plan – the document which specifies the desired type, scale, and location of future development, and which may also specify the policies or rules to be adopted in order to achieve this desired vision. Development control refers to the granting of permission for development, a process involving the assessment of the compatibility of the proposed development (e.g. residence, office, shopping centre) with the aims and policies of the plan. Plan enforcement is concerned with ensuring that urban development takes place in line with a plan and, in cases where it does not, taking action to address the situation. In other words, there is one set of tools which can be used to influence the process of plan-making, a second set which can be used in the process of fulfilling or realising a plan’s ambitions, and a third set which can be used to detect and act against contraventions to the plan. To date, such a distinction has not been made in the literature on spatial planning policy tools. Examples of procedural and substantive policy tools for plan-making (and

		<i>Nodality</i>	<i>Authority</i>	<i>Treasure</i>	<i>Organisation</i>
Procedural tools	Plan-making (and review): to secure public/political support for a spatial plan and any revisions to it	Public exhibition and consultation	Strategic environmental assessment	Reward/ incentive for involvement of interest groups	'Urban experiment' (e.g. temporary parklet[1])
	Development control: to test the fit between the proposed development (e.g. residence, factory, office, shopping centre) and the aims of the spatial plan	Public consultation and scrutiny	Environmental impact assessment	Commissioned independent assessment	Aesthetic control committee
	Plan enforcement: to address cases of non-conformance between development and the aims of the spatial plan	Public information about reporting non-compliance	Enforcement notice	Fines	Imprisonment
Substantive tools	To deliver the ambitions of the plan (i.e. to deliver development congruent with the plan)	Non-binding policy advice or guidance	Greenbelt; Urban growth boundary; Zoning ordinance	Tax relief for land remediation; Tax credits for rehabilitation of historic buildings	Provision of facilities (as a catalyst for urban development)

Note: [1] A parklet is a sidewalk extension that provides more space for public street amenities (e.g. green space, seating, art works). Parklets are typically created by using parking lanes.

Table 2: Categorisation of procedural and substantive tools for spatial planning with selected examples.

review), development control, and plan-enforcement are presented in Table 2.

It should be noted here that the distinction made here between three aspects of the planning process (plan-making, development control, and plan enforcement) is separate to a distinction based on the main stages of the policy cycle (see, for example, Howlett, 2019). The relationship between the three aspects of the planning process is illustrated in Figure 1. All three aspects of the planning process have their own distinct policy cycles, involving different starting points, stakeholders, and timescales. In the process of plan-making (concerned with the genesis, approval, and revision of a spatial

plan), decisions are made regarding the content of a spatial plan (and accompanying policies) which typically has a time horizon of 10–20 years. This decision-making process can involve several iterations before a plan is approved and may involve multiple inputs from a wide set of stakeholders, including citizens, businesses, and NGOs. This process may also involve inputs not only at the plan approval stage but also when a plan is periodically evaluated and revised (Alexander, 2006). Meanwhile, the process of development control (concerned with granting permission for development proposals) is shorter in duration than plan-making, typically within a prescribed number of weeks after the submission

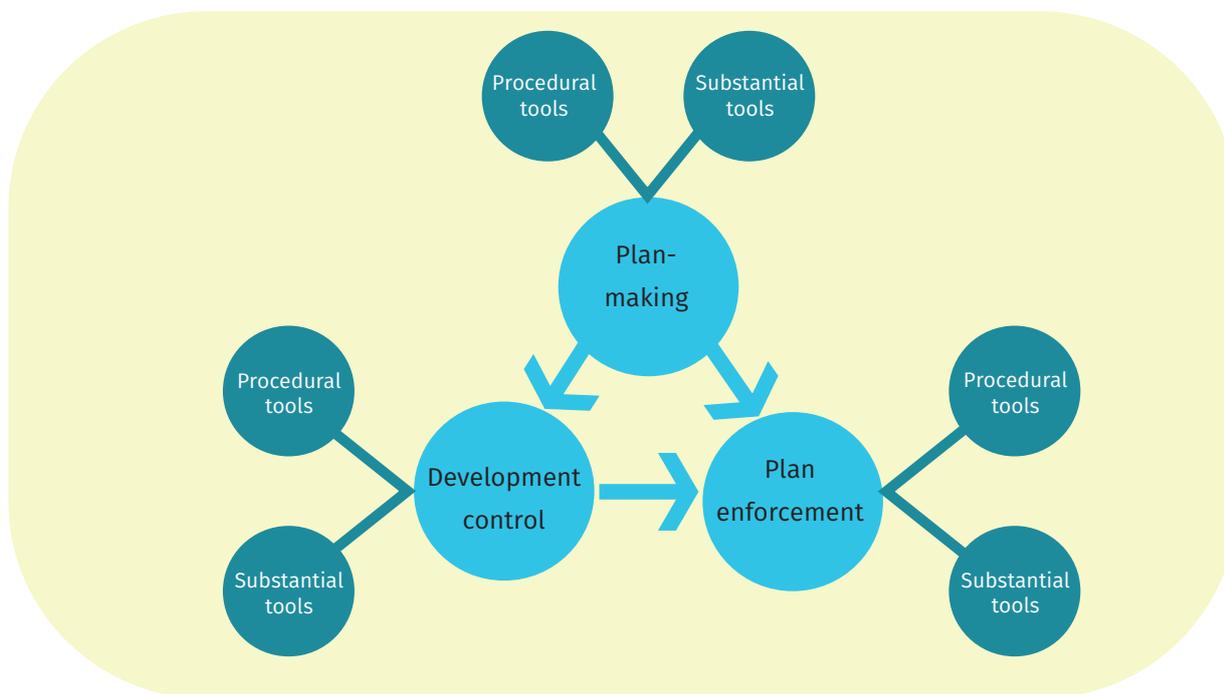


Figure 1: Relation between plan-making, development control and plan enforcement.

of a planning application. Decision-making is instigated by the submission of a planning application: no decision is needed if no proposal is submitted. In this case, decision-making involves inputs from a less diverse set of stakeholders than the process of plan-making, often limited to those with a direct interest in the development being proposed (e.g. land-owners and residents directly adjacent to the proposed development). Thirdly, the process of plan enforcement is either instigated by the planning authority’s own monitoring activities (e.g. on-site checks) or via information from third parties (e.g. NGOs, neighbours). No decision about plan enforcement needs to be made until a policy breach is noticed and reported. Decision-making about plan enforcement involves relatively few inputs from stakeholders.

3.1 Procedural tools for plan-making

Procedural tools for plan-making refer to the tools which can be used to influence public or political support in the genesis and approval of a spatial plan (and any subsequent amendment). A range of nodality, authority, treasure, and organisation tools, as outlined below, can be used for this purpose.

- Nodality. There are several tools of nodality to secure public or political support for a plan, such as outreach activities to consult, inform, and persuade. Public consultations and exhibitions are typical examples where information can be gathered from stakeholders to generate (or co-create) the ambitions of the plan before or during its formulation, or where information can be presented to stakeholders to convince them about the content and direction of the plan. Clearly, the number and type of stakeholders involved in these processes, as well

as the stage of decision-making during which they are involved, has an important impact on the level of support which can be achieved for the plan. Also crucial for the level of support for a spatial plan is the way in which the benefits or advantages of a plan are formulated and communicated to different stakeholders.

- **Authority.** Strategic environmental assessment (SEA) is a statutory planning tool in many countries (including all European countries) which is designed to ensure that the environmental consequences of strategic decisions are identified and assessed during the plan preparation process and before plan adoption (Sadler et al, 2011). A key idea behind SEA is that the technique improves the information basis for planning by providing insights into possible consequences, as well as identifying alternative options and measures that can avoid negative impacts. Clearly, the statutory requirement to conduct an SEA can lead to amendments during the plan-making process, thereby affecting the content of a spatial plan.

- **Treasure.** Policy tools which provide rewards or incentives to promote the involvement of certain interest groups in plan-making can be classified as procedural policy tools related to treasure (i.e. fiscal tools). The state-funded Landcare Australia programme is an example of this type of tool, to which Curtis and Lockwood (2000) refer as a state-sponsored (i.e. state funded) mode of community participation. Landcare Australia is a government funded programme which supports local Landcare groups, community not-for-profit organisations involving groups of volunteers who work on projects to repair and improve the natural environment. Representatives from these local Landcare groups are represented on regional Catchment Management

Committees and other important fora and make significant contributions to natural resource management decision-making (Curtis et al, 1995). Other fiscal tools that can be used to affect procedural aspects of plan-making include the hiring of planning consultants to organize citizen participation processes for urban planning (see, for example, Grijzen, 2010; Stapper et al, 2020), and the use of financial incentives (e.g. prize draws) to encourage public responses to draft plans. These tools not only influence the number and type of stakeholders involved in the plan-making procedure but also potentially influence the spectrum of responses that are submitted (as a consequence of who is included and excluded, or supported and unsupported) in the participation process.

- **Organisation.** An organisation tool 'enables government to act directly on its subjects, their property or their environment' (Hood, 1986: 73). This type of tool encompasses a range of possible interventions, including 'urban experiments' – temporary physical structures that could be used to demonstrate the benefits or advantages of proposals contained in the plan and, as such, influence public or political opinion and support during the process of plan-making. One specific example of a temporary experiment is a parklet where new space for public street amenities (e.g. green space, seating, art) is created by removing existing carriageway or car parking spaces. This could be used to physically demonstrate the impact of extending pedestrianised areas and/or removing car parking. A separate example of an organisation tool which can affect the plan-making process is the creation of new organisational structure or entity in government. For example, interdepartmental commissions have been employed alongside informal processes

of consensus-building in the Netherlands as means of influencing and persuading ministers from other government departments to support national spatial plans (Grijzen, 2010).

3.2 Procedural tools for development control

Procedural tools for realising the ambitions of the plan refer to the tools which can be used to test public or political acceptability of a new development proposal.

- Nodality. Public consultation in spatial planning is generally not only limited to the process of plan-making: it also extends to the development control process. In most countries, the nodality tool of public consultation forms an important part of the process in which planning authorities (usually local governments) decide whether to grant permission for development. Applications for planning permission typically involve consultation with neighbouring residents and businesses as well as statutory consultees (e.g. authorities responsible for environment, transport, archaeology). Seemingly simple rules about which residents and businesses are allowed to express their views about proposed development, and the way in which they are informed, can potentially have important impacts on the overall level of public or political support and acceptability for a development proposal. In the United Kingdom, for example, local planning authorities have some choice in deciding how to notify neighbours for certain types of development (e.g. site notice or letter), which can potentially affect the number of responses.

- Authority. Environmental impact assessment (EIA) is applied to development control in a similar way that strategic environmental assessment is applied to plan-making (see above). It is an example of a procedural policy tool of authority that can potentially influence public or political support in the development control process. EIA is used to identify the environmental impacts of a development (during all its phases – construction, operation, and decommissioning) prior to decision-making. The tool seeks to predict environmental impacts before development starts, to identify ways of mitigating potentially adverse impacts, and to present the predictions and options to decision-makers. In Europe, EIA is a statutory planning tool for development proposals of large projects such as power stations, refineries, chemical plants, airports, motorways, waste disposal installations, dams, quarries, and major power lines. While the content of EIAs is prescribed by regulation, the way in which the impacts and mitigation measures are presented can vary. Clearly, EIA is an important tool in shaping the public or political acceptability of a new development proposal.

- Treasure. An example of a treasure-related procedural policy tool which can be used in the development control process is the commissioning of independent reports or assessments from specialist consultants on the impacts (economic, social, environmental) of proposed development. These assessments may be externally commissioned by planning authorities for several reasons. One reason could be the lack in-house capacity (expertise and/or time). Another reason could be the objective of reaching a more independent, trusted assessment, particularly in the case of more contested development proposals where certain parties stand to gain

or lose substantially from the development. A third reason could be that an independent assessment is commissioned as a way of reducing the likelihood of legal challenges (by the developer or the opposing party) after a decision has been made by the planning authority to grant or deny planning permission. Whatever the reason for commissioning these independent reports or assessments, their content is likely to sway public or political opinions to some degree about the acceptability of a new development proposal.

- **Organisation.** The inclusion of an aesthetic control committee or a similar body (e.g. architectural advisory panel, design review board, urban design panel) in the development control process can influence the final decision that a planning authority makes about a development proposal. It can also affect the conditions applied to development if planning permission is granted (e.g. building height, orientation, shape, materials). Various forms and remits of aesthetic control committees can be found in countries such as Canada, the Netherlands, New Zealand, United Kingdom, and United States. In the Netherlands, aesthetic control committees, mainly comprising nominated independent experts in architecture and spatial planning, were made statutory by the 1962 Housing Act (up to 2013 when the spatial planning system was decentralised), thereby introducing a new procedure for evaluating planning applications (Nelissen, 2002). As with any committee, its composition (e.g. disciplinary representation; aesthetic preferences; expertise) can play an important role in the type of advice or recommendations that it provides.

3.3 Procedural tools for plan enforcement

Most forms of physical development are subject to prior approval by the responsible planning authority (i.e. the granting of permission to develop). Certain categories of development are exempted, mainly in cases where development is minor (e.g. a small extension to a home). Where development has taken place (or is taking place) without necessary approval (e.g. construction of a building or the change of use of a building without obtaining permission, unauthorised change to a protected building, non-compliance with the conditions attached to planning permission), the planning authority can take action to address the situation. To do so, it can draw on a variety of policy tools that include Nodality, Authority, Treasure, and Organisation. Since effective tools for the enforcement of planning control are generally considered necessary for increasing overall compliance with the planning system, all tools for plan enforcement can be considered as procedural in the sense that they are a pre-condition for substantive planning policy tools to function effectively (c.f. Howlett et al, forthcoming).

- **Nodality.** One example of a tool of nodality is the provision and promotion of public information about how to report suspected incidences of non-compliance. In some countries, public reporting (rather than official surveys or inspections) is one of the main ways of identifying non-compliance with planning rules.

- **Authority.** Where development does not conform to the plan, or the conditions attached to planning permission, the planning authority often has statutory powers to take enforcement action, resulting,

for example, in obtaining a court ruling requiring a retrospective application for planning permission to be made, or for actions to be undertaken in conformance of the conditions of the permission granted, or for the development to be removed and the site returned to its prior condition.

- **Treasure.** Fines are also used as a sanction against development taking place without the necessary approval. In some cases, the calibration of the fine is related to the severity and/or frequency of non-compliance (e.g. Ireland – see Department of Environment, Community and Local Government, 2012).

- **Organisation.** Although an extreme sanction, imprisonment can also be used as a policy tool (in addition to or instead of a fine) in some countries where non-compliance is considered serious. In Ireland, for example, penalties for breaching planning law vary according to the seriousness of the case. Offences involving the construction of unauthorised development carry a maximum penalty of €5000 or six months in prison or both (Department of Environment, Community and Local Government, 2012).

3.4 Substantive tools of spatial planning

Substantive policy tools are more commonly discussed than procedural tools in the spatial planning literature. Although examples can be found which refer to tools of nodality, authority, treasure, and organisation, most of the examples cited in the planning literature refer either to tools of Authority or Treasure. Examples of tools from all four types are presented below.

- **Nodality.** Higher levels of government in many

countries prepare indicative policy guidance (and/or good practice guides) as a way of steering the content of lower-level plans. In cases where this guidance is indicative and non-binding (which is implied by the term ‘guidance’), they can be classed as a nodality-related procedural policy tool (binding policy advice on the other hand can be classed as tools of authority). Policy guidance related to urban design and planning exists in a variety of forms, amongst which are local design guides, design frameworks, design briefs, development standards, design codes, design protocols, and design charters (Carmona, 2017). It is useful to acknowledge here that these nodality tools cannot usually be relied upon in isolation, particularly where there is a substantial tension between public and private interests, as there often is in the process of urban development (Carmona, 2017). Instead, a key function of these types of instruments is to internalise the desired behaviour into corporate and individual decision-making. As such, policy guidance for spatial planning represents a policy tool that offers the potential to deliver the ambitions of the plan primarily by means of persuading stakeholders and agenda-setting.

- **Authority.** There are many examples of authority-based procedural policy tools that are used in spatial planning. One of the most important regulatory tools in the development management process is the restriction of development in specific areas in order to steer development in preferred locations (e.g. urban cores, new towns, industrial parks). These restrictions can take various forms including greenbelts, urban growth boundaries, and zoning ordinances. A greenbelt is a zone of largely undeveloped, wild, or agricultural land surrounding a city, which in principle enjoys regulatory protec-

tion against development. Greenbelts are used to restrict urban development around many cities around the world (e.g. Adelaide, London, Hong Kong, Milan, Ottawa, Seoul, Toronto, Vancouver, and Vienna). Similar to greenbelts, urban growth boundaries delineate the extent to which urban areas are permitted to expand in countries such as New Zealand and the United States. Zoning ordinances are one of the most common regulatory tools contained in urban plans (LeGates, 2004) and are used to distinguish between different types of zones in the city (e.g. residential, industrial) in which certain land uses are permitted or prohibited. While greenbelts, urban growth boundaries, and zoning ordinances primarily regulate the location of development, other authority-based planning policy tools exist to control the scale, height and orientation of development.

- **Treasure.** Fiscal policy tools in the form of incentives can be used to attract development to locations of strategic interest, and to encourage developers to take actions that improve the conditions of the built environment and protect the natural environment (such as redevelopment, conservation, historic preservation, and rehabilitation). For example, cities may seek to encourage urban regeneration by offering tax relief for land remediation, tax credits for the rehabilitation of historic buildings, or exemptions from local business taxes. Meanwhile, fiscal tools in the form of taxes and penalties can be used to discourage development in less favoured locations. For example, cities may seek to discourage urban sprawl by means of property taxes, financial contributions for local infrastructure costs, or impact fees for development in 'greenfield' locations. Tax incentives are generally more popular and well used than penalties (Adams & Tiesdell, 2013).

- **Organisation.** Referring to policy tools of organisation, Hood states that government 'may provide for the welfare of its subjects in general by facilities such as parks, gardens, bridges, dykes and dams' (1986: 80). Clearly, many of these types of facilities can be used as a catalyst to promote development in cities to underpin the objectives of a plan. Examples can vary from minor to major in size and impact. Frequently, major flagship projects are credited with significant impacts on urban development and change, such as the urban regeneration effects of the Guggenheim Museum in Bilbao, the Expo site in Seville, or the Olympic Park in Barcelona (Bell & Oakley, 2015). However, direct introduction by government of much smaller facilities or physical urban changes, such as a pedestrianised street, a community garden, or a river walkway can also act as catalysts for new urban development in their immediate vicinity, thereby contributing to the ambitions of the plan in specific locations. This idea is reflected in Lerner's notion of 'urban acupuncture' – projects or initiatives that uplift city life. Lerner states that 'sometimes, a simple, focused intervention can create new energy, demonstrating the possibilities of a space in a way that motivates others to engage with their community. It can even contribute to the planning process' (Lerner, 2014: 4).

4. Conclusions

Studying spatial planning policy tools is important for identifying how to address complex societal goals in planning practice in a systematic and organised way. Meanwhile, from a more theoretical perspective, the classification of spatial planning policy tools is important when making comparisons and assessments of the governance of spatial

planning in different contexts, which in turn can add detail to studies of policy styles, professional cultures, and path dependence in spatial planning. In setting out a taxonomy of planning tools, the paper not only differentiates between procedural and substantive issues; it also distinguishes between different groups of procedural tools related to three parts of the process of spatial planning: plan-making, development control, and plan enforcement. Each of these parts of the process require the use of different tools, almost always in combination.

The review and taxonomy presented in this paper can be seen as a new point of departure for more fine-grained empirical research on the governance of spatial planning in the future. At present, detailed empirical information about trajectories of change remains relatively sparse, especially when it comes to recent comparative evidence (Nadin et al, 2021). What is already known is that certain types of policy tools are being increasingly used across many countries while others are not. For example, many countries have witnessed increases in the trends towards a wider use of 'softer' tools related to nodality (e.g. citizen engagement), while 'harder' financial and regulatory tools have often been scaled back either in terms of their number or calibration (Schmitt & Van Well, 2016; Nadin et al, 2018). While the link has already been made between the changing role of spatial planning and the skills that planners need (e.g. Ozawa & Seltzer, 1999; Alexander, 2007), there is still substantial potential in developing new research into the changing use of different types of policy tool and the skills that are required to use them. Ultimately, understanding the full range of policy tools is fundamental to being able to plan effectively.

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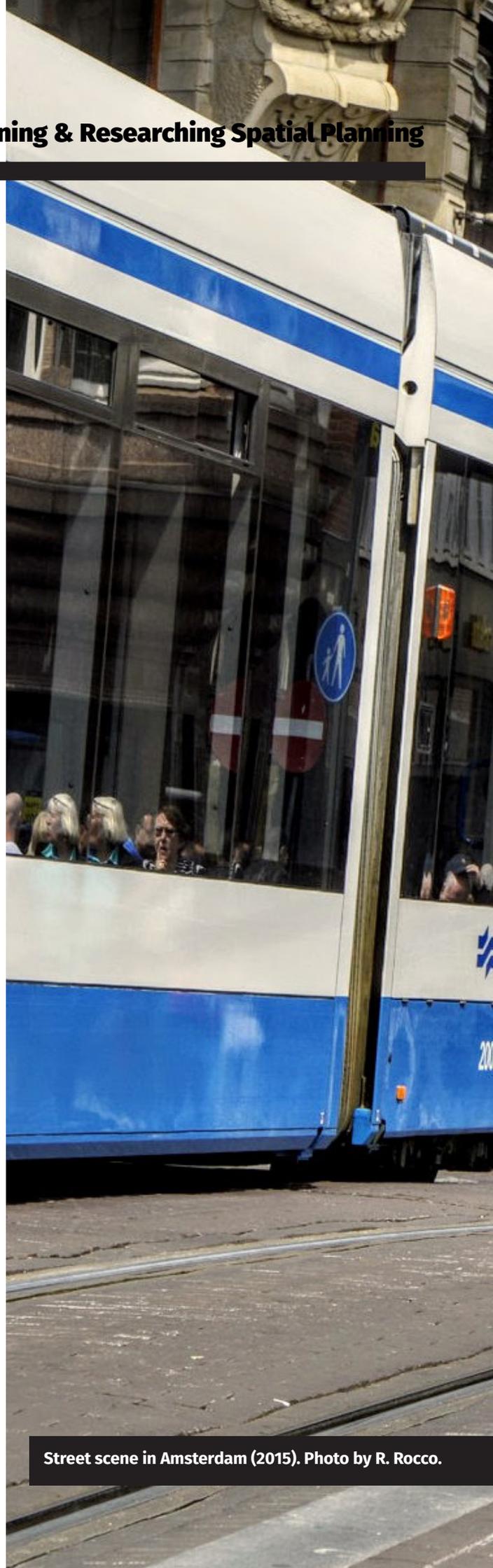
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Street scene in Amsterdam (2015). Photo by R. Rocco.



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Metropolitan Landscape

Definition, Mapping, and Governance

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This chapter revisits the most significant international definitions of the metropolitan landscape. It shows methods of mapping and measuring the metropolitan landscape, most of them developed at TU Delft. Additionally, it discusses one of the tools that can be used to develop the metropolitan landscape and reflect on its qualities and challenges: the Community of Practice (CoP). The organisation and some of the outcomes of a Dutch CoP for metropolitan landscape development (coordinated by the Deltametropolis Association 2016-2023) are highlighted. The chapter draws conclusions on metropolitan landscape challenges and sets an agenda for spatial planning and research in this field.

**METROPOLITAN LANDSCAPE, SPATIAL PLANNING, QUALITY OF LIFE,
CARTOGRAPHY, COMMUNITY OF PRACTICE**

1. Introduction

In our highly urbanised world, in which planners attempt to solve different problems and integrate several policy agendas simultaneously, the concept of metropolitan landscapes has become increasingly important. After all, how do we call the backcloth and the stage on which the energy transition, climate adaptation, and other major spatial transformations of our time play out? Furthermore, the environmental quality and accessibility of the metropolitan landscape is, for a large part, responsible for the quality of life and well being in cities, and therefore also their economic competitiveness in the global arena.

In this chapter, we revisit the most significant international definitions of the metropolitan landscape. It shows methods of mapping and measuring the metropolitan landscape, most of them developed at TU Delft: metropolitan landscape characterisation (Tisma et al.), spatio-visual characteristics of landscape spaces (Nijhuis), territories-in-between (Wandl), diagrams for international comparison (Nefs) and urban-rural planning forces (PBL, the Netherlands Environmental Assessment Agency).

Additionally, we discuss one of the tools that can be used to develop the metropolitan landscape and reflect on its qualities and challenges: the Community of Practice (CoP). No single authority is responsible for the metropolitan landscape. Therefore, planners from public and private entities continuously explore better ways to collaborate and share their experience. The organisation and some of the outcomes of a Dutch CoP for metropolitan landscape development (coordinated by the Deltametropolis Association 2016-2023) are highlighted.

The chapter ends with conclusions on crucial metropolitan landscape challenges and sets an agenda for spatial planning and research in this field.

2. Definitions of the metropolitan landscape

The metropolitan landscape has inspired many geographers and planners to define aspects of it in intriguing terms, such as the *Zwischenstadt* by Thomas Sieverts, *Edge City* by Joel Garreau, and *Post-suburbia* by Edward Soja. The lack of a more holistic view has made the metropolitan landscape into a fuzzy, fragmented, and complex field of work (Harms et al., 2004). The overlapping and blurring of land use functions, such as residential and agricultural use, contributes to this fuzziness, as does the blending of the key spatial divisions urban and rural into the so-called peri-urban. According to Piorr and Ravetz (2011), large parts of Europe and more than half of the Netherlands are in fact peri-urban. In landscape conservation circles, a less fuzzy and more holistic landscape definition is used – an area perceived by people, also including infrastructural and brownfield landscapes, since the European Landscape Convention of 2000.

The conflict of economic, social, and political interests is common in the metropolitan landscape, which is why planners are increasingly being forced to investigate it. In the Netherlands especially, the economic use and interests have played a large part in the planning and shaping of the (metropoli-

tan) landscape. Already in the seventeenth century, landscape transformations and cultivation were related mainly to business models, ‘making a living’ or showing off one’s wealth (Steenhuis, 2019). The nineteenth-century paintings of Vincent van Gogh often depict landscapes as places of transformation and hard labour – one of the reasons for the recently founded Van Gogh National Park in a (today highly urbanised part of) Noord-Brabant. During the 2017 Landscape Triennial, Persian-Dutch writer Kader Abdolah reflected on the strong economic roots of the Dutch landscape, and the way it shapes its citizens:

The spirit of the merchant is so powerful in this lowland, with its swamps, that the spirit sets firmly into its body. Sometimes it can take thirty or fifty years, but there is no escaping from it (Feddes & Nefs, 2018: 90)

In our neoliberal time, the metropolitan landscape has been characterised as a battleground for economic developments (Ambrose, 1992; Nefs, 2021; Scott et al., 2013). Landscape architect Hough observes that ‘it has long been the fate of the rural landscape at the edge of the city to be the raw material for housing subdivisions, industrial estates, and mobile-home parks. [...] The changing scene at the edge and the placelessness that goes along with it has become a battleground between efforts to preserve rural land and the relentless forces of urbanisation’ (1990: 88). Today, besides housing and industry, there are also wind and solar parks, various transport infrastructures, recreational facilities, and other functions demanding space at the urban fringe. If we allow planners to nudge those functions to the places where they are still acceptable,

without aiming for a holistic approach, we get what Dirk Sijmons calls ‘a landscape from hell’. At the same time, the metropolitan environment is increasingly being listed as a valuable asset for urban quality of life, as well as a tool for improving health and retaining (possibly even attracting) talent in a region. In Dutch economic policies, however, metropolitan landscape has been a blind spot for a long time (Luttik et al., 2008; Vereniging Deltametropool, 2016).

These definitions provide several perspectives to discuss and work with the metropolitan landscape concept. However, to use it in spatial planning, we need to go one step further to visualise and map the metropolitan landscape.

3. Mapping the metropolitan landscape

‘The map is not the territory’. This truth applies especially to the metropolitan landscape. However, it is possible to understand important aspects of the metropolitan landscape by using different types of cartography. A complete overview would be impossible in one chapter, but we will revisit five recent maps made in the Netherlands, three of them at TU Delft. The first three focus on the hybrid morphology of the metropolitan landscape, building on the ideas of the urban network (Baccini & Oswald, 2008), the horizontal metropolis (Viganò et al., 2018) and the in-between city (Sieverts, 2001). The fourth focuses on its general geographical structure in contrast to other metropolises, while the fifth focuses on rural-urban planning powers. All five used geographical information systems (GIS) at some point in the process.

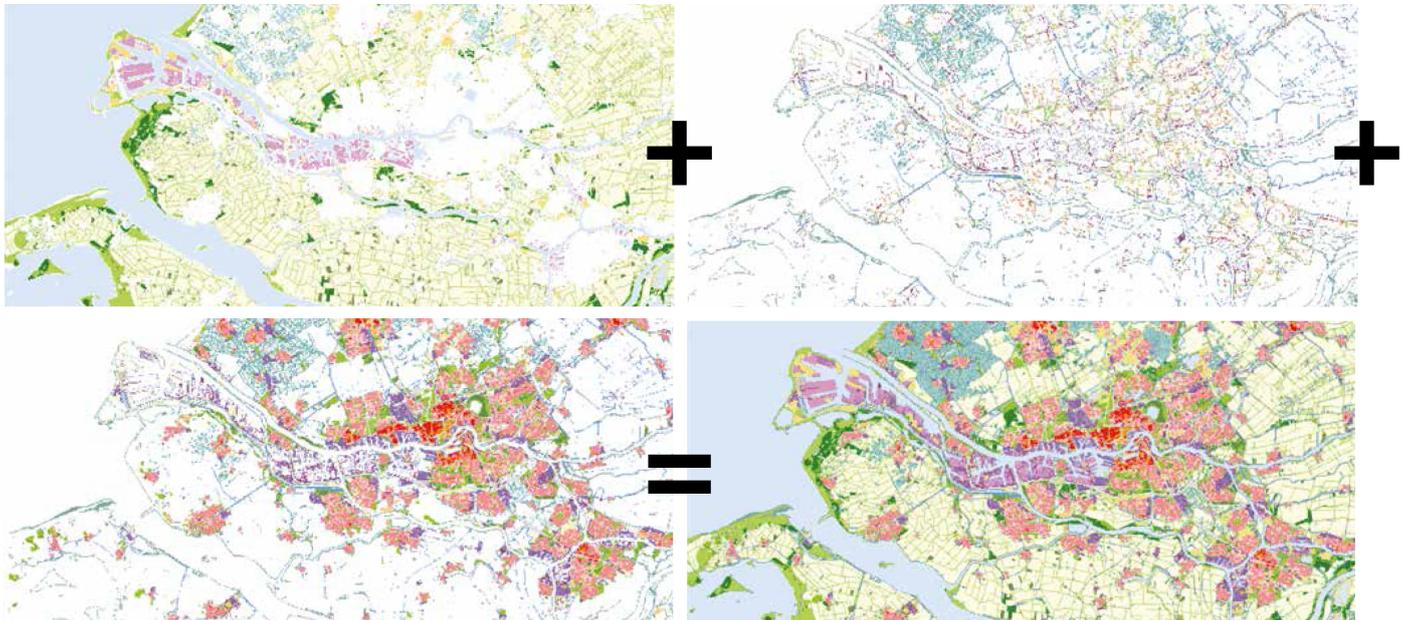


Figure 1: Details of cluster analysis of the Metropolitan Landscape Characterization study, focusing on the Rotterdam area. Tisma, Van der Velde, Nijhuis & Pouderoijen, 2014.

As we have seen above, the metropolitan landscape contains urban, rural, and peri-urban landscape types, but where are these located precisely, and how can we separate one type from another if they look like a blend? In their work on the Rotterdam area, Tisma et al. (2014) break the metropolitan landscape apart statistically, in small grid cells with a certain combination of land-use types. It turns out that about a third of the metropolitan landscape is neither predominantly urban nor rural, but rather one of many hybrid forms of both. Additionally, they use so-called cluster analysis. They discover that only some land uses are found in large continuous areas – mostly agriculture, nature reserves, water, and Rotterdam’s port area. Especially (peri)urban areas are largely discontinuous, forming edges and patches with a mix of land uses, as shown in Figure 1.

Spatial planning laws in most countries deal with either rural or urban areas and do not have clear

statements about the hybrid areas. Traditionally, these regions have been ignored in spatial plans or lumped into one of two major categories. Even though there will probably not be a special law for hybrid landscapes, the introduction of hybrid land use categories helps planners to be more specific in their spatial plans in metropolitan areas and to cross their disciplinary boundaries when needed. For hybrid landscape types to be useful in practice though, land use is not always enough. What a plot of land looks like is not necessarily determined by how it is used. In a study for the Arnhem-Nijmegen region (Vereniging Deltametropool, 2017b: 66), Nijhuis combined 25 land-use types with six dominant visual characteristics into a set of 150 categories of the urban-rural continuum (Figure 2). This nuanced perspective opens the door to planning areas that have previously gone unnoticed and have largely unknown cultural and ecological values. Using the characteristics of the metropolitan landscape in

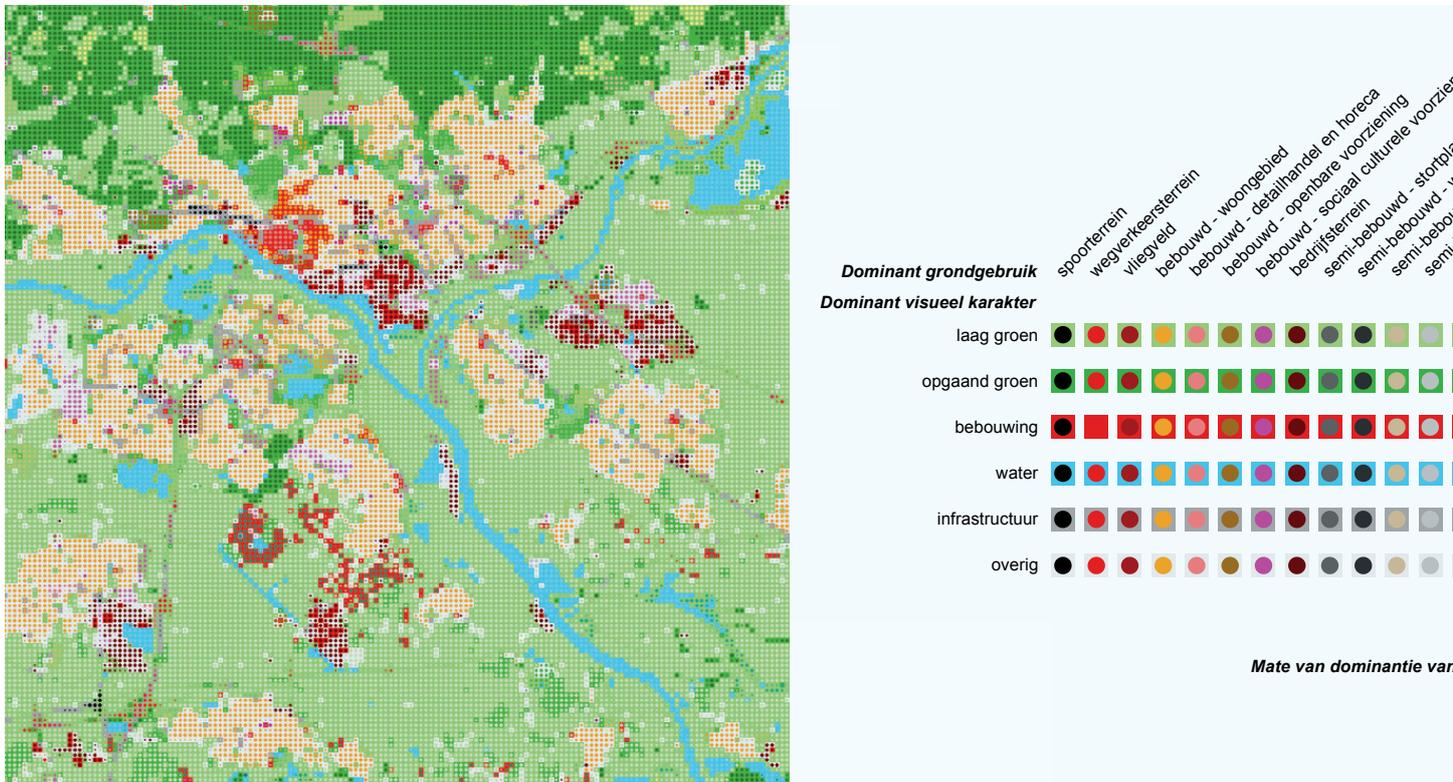


Figure 2: The urban-rural continuum in the Arnhem-Nijmegen region. Nijhuis, 2017.

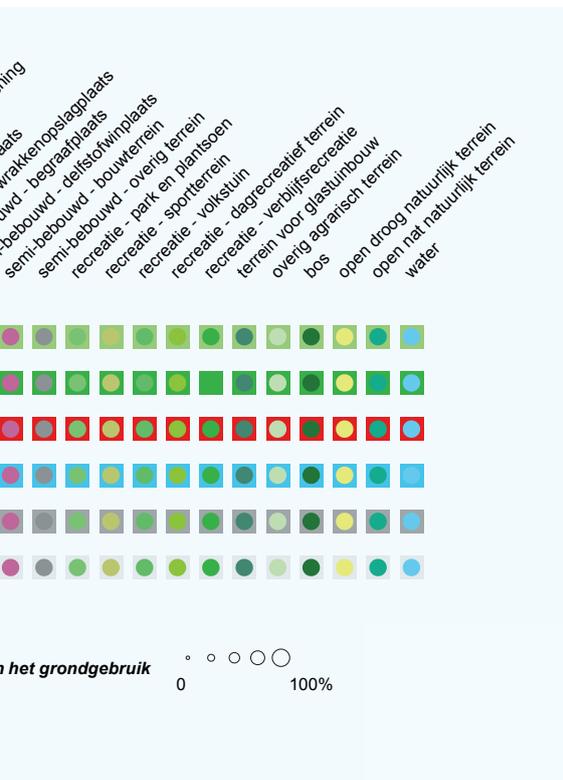
planning necessarily means making it political: how can interventions in parts of the metropolitan landscape realise social, environmental and economic policy goals? In his work on territories in-between, Wandl (2020) recommends not to be blinded by the black and white view that separates urban from rural and condemns urban sprawl. There are indications that the mixed and hybrid areas between the extremes play an essential role in keeping metropolitan areas liveable and sustainable since these areas can produce ecosystem services for those who live nearby. Wandl promotes a combination of the usual functional zone planning of the territory with network urbanism, which for example links consumers to producers in a metropolitan area. An example of such a link is the availability of green space, which provides recreation, clean air and

other services to the inhabitants. A region which can offer this, is considered more sustainable. Figure 3 shows the calculated potential for sustainability in territories in-between.

Metropolitan regions around the world use per-



Figure 3: Potential for sustainability in territories in-between, mapped for South Holland. Wandl, 2020.



ceptions of their metropolitan landscape to present themselves in the global arena, for example, as an excellent place to live and work in the battle for talent, or an exciting place to visit. Such perceptions also frequently form the assumption underneath spatial and economic policies in these areas. The complex and technical approaches described above do not always work in these discussions with a diverse group of public and private stakeholders. The abstract metropolitan landscape diagrams by Nefs (Vereniging Deltametropool, 2016) communicate a simple perception of the metropolitan landscape in a region. For example, that the Dutch Randstad can be seen as urban agglomerations situated around a Green Heart in the Rhine Delta, while Greater London is a dense monocentric metropolis at the river Thames, surrounded by a greenbelt. To enhance perception and experience, travel time from the

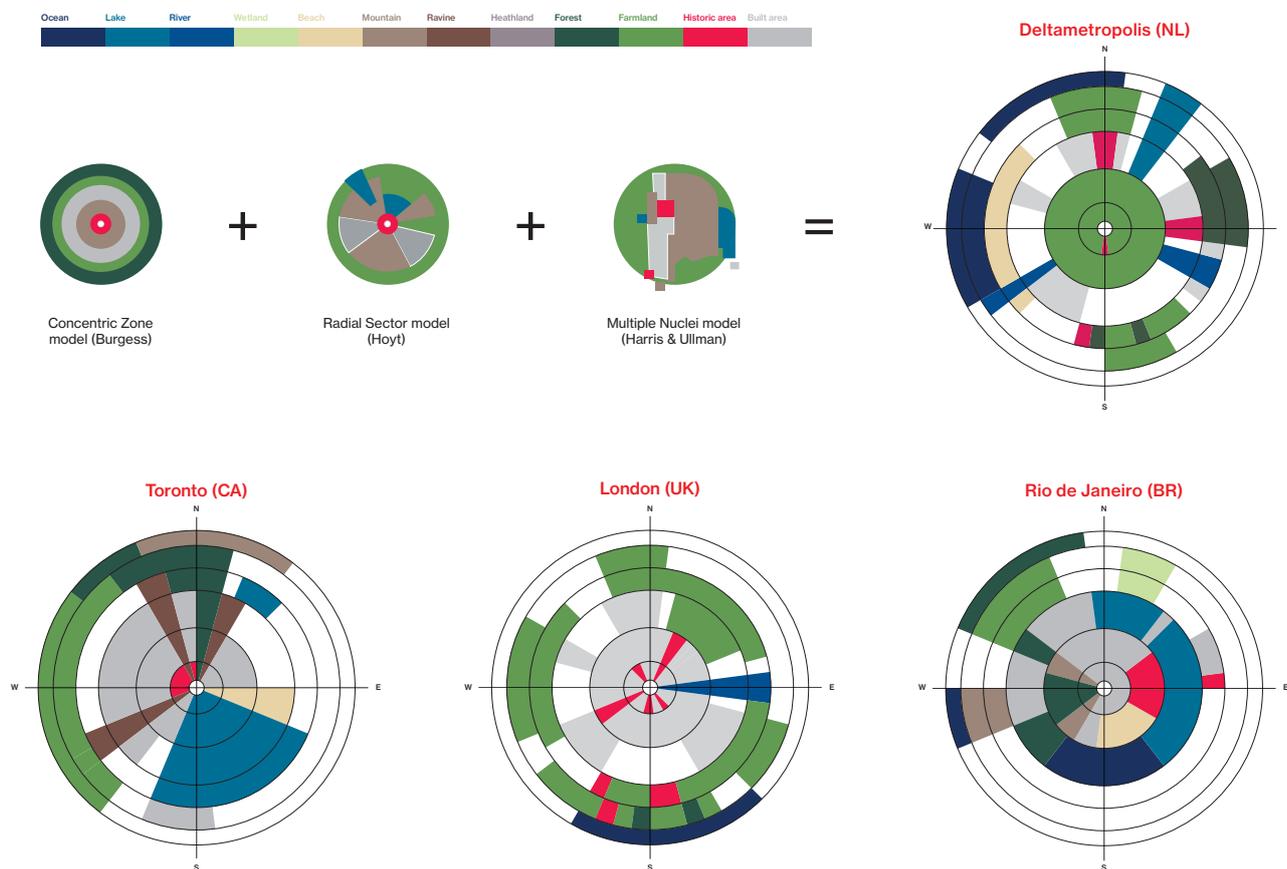


Figure 4: Metropolitan landscape diagrams for the Deltametropolis, London, Toronto and Rio de Janeiro. Nefs, 2016.

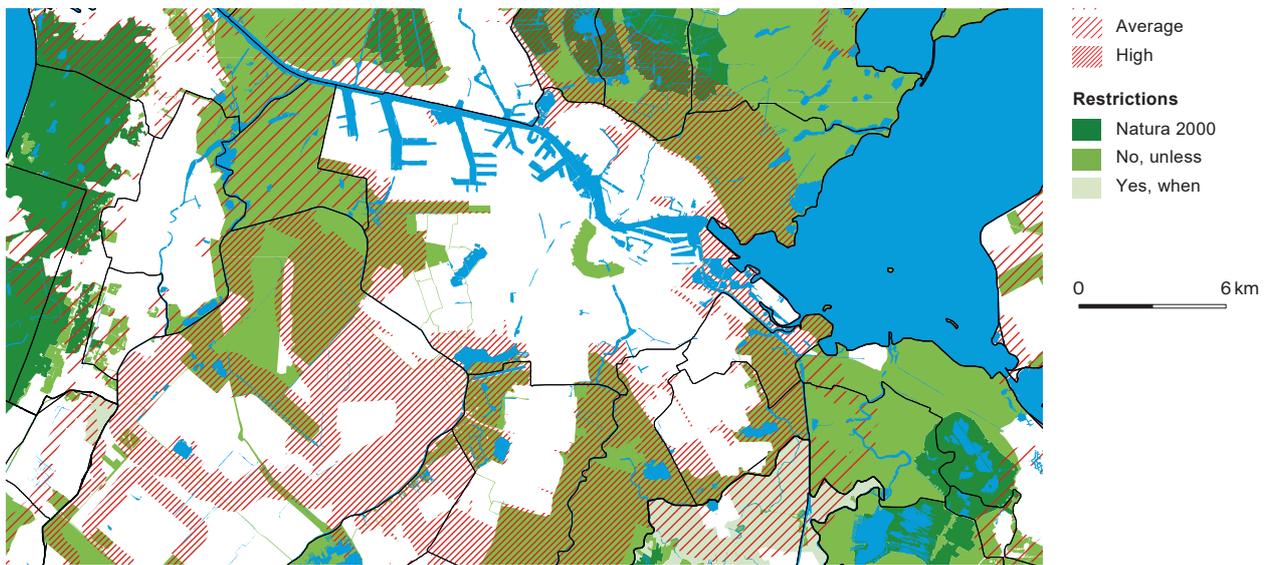


Figure 5: Red and green pressures mapped for the Metropolitan Region of Amsterdam. PBL, 2019.

population centre is used instead of physical (Euclidean) distance. The diagram (Figure 4) uses well-known geographical concepts such as the belt, the wedge and the multiple nuclei or zoning model. This makes diagrams comparable across countries.

The spatial planning regime itself, and how it plays out in different parts of the metropolitan landscape, can also be mapped. The Environmental Assessment Agency of the Netherlands (PBL) drew up the so-called red and green pressures in the metropolitan region of Amsterdam, showing development plans for new residential areas in red and restrictive policies and nature development in green. Figure 5 demonstrates clearly that these pressures meet in the urban fringe. Naturally, this is also where the largest and most significant planning discussions take place, as well as where important social trade-offs are made. For example, certain recent expansion plans of Amsterdam are considered important and sustainable, despite the transformation of open space on the urban fringe, since realising housing developments farther away would increase mobility and the commutes of thousands

of people who work in Amsterdam. As a compensation, financial means and land are used to increase biodiversity, water buffering, and recreational areas near such urban developments on the urban fringe of Amsterdam.

4. Working on the metropolitan landscape in a Community of Practice

In the section above, we have seen how different aspects of the metropolitan landscape can be visualised, to understand and plan these areas better. We have also noticed that the metropolitan landscape is very fragmented and hybrid in terms of urban and rural land uses, visual characteristics, and political perceptions. The institutional landscape in most metropolitan areas is equally fragmented and hybrid, including several overlapping government layers, planning scales, and sectoral departments, such as housing, agriculture, and infrastructure. To improve the region's quality and

socio-economic results, an integrated approach is required; however, how can this be accomplished in such a setting? Institutional reform is a possibility, albeit a slow and politically difficult route. This chapter discusses another option: keeping the institutional construct the way it is while working together in a Community of Practice (CoP).

A Community of Practice is a group of people and/or organisations who share a common goal. By sharing information and experiences, new solutions are found quicker in such a CoP than in normal circumstances, and they are put into practice earlier (Andringa & Reyn, 2014; Cummings & van Zee, 2005). In short, in a CoP, the participants learn together in practice. This is different from a Community of Learning - usually organised by an educational institute, in which participants (students, teachers and externals) learn from each other in a societal context. In the CoP, the issue is leading, while in the CoL, the institute is leading. In principle, both forms

are fitted to learn how to deal with complex 'wicked' problems. The CoP as a way of working is 'of all times', although its name and discussion in Dutch practice started around 2000 (Brood & Coenders, 2004).

The CoP Landscape as Location Factor (in Dutch *Landschap als Vestigingsvoorwaarde*) is based on the idea that metropolitan landscape development, while it is often regarded as a cost, is, in fact, a great asset in the economic performance of a region. Among the many hard location factors that businesses weigh when deciding whether to settle or remain in an area, access to talent has become one of the most critical. Talented workers are scarce and only settle in regions of excellent quality of life - strongly correlating with high-quality metropolitan landscape. This makes landscape, usually regarded as a soft factor, a priority for governments who wish to maintain or enhance their business climate and attractiveness. The goal of the CoP is to bring this



Figure 6: Landscape Triennial 2017 book presentation, joining CoP participants, researchers, planners and designers, students, entrepreneurs, citizen groups, politicians and policymakers. Photo Mirande Phernambucq. Printed with permission.

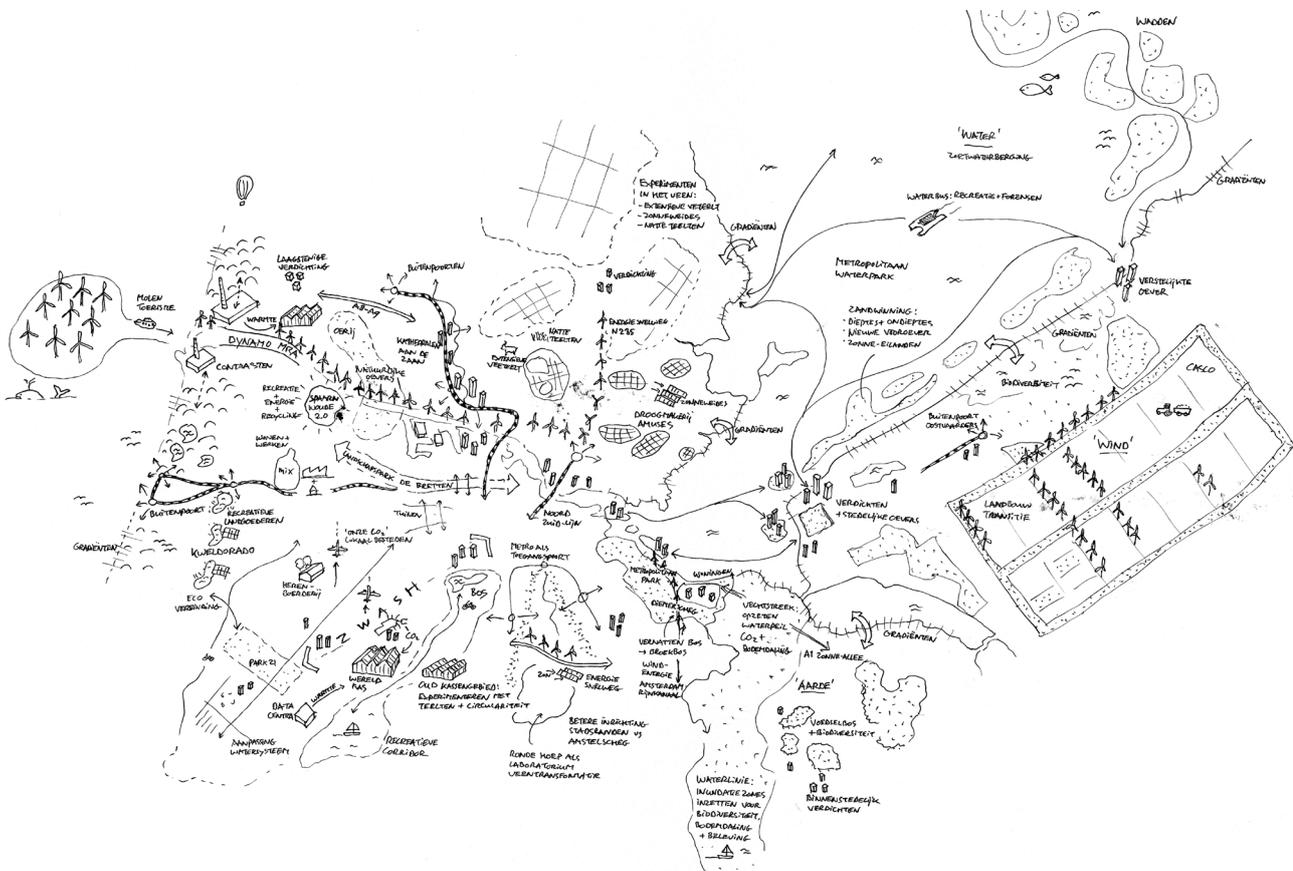


Figure 7: Metropolitan landscape co-development. Compilation of concepts and project ideas from 16 atelier sessions in 8 areas in the Metropolitan Region of Amsterdam. Nefs, 2019

idea into practice through policies and projects and learn as much as possible about the relationship between metropolitan landscape and economy.

Research comparing ten regions of 10 million inhabitants was the starting point for the CoP. The research (Vereniging Deltametropool, 2016) indicated that many metropolises worldwide had already made landscape investments as part of their economic policy, but that this remained a blind spot in the Netherlands' spatial-economic policies. Several Dutch regions reacted with enthusiasm to this message, since they were struggling to get landscape investment on the agenda, and out of the usual defensive discussion. A proactive economic landscape discourse made that possible. Together with three national governmental organisations, four regions founded the CoP to be coordinated by the Deltame-

tropolis Association. The community, which arose from collaborations in 2017 and became formalised in 2018, is funded and programmed to function until 2023.

Besides the founders (National Heritage Agency, National Forest Service, Board of Government Advisors, Deltametropolis Association, and the Provinces of Noord-Brabant, Noord-Holland, Utrecht, and Zuid-Holland), several other organisations participate in the activities of the CoP, including municipalities, researchers, planners, designers, students, entrepreneurs, citizen groups, and politicians. This rich community calls for flexible coordination with over 500 unique participants in events between 2017 and 2020. Participants come and go according to their needs and the timing of their projects. Some ways to keep the CoP members on the same page

are a yearly work conference, a dynamic webpage (Vereniging Deltametropool, 2018), shared content on partner websites, a 3-4 monthly newsletter and a LinkedIn group of ca. 250 members (Vereniging Deltametropool, 2017a).

The CoP's activities range from small, informal peer-to-peer meetings in which participants exchange experiences and focus on one another's practices, to seminars and webinars of between 70 and 100 participants. The CoP has also co-organised parts of the Landscape Triennial 2017 (over 11,000 visitors), where the Landscape as Location Factor was the opening manifestation, and of the 2020 Triennial with the appropriate theme Hightech Highgreen. The involvement of high-tech and other companies in landscape development has become an increasingly important topic in the CoP. Hightech Highgreen focuses on public-private collaborations in landscape development in the Brainport region – the high-tech cluster around Eindhoven, to enhance both the quality of life and the business climate in the region.

The activities of the CoP, directly and indirectly, influence policies about landscape and economy in the Netherlands. The four mentioned provinces (and metropolitan regions in those provinces) explicitly state the goal of Landscape as Location Factor in their visions and other policy documents since 2017, in an increasingly concrete and operational manner (Metropoolregio Amsterdam, 2016; Provincie Noord-Brabant, 2018; PARK Zuid-Holland, 2018; Metropoolregio Utrecht, 2020). Sometimes the CoP organises participatory events to help form new policies on the regional level, for example in the Metropolitan Region of Amsterdam (see Figure 7). When stakeholders in the region are asked how they would like to address issues such as renewable

energy change, urban development, and water management, it turns out that they are willing to suggest alternatives (such as wind turbines) that are normally unwelcome when imposed from above. The recent national environmental strategy (BZK, 2020) also explicitly mentions the idea of landscape as a location factor in various parts of the document.

Knowledge sharing and development is also a part of the CoP's activities. The community has exchanged knowledge about planning and governance with other regions, in the Netherlands and internationally, for example, in Mantua, Toronto, and Birmingham. The CoP develops new knowledge by doing practice-oriented research, usually involving research by design, interviews, comparisons, and best practices. The results are distributed in digital and printed publications, which can be accessed freely under a Creative Commons license. One example is the publication *Spot On*, in which 12 Dutch pilot projects were bundled, including a proposal for the West Brabant region (see Figure 8). Another example is the *Landvestors* project, in which the CoP analysed 12 cases of landscape development by citizens and companies. Lessons for the Netherlands were drawn from these international cases, which can be roughly divided into donation, crowdfunding, and business models. In the next phase of *Landvestors* (from the Deltametropolis Association), landscape architects, planners, and economists



Figure 8: Research by design project, exploring the synergy between biobased agro-chemistry, delta nature development and recreation in the West-Brab



ant region. Studio Marco Vermeulen & Province Noord-Brabant, 2017. Printed with permission.

will apply these lessons to show the potential of private initiative in two high-tech regions with large landscape ambitions and transitions: the aforementioned Brainport and the *Rheinisches Revier* region in Germany.

5. Conclusions

In this chapter, we have looked at several definitions of the metropolitan landscape, and revisited five ways to map it. We have seen that there is a lot of nuance between the rural and the urban realm, and that there are different ways to show this. The metropolitan landscape is clearly a broad concept with many aspects – some of which are more relevant to certain stakeholders and less to others. Certain aspects, such as the confrontation between red and green planning systems, are even invisible within the territory itself. Being the platform where several spatial transitions will take place, the metropolitan landscape should be understandable for professionals and citizens in order for them to come up with integrated and socially acceptable solutions. This calls for a flexible attitude towards the metropolitan landscape and the (plat)forms of collaboration needed to develop it, as well as continuous research – quantitative and qualitative, using design and all other tools available, to enhance the understanding of the metropolitan landscape and share the knowledge.

We have reviewed the founding and activities of the Community of Practice (CoP) Landscape as Location Factor. The CoP demonstrates the demand for broad open (plat)forms of collaboration on metropolitan landscape planning and the need for both grounded knowledge development as well as

informal exchange of experiences and other information among stakeholders. It has shown that, in light of economic prosperity (specifically, quality of life and the fight for talent), the initiative to improve Dutch metropolitan landscapes lies at the national, regional, and local levels. The regional level has become a more dominant player in spatial-economic strategies over recent decades, due to the decentralisation policies of the national government. However, recent discussions suggest that spatial planning on the national level might be making a comeback, and that municipalities still have a large decision-making power in spatial developments. One thing remains certain: the emerging spatial governance structure will need a continuously updated understanding of the metropolitan landscape to deal with the upcoming transitions. Flexible (plat)forms of collaboration and knowledge sharing will play an essential role in that effort.

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Street scene in Amsterdam. Photo by R. Rocco.



Street scene in Delft. Photo by Marcin Dabrowski.



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Regional Network Governance in Spatial Planning

**Constructing a framework to analyse
the influence of regional authorities
in metropolitan areas**

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In spatial planning the importance of the region is increasingly recognised. In the Netherlands and other European countries, responsibilities have been transferred from the national state to the province and (cooperating) municipalities. National challenges like climate adaptation and energy transition rise above the local level and come together at the region – the level between the province and the municipality. The region is usually neither spatially nor administratively bounded. The key issue of this chapter is the question of how regional authorities in the Netherlands influence spatial planning in metropolitan areas. To explore this question, an analytical framework is proposed. Insights from aspects of policy networks, public administration roles, and spatial planning are suitable for building such an analytical framework, and a three-step approach is proposed to analyse policy practices in regional planning.

SPATIAL PLANNING, PUBLIC GOVERNANCE, REGIONAL AUTHORITY, ANALYTICAL FRAMEWORK, POLICY PRACTICE

1. Introduction

In recent decades, patterns of living and working have changed at a high rate. This rapid change involved strong population growth, economic development, and an increase in mobility. All these changes have a major impact on the spatial qualities and features of regions and cities. Authorities at national, regional, and local levels have contributed greatly to these transitions through legislation, policy-making, and the regulation and financing of projects. The responsibility

for spatial planning in the region became increasingly decentralised. For example, in the Netherlands we observed a shift of competences from the national level to provincial and municipal levels. In addition to these measures, the last couple of decades have seen an increase in influence of non-governmental actors such as companies, non-governmental organisations, and other organised citizen groups.

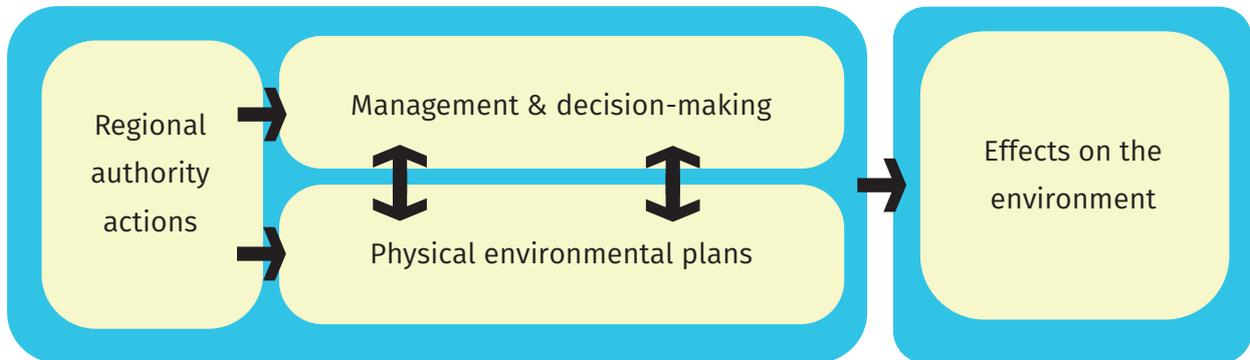


Figure 1: Interaction between the management and decision-making process (administrative process), physical environment plans and the influence of regional authorities.

Informal administrative cooperation in ‘soft spaces’, combined with formal collaborations between municipalities in the region became common in policy practices in many European regions (Houghton et al., 2009; de Vries, 2018; Skelcher et al., 2013 _quoted in Schaap et al., 2018). The administrative structure, with its institutions, sectors, and boundaries, does not always match the functional relationships in the region. Many spatial issues, such as climate adaptation, sustainable energy transition, and regional public transport, occur at a scale that does not correspond to the administrative boundaries of formal authorities like provinces and municipalities (e.g. Hajer et al., 2006; ten Cate, 2019).

In this changing context, regional policy practices can be analysed from the point of how the regional authority influences the decision-making process as well as how this, in turn, causes changes in the physical environment, including the interurban area (see Figure 1). To conduct such an analysis, however, we need a sound research framework.

This chapter proposes such a framework, offering starting points and guidance for researching policy practices at the regional scale. First, it focuses on regionalisation that can be seen all around Europe (Section 2.1) and offers insights into the evolving

collaboration between governmental institutions, companies, and civil society actors within the regional arena (Section 2.2). Then, the chapter overviews the key relevant theoretical aspects on the matter (Sections 3.1 to 3.3) and provides building blocks for constructing a framework (Section 3.4). The attention then shifts to development of a method by which policy practices at the regional scale can be analysed (Section 4). And finally, the chapter closes with a set of conclusions and a discussion of the key take-aways (Section 5).

2. Transition in regional governance

This section discusses the increased significance of the region in spatial planning. The national state has decentralised responsibilities to regional authorities like provinces and (cooperating) municipalities. National issues such as energy transition and climate adaptation must be made concrete in the region and resolved in combination with regional challenges, such as public transport and conservation of natural areas. Classic provincial responsibilities, like supervising, controlling, and redrawing

municipalities, are mentioned. The province as a regional authority in the Netherlands has added to the organisational and coordinating role in regional environmental policy. Non-statutory or informal cooperation in regional planning networks is also common for regional authorities.

2.1 Regionalisation

The region is a functional concept that refers to the supralocal coherence of functions like housing, mobility, agriculture, and so on. The region is a spatially and economically coherent area that is (usually) neither spatially nor administratively bounded (Bosma, 1993; de Zwart, 2015; Raad voor leefomgeving en infrastructuur, 2019). The region is the scale level at which many economic activities as well as the daily lives of people and businesses take place, with informal ways of managing and coordination activities. National challenges, like climate adaptation and energy transition, rise above the local scale and come together at the regional level. The challenges must be made concrete in and by the actors in the region in connection with the issues of the region in itself, for example, regional infrastructure, nature restoration, and housing (Raad voor leefomgeving en infrastructuur, 2019; Verdaas et al., 2020).

Not only in the Netherlands, but also in different European democracies, a strong regionalisation (i.e. more autonomy and responsibility for the region) has occurred. However, there are large differences between countries concerning the way in which regional government is organised. Options involve having a regional parliament (or not); having a large (or limited) role for the regional government in managing regional affairs; the national government having much (or little) influence on what the region-

al authorities do; having a degree of fiscal autonomy, or being dependent on financial transfers from the central government; etc. (Hooghe et al., 2010). In each country, regional government has its own specific history and culture. Also, in the policy domain of spatial and physical planning, responsibilities have been transferred from the national to the regional administration. Examples include: the (urban) regions in France, the *Länder* and (Land) *kreise* in Germany, Italy with its *città metropolitane*, the cantons of Switzerland (Larsson, 2006; Booth et al., 2007; Muggli, 2016). Although the focus is on the physical environment, in many countries spatial planning often does relate to economic and social planning as well as to sectoral planning.

The take-away message is that the importance of the region is increasingly recognised, both in the Netherlands and in several other European countries. Responsibilities for spatial and physical planning have often been (partly) transferred from national state to the regional government. However, there are major differences between countries. Foreign planning systems can hardly be applied in the Netherlands, due to the often-large differences in the administrative context.

2.2 Regional collaboration

In the decentralised unitary state of the Netherlands, the province is the formal regional area authority, located below the national government and above municipal governments. The connection between the levels of government is not based on hierarchical supremacy, however, but on agreement and consensus building (van Lier, 2007). The classic provincial responsibilities are mainly supervising and controlling municipalities, as well as sometimes

restructuring municipal boundaries. Additional tasks, defined in the Province Act of 1962, are to organise and coordinate regional environmental policy. The province gains its legitimacy directly from the voters. In addition to the province as a regional area authority, there is sometimes also structural cooperation between municipalities around specific issues at the regional level, based on the Joint Regulations Act (the *Wet gemeenschappelijke regelingen*).

Parallel to its administrative position, the province also manages spatial processes in an informal way. This refers to ad hoc administrative cooperation in networks, known as 'soft spaces' delimited by 'fuzzy boundaries' (Allmendinger et al., 2015; Haughton et al., 2009). Non-statutory or informal cooperation in regional planning is also common in and beyond Europe. Soft spaces exist alongside, but separate from, the spatial planning plans and processes of elected governing institutions at the local, regional, or national level. They do not replace the 'hard spaces' bounded by administrative borders between jurisdictions but are complementary to them and provide additional opportunities for new developments in a region or municipality (Allmendinger & Haughton, 2009; Waterhout, 2010). Soft spaces within the provincial boundaries are usually smaller than the territory of the province. The boundaries of these soft spaces do not usually coincide with territorial boundaries of a province or municipality. Although soft spaces derive a certain legitimate status as elected representatives from that origin, they can equally be interpreted as having a lack of legitimacy and representativeness because such 'hybrid' forms of governance often lack direct democratic legitimacy (Engel, 2001; Skelcher et al., 2013 (cited in Schaap et al., 2018)).

3. Theoretical exploration

An important characteristic of regional governance in the spatial domain is its acting in a network environment. The theoretical exploration of this chapter is approached from three aspects central to a network approach. The first aspect is the multi-layered multi-actor one, where cooperation between public, private, and civil society actors is a central element for achieving common (spatial) goals. Continuous interaction between actors, and the interdependence and variety of actors and interests, are features of this aspect. A closer look at public administration roles is a second aspect of this governance approach and is oriented towards the legal responsibilities of the regional authority and its informal role as a participant in the policy process. A third aspect, which covers plans and planning, shows that the spatial plan and spatial planning have increasingly become a guideline for the future and a frame of reference for consultation.

There is a certain overlap between these different aspects. This is a result of the decision to view the role of the regional governance from a network point of view. This is reflected in all three aspects. All three together can provide the building blocks for an empirical research method or an analytical framework to identify, analyse, and compare policy practices. In next section, the aspects are explained and conclusions drawn regarding building blocks for an analytical framework for policy practices.

3.1 Multi-layered multi-actor aspect

The various participants that 'govern' together in what is known as the governance approach (Klijn & Koppenjan, 1998; Teisman et al., 2018) act as a network. 'Network' adds a nuance to governance: it is about using networks to achieve certain goals (Sørensen & Torfing, 2007). Until the end of the last century, formal institutions (e.g. national government, province, municipality) were the organising principle in the governance of the region. In the new century, the network has become the organising principle (Teisman, 2001). Actors regularly meet (and need) each other in networks. They exchange knowledge, create shared agendas, and develop shared projects. If participants in a network have to perform something, they must organise this in a network. Actors should – each from their own core task – jointly make agreements about the entire process of 'driving the development', the contributions of the partners and the mutual recognition of each other's added value, as well as agreements about management and about the way in which participants are accountable for jointly achieved results. In policy practice, joint accountability is still exclusively the responsibility of the formal organisations (Teisman & Voermans, 2017). The principle of a network is that several actors actively operate together to achieve common goals.

The multi-layered (also called multi-level) and multi-actor aspect was a reaction to the rational government model that assumed hierarchical control, with complete, scientific, and expert information (Simon, 1957; Lindblom, 1959; Dunn, 1981) with the government acting in the role of 'market master' (Teisman & Voermans, 2017). The multi-layered

multi-actor approach emphasises the transition from government to governance (Hajer & Wagenaar, 2003), embedded in an institutional context of independently operating actors and networks. In this approach, the regional administration is a 'chain partner' (Teisman & Voermans, 2017). Regional (spatial) policy is created in tightly interwoven networks between a large number of public and non-governmental actors who depend on each other and cannot realise their own goals without resources that are in the possession of other actors (Klijn, 1996; Rhodes, 1990). Hanf and Scharpf (1978) also points to the dynamics that relate to the outcomes of interactions and to the strategies of the actors involved. The final result – most of the time reached after dispute, consultation, and/or negotiation – is a consequence of a complex interplay of the strategies of all the actors. To analyse networks, van Waarden (1992) distinguishes seven dimensions: actors, functions, structure, institutional relations, rules of play, power relations, and actor strategy. Van Bueren et al. (2003) uses a threefold division: 1) a series of interactions, 2) arenas as places where actors act (Cohen et al., 1972; Koppenjan, 1993), 3) networks of stable relationships between mutually dependent actors (Rhodes, 1997; Kickert et al., 1997). Enserink et al. (2010) also points out the need to not only analyse networks but also actors and their environments. He defines an 'actor' as a social entity, a person or an organisation that can act or at least influence a decision. His method of analysis focuses on the actor's environment to maximise opportunities for cooperation and minimise threats.

Because the key issue in this chapter is the question of how regional authorities in the Netherlands influence spatial planning in metropolitan areas, it is relevant to elaborate on the special position and

responsibility of the regional government in network governance. The section below will examine the specific role of public administration.

3.2 Public administration aspect

As a public actor, the (regional) administration has a specific role in managing policy-making in a network structure involving several actors. Due to the divergent interests of those actors, the administration must adopt an arbitrator role, whereby it must navigate and reach consensus between divergent or mutually contradictory interests. In order to function as a government partner in a network environment, power must take on the form of authority. The classic institutions of state, such as the national, provincial, and local governments, are challenged in the network structure to go along with the renewal of thinking about participation and democracy. The institutions have to deal with, among other things, citizen groups and companies (Hajer, 2003). The network configuration in regional policy practices, typified by a participatory and democratic policy process, are influenced by multiple actors.

The Netherlands Environmental Assessment Agency (PBL) and the Netherlands School for Public Administration (NSOB) have distinguished four perceptions of and conscious choices in public administration roles:

- **Public Administration:** Legitimacy and lawfulness is the basis, hierarchical management, a clear mandate and clear responsibilities, with rules and procedures
- **New Public Management:** Efficient and measurable results. The government is the client and citizens are the customers
- **Network governance:** Result-oriented coalitions

and agreements, government and society manage together

- **Societal Resilience:** the participating government with societal dynamics as the basis for the government's work

It is important to note that the four roles are superimposed like layers and are relevant simultaneously (van der Steen et al., 2015). Legitimacy and performance form the basis on which other 'layers' are placed. Administrative organisations are mixed forms in which elements from the different roles are simultaneously present.

Van der Steen and van Buuren (2018) apply this 'model of roles' from the administrative roles to routes for spatial policy. They see most opportunities for participatory and social policy development as possible routes for spatial policy. In participative policy development it is the regional administration that is in the lead in a participatory process. There is cooperation with civil society organisations, and tasks, identified by the administrations, are formed in a constellation by the government, often through social umbrella organisations and representative actors. Societal policy development creates space in the regional administration for civil society organisations through concrete programme lines. The government invites and acts in partnership from a position of secondary importance. Parties jointly define the issues that are important to them and around which they wish to organise their efforts. The administration can initiate this process. For example, by setting long-term ambitions and inviting others to contribute.

The regional government derives its legitimacy from administrative power granted by rule of law, and from principles of good governance, such as openness, transparency, possibility of participation,

availability of information, respect for property, justice, and democracy (Tompkins et al., 2008; Scharpf, 1997; Dryzek, 1990; Pahl-Wostl et al., 2008 (cited in van Buuren et al., 2014)). It is in line with the first perception of Public Administration (see above) and of the 'model' of the Environmental Assessment Agency (PBL) and the Netherlands School for Public Administration (NSOB) (van der Steen, 2015). In a network environment, legitimacy translates into the possibility for actors to participate and influence decisions, in the (quality of) interaction and reflection between actors, and the outcomes of processes that reflect the influence of the actors. This fits the second perception (New Public Management) and the third perception (Network Governance) of the PBL/NSOB model. An open and interactive process is a necessity, but it is not a sufficient condition for a legitimate process. Decision-makers or other authorities should also adopt the outcomes, but this involves a value debate with a choice (in broad terms) between a neo-liberal and a social-democratic approach. There does not yet seem to be a solution to this permanent friction between the two value systems and their institutional regimes (Edelenbos, 2005).

As can be seen, governance aspects, with particular attention being paid to the special position of public administration, were the focus of this sub-section; the spatial plan and planning aspects are examined in the following one.

3.3 Spatial plan and planning aspect

Spatial planning is a process of decision-making by the government in which the focus is mainly on the organisation of the decision-making process by indicating options (de Jonge, 2009). It can focus

on long-term but also short-term processes and on various levels of scale, from local to international. Characteristic elements of spatial planning are action orientation and communication as well as the production of legislation and policy (Carmona & Sieh, 2008; Sanyal, 2005; Knieling & Othengrafen, 2009 (cited in Kempenaar, 2017)). Strategic (spatial) planning is a mix of concepts, procedures, and instruments that need to be carefully aligned in order to achieve a desired future (Albrechts, 2001). In this aspect, the 'client' is important – often a professional public institution – that has a link with a strategic, substantive subject or area and with a forum or arena in which dialogue takes place. Strategic spatial planning is long-term planning for area transformations that require new public institutions. It requires an integrated approach to economic, social, and cultural tasks and issues, relating to the physical living environment (Albrechts, 2001; Albrechts et al., 2003).

In a spatial planning aspect, the 'plan' is the vehicle for the process. In a 'conformance approach', described by Mastop and Faludi (1997), a plan is regarded as a blueprint that must be followed in order to achieve an intended goal. Plans are, in that view, simply translated into policies and methods implemented to address specific problems and to achieve expected results. Mastop and Faludi distance themselves from a conformance method and approach the plan from the perspective of social interaction. A method of planning in which several agencies participate simultaneously fits much better with policy practice: the negotiation planning (van der Cammen, 1982), which is in line with the multi-actor approach (Klijn, 1996; 1997; Blom-Hansen, 1997; Rhodes, 1997; Teisman, 2001). The aim of this planning process is to reach consensus leading to collaborative de-

cision-making (Rooij et al., 2019). Discussion and planning notes are primarily written for interagency consultation. Van der Cammen's negotiation method – referred to by others as the communicative turn in spatial planning (Healey, 1993 (cited in Zonneveld, 2011)) is an accepted method for creating a spatial plan. In a 'performance approach', planning is an incremental, continuous process of transformations, adaptations, and decision-making (Mastop & Faludi, 1997). The instruments are spread among different actors. A main line is connecting the 'administrative power' of the different actors. Deviations from plans are not experienced as problematic. They are often necessary to achieve results. A strategic plan is a dynamic overview of agreements reached. It is an indicative plan that serves as a reference for negotiations (Faludi & van der Valk, 1994). A strategic plan, according to Faludi and van der Valk, is both a guideline and a source of information for subsequent decision-making.

The changing methodology of spatial planning has become very dynamic since the turn of the century. It also needs to address new challenges, such as climate change, migration, globalisation, socio-spatial fragmentation, and sustainable development. This requires an interdisciplinary and integrative methodology. Not only with regard to the object of spatial planning (i.e. what to do?), but also the governance process and the democratic involvement of citizens (i.e. how to do it?). These have been decisive in adapting the methodology. Social developments, such as deregulation, decentralisation, and the digital contribution to planning processes, have also influenced traditional spatial planning (Rooij et al., 2019).

Using the above theories on planning, Spit and Zoete (2016) have developed a model for spatial

planning. This model distinguishes three dimensions of spatial planning: 1) object of planning, which represents the content of the issue with regional features and regional development, 2) planning process, or the role of public and private actors and their coalitions and coordination, and 3) planning context, or the norms and values and social rules, the institutions, and the positions of the actors. In this model of spatial planning, the three dimensions interact strongly with each other. The regional outcome – the spatial 'trade-off' – is established in decisions and agreements. The outcome of mutual interaction also influences the continuous process of fine-tuning and negotiation (Spit & Zoete, 2009). This creates specific tensions between the components. Social developments, e.g. social fragmentation, globalisation, and individualisation, influence the political system that is challenged to adapt (Flyvbjerg, 1998; Forester, 1989 (cited in Waterhout, 2010)). Regulation is probably the most important 'footprint' of the institutional context on planning. Planning competences are spread across various authorities (Healey, 2007; Davoudi & Strange, 2009 (cited in Waterhout, 2010)).

3.4 Building blocks for a framework

The above sub-sections have outlined the governance aspect with special attention to public administration roles and the aspect of the significance of plans and planning in the spatial domain. These aspects do not yet immediately provide an appropriate, field-tested method that can be used directly for reconstructing policy practices. On the other hand, key notions, such as network structure, role and perception of actors, interaction between actors, spatial plan, process, and tool sets are im-

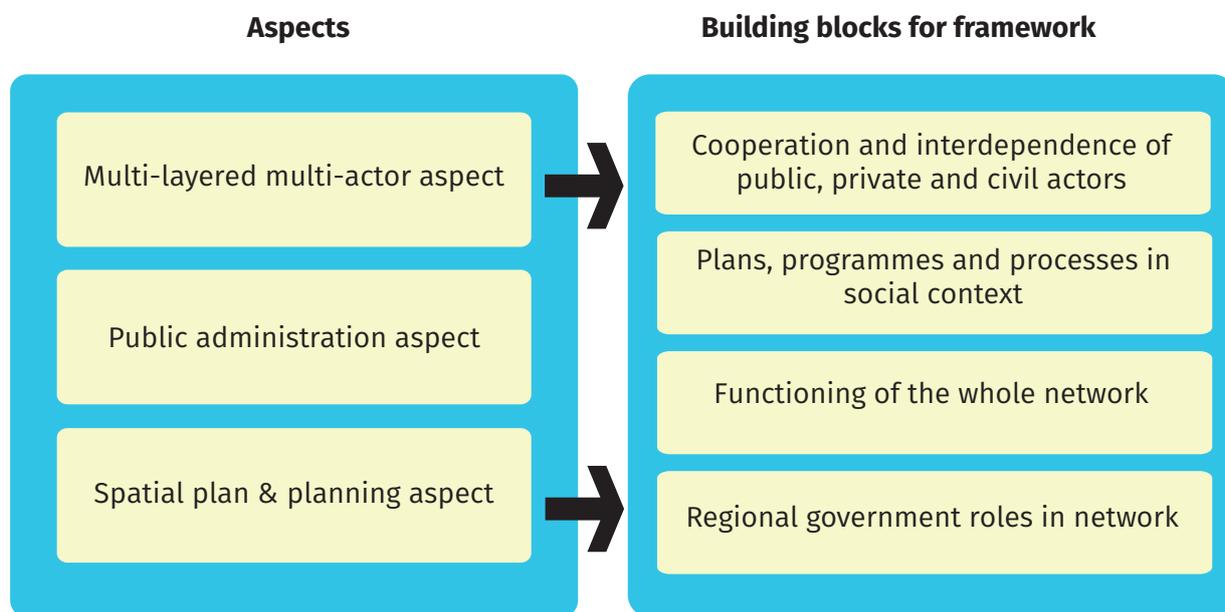


Figure 2: Aspects from viewpoints of governance, public administration and spatial plan and planning, leading to building blocks for constructing a framework.

portant. The aspects and their key notions provide building blocks for constructing a framework to analyse and assess regional policy practices.

The next building blocks (as shown in Figure 2) are formulated thus:

- Cooperation and interdependence of public, private, and social actors working in an open, transparent process in a network structure to achieve common (spatial) goals
- Relationships between challenges, plans, programmes, and the process followed in the social context
- Functioning of the network with multiple actors, with different perceptions, at different levels of scale, in multiple arenas, and through various decision-making processes
- Acting of the regional government in the network, based on responsibilities and roles of the regional government

In the next section, a framework (with operation-

al criteria) is constructed using the building blocks outlined above.

4. Analytical framework

Based on the building blocks derived from the theoretical exploration seen above (see sub-section 3.4), an analytical and assessment framework is developed to reconstruct policy practices. The methodology distinguishes three steps in which operational criteria are used: Step 1: identifying policy practice; Step 2: network functioning; Step 3: regional ways of acting.

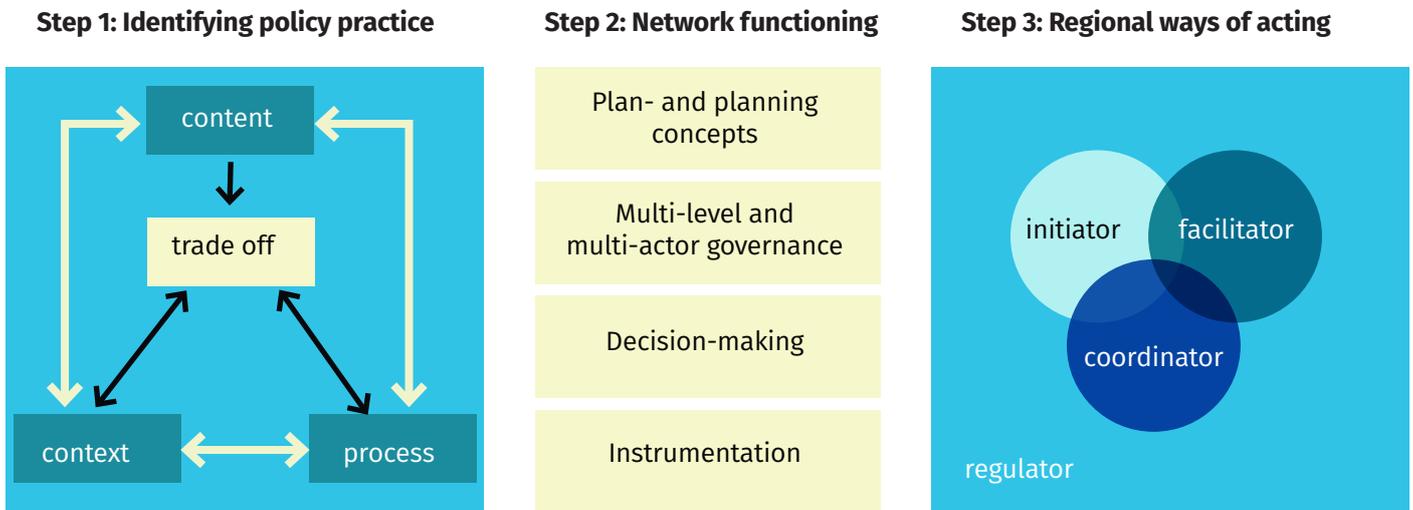


Figure 3: Analysis framework in three steps to analyse policy practices.

Step 1: Identifying policy practice

The facts are recorded as neutrally as possible, in words, tables, figures, and maps. The facts are registered according to the dimensions:

- Content: what are the challenges, the strategy, the plan, the tools?
- Process: what is the way of acting with the issue?
- Context: what is the (societal) environment of the issue?

The three dimensions interact strongly and can have real spatial impact after decision-making about plans and their implementation. Through a literature study, document analysis, and interviews with key players, relevant factual information is collected.

Step 2: Network functioning

Analysing the actions in the network, using operational criteria such as:

- Plan and planning concepts: what are substantive concepts and process-oriented methods?
- Multi-level and multi-actor governance: how

actors are managing networks from different levels of scale, by actors from different levels, in different arenas?

- Decision-making: is it formally on the basis of legality or informally via (ad hoc) cooperation? whether or not in the form of key decisions?
- Instrumentation: which 'hard' instruments, such as laws and regulations, ownership, finance, and/or 'soft' instruments, such as programme, agreement, communication and consultation, are used?

Step 3: Regional ways of acting

Four ideal types are distinguished which are based on regional roles in policy practice and the way in which the province uses its competences. The roles mentioned below either require active intervention by the province (for the first two roles) or are more passive in character (for the third and fourth roles):

- Initiator: is the regional authority an agenda setter, an inspirer, and/or a catalyst?
- Coordinator: is the regional authority the project leader, director, and/or mediator?

- Facilitator: is the regional authority a process adviser, knowledge provider, and/or financial (co-) funder?
- Regulator: is the regional authority the administrative partner, regulator, and/or supervisor?

5. Conclusions and discussion

In last few decades the significance of the region has increased, not only in the Netherlands, but also in several European countries. Responsibilities for spatial and physical planning have been (partly) transferred from the national state to regional governments. However, there are major differences between countries. Foreign planning systems can hardly be applied in the Netherlands, due to (often large) differences in the administrative context.

Many spatial issues, such as climate adaptation, sustainable energy transition, and regional public transport, occur at a scale that does not correspond to the administrative boundaries of formal authorities in the Netherlands, like provinces and municipalities (Hajer et al., 2006; ten Cate, 2019).

The regional government derives its legitimacy and administrative power from the rule of law and from principles of good governance, such as openness, transparency, possibility of participation, availability of information, respect for property, justice, and democracy. Due to various divergent interests, public governments have a specific role. They must adopt an arbitrating role, whereby they must choose from divergent or mutually contradictory interests. Parallel to this administrative position, regional government also manages spatial processes in an informal way. This refers to ad hoc administrative cooperation in networks, known as 'soft spaces', and delimited by 'fuzzy boundaries' (Allmendinger

et al., 2015; Haughton et al., 2009).

Looking for an analytical framework to examine the influence of regional authorities in metropolitan areas – the main focus of this chapter – methods from different aspects have been explored. None of these aspects provide an appropriate, field-tested method that can be used directly for reconstructing policy practices. However, key notions, such as network structure, role and perception of actors, interaction between actors, spatial plan, process, and tool sets, can provide the building blocks for constructing a specific framework to analyse regional policy practices.

A three-step analysis framework has been developed: 1) identifying policy practices, 2) network functioning, and 3) regional ways of acting. This framework is founded on building blocks derived from a multi-layered, multi-level aspect, public administration roles, and a spatial planning aspect. The advantage is that one can use information (key notes) derived from these aspects and translate them into building blocks to construct a framework by which regional policy practices can be compared.

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Amsterdam Centraal train station . Photo by R. Rocco.



2
2

**Methods
Tools &
Teaching**





Mind-map made by students of Urbanism at TU Delft. Photo by R. Rocco. Printed with permission.

Teaching Theories of Urbanism

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This chapter introduces the theories of urbanism courses offered at the Urbanism Department in the Faculty of Architecture and the Built Environment, TU Delft. Urbanism is a discipline which has a crucial impact on how humans interact with the built environment. Understanding its theories is important and will be increasingly so in the twenty-first century as the world's population becomes ever more urban. This chapter begins with a brief introduction outlining its contents. Section two then asks the question What is urbanism? and answers it by looking at how cities developed before going on to describe the discipline of urbanism itself. Section three highlights three theories of urbanism courses run by the Urbanism Department, showcasing their teaching methods, and showing how they are targeted to students' different levels. The course deliverables, which are essays, are also explained here, including how they are graded and the feedback given. Section 4 deals with the courses' learning objectives, explaining both explicit and implicit ones: the former being about understanding theories of urbanism and demonstrating that understanding; the latter being about professionalism more generally, e.g. how to communicate, meet deadlines, and write academically correct English. Finally, a brief conclusion recapitulates the importance of urban theory in the twenty-first century.

URBANISM, THEORY, HISTORY, TEACHING, LEARNING

1. Introduction

This book is intended as a handbook for the teaching and learning of concepts, theories, tools, and methods related to spatial planning. Its audience is anyone interested in this discipline, one that has a crucial impact on how humans and the built environment interact, which is something that will be examined in Section 2. But first, let me explain the main aim of this chapter, which is to outline our approach to the teaching and learning of theories of urbanism in TU Delft. This will not be an introduction to actual theories – to go into any one theory in detail, let alone a number of them, would require more space than this chapter allows. And to try and make broad generalisations about urban theory in general would probably require a book. Indeed, this is something that has already been done, and by people better qualified than I, and the reader will find a brief list of some recommended reading at the end of this chapter. In keeping with the aim of *this* book, however, I will give an outline of how we approach teaching and learning of theories of urbanism.

Most, if not all, the courses in the Faculty of Architecture and the Built Environment (and indeed TU Delft) have theoretical components. This chapter will focus on three courses dealing with theories of urbanism that are routinely offered as part of masters, post-masters, and PhD education in the Department of Urbanism. They are: History and Theory of Urbanism, for first-year masters' students; Theories of Urbanism, for second years beginning their graduation project – this course also forms an integral component of that work (as does the Methods of Urbanism course, which we will see in Section 3.2); and finally, History and Concepts of Ur-

banisation, which is for post-masters and PhDs but also attracts practitioners from outside the university: professionals who wish to broaden or improve their skills set.

These courses will be explained in detail in Section 3, and their learning objectives, both explicit and implicit, will be explained in Section 4. The chapter ends with a brief conclusion reminding us of the importance of urban theory in a rapidly urbanising world.

2. What is urbanism?

Cities emerged in Mesopotamia, in what is present-day Iraq, almost 10,000 years ago. Cities also appeared independently in the Indus Valley and China, as well as, later on, in Central America and Africa, but Mesopotamia was the front-runner. When they emerged, cities were already in a mature form that we can recognise today. The first cities, located in the rich river floodplains of the Tigris and Euphrates, had what Lewis Mumford calls an ambivalent character, one which they never wholly lost, because, according to Mumford, they combined the maximum protection with the greatest incentives for aggression; they offered the widest possible freedom combined with the most drastic systems of control and regimentation (Mumford, 1989: 4).

Why was this? One explanation is because of the place where these cities first emerged: Mesopotamia (Greek for 'between the rivers'). This area was, until recently, known as the Fertile Crescent. The name changed recently to the Fragile Crescent because we now understand that the rivers

which provided such rich agricultural land also had a tendency to sweep everything away in periodic flooding. People realised they had to work together if they were to harness the life-giving power of the rivers, but also tame their more destructive aspects.

This new social organisation saw components of village life carried forward and incorporated into new city life, recomposed in more complex and unstable ways. But, as Mumford points out, it was this complexity and instability that promoted further transformation and development leading to the emergence of specialisation (Mumford, 1989: 29). Kings, aristocrats, and priests, merchants and soldiers created a higher-order urban unity that grew out of this new social complexity. This also allowed for an explosion of human capability because the city could mobilise manpower, it could command long-distance transportation, and it became a hot-bed of invention, which in turn promoted agricultural improvement, leading to larger populations, and larger cities.

The city's rise was built on older, pre-existing cultural elements. What gave it its power to effect change was the way in which these were brought together. This was the 'urban revolution' of V. Gordon Childe (1950). A revolution where small but important portions of humanity first became urban.

Civilisation emerged in the city, and created much of what we now treasure in society, including the written record, education, culture, democracy, and justice. All cities have the capacity for civilised life; some have even attained dazzling heights, like Periclean Athens, Tang dynasty Chang'an (Xi'an), or Florence under the Medici. But what separates a city that has attained a high level of civilization from one that has not? I think it is the capacity for allowing its citizens to flourish.

As cities grow in size and complexity, so too should their capacity to provide civilised life, with peace, justice, and a meaningful contribution to government for all. And this is something that is going to be even more important in the twenty-first century, since already more than 50 percent of us live in urban environments, and that figure is expected to grow to 85 percent by the end of the century. We are, in fact, experiencing what could be called a second 'urban revolution'. And understanding what that means for us as a species, and for the planet we inhabit, will be one of the key concerns for urbanism in the twenty-first century.

But what is urbanism, exactly? The term seems to be used as a catch-all for any discipline related to urban life (including, but not limited to, architecture, geography, the social sciences, and others). Even though cities have been around for almost 10,000 years, urbanism itself is a relatively new discipline. And this is despite the fact that people have been planning cities since the very beginning: the ancient Greeks and Romans laid out their cities according to strict grids, as did the Chinese, with the Rituals of Zhou. Americans even revived this system in the nineteenth century. In the Renaissance, Sixtus V reorganised parts of Rome, cutting great axes through the city's ancient fabric, anticipating Haussmann's Parisian boulevards by three centuries. Georgian-era Dublin saw the foundation of the Wide Streets Commission (1758-1849), widely seen as the world's first urban planning body. Yet these plans and interventions were either too rigid, in the militaristic grid, or too *ad hoc*, in the Baroque and Georgian interventions.

Just as there is a difference between vernacular architecture and the products of professional architects, so too is there a difference between *ad hoc*

city development, no matter how rigorous, and the emergence of urbanism as a profession.

Urbanism, as a profession, first appeared in the early twentieth century. Initially, it was associated with the rise of centralised manufacturing, mixed-use neighbourhoods, and social networks in what came to be seen as a convergence between political, social, and economic citizenship. Architects, urban planners, and sociologists investigated ways in which people lived in densely populated urban areas. Urbanism itself, however, came to mean the study of characteristic ways in which the inhabitants of urban areas interact with their built environment, and is concerned more with place-making and identity creation than with simple zoning or planning.

Space is not empty; it is never simply something left over between buildings. Space is active, and its activity comes into being through people's uses. It is people who turn space into place, and this is done over time, which is almost like a fourth dimension bringing it into being, uniting its users on a daily, seasonal, or longer-term basis. The urbanist and, to a lesser extent, the architect focus on the larger-scale built environment. It is the point of departure for their work as designers, planners, and builders. But to do so without taking into account the people who use the places they design and plan for is to miss the point. The most important thing anyone can understand about a city, no matter what their disciplinary background might be, is that a city is its people. Our job as urbanists is to facilitate people's networks of interaction and allow them to flourish as individuals.

3. Teaching theories of urbanism

This book is about what we do in the Spatial Planning and Strategy section, but we have a much wider reach than merely what goes on in our section. For example, the theories of urbanism courses (to give them a simple collective descriptive term – we will come to their actual names in a moment) have a much wider scope than any narrow sectional interest.

These courses go to the heart of what we teach in Urbanism: helping students understand theories related to the discipline (and related disciplines), but also introducing students to ways of approaching and using theory intelligently.

The three theory courses are attended by all masters of urbanism students, as well as post-masters and some PhDs. The masters' students, in fact, attend two of the courses, one in first year and another in second year. I happen to be uniquely placed to write about these courses as I have the privilege of being coordinator (or co-coordinator) of all three of them.

Each course has a different format, designed to engage students at different levels of experience or ability. The first years have a course called History and Theory of Urbanism; followed in second year (the graduation year) by Theories of Urbanism. We also run History and Concepts of Urbanisation. This was originally one of the three support courses for the studio run by the European Post-master in Urbanism (EMU), a long-standing collaboration between TU Delft, KU Leuven, UPC Barcelona, and Università IUAV di Venezia. This course is also open to PhD candidates and to professionals seeking to broaden their skills set.

3.1. History and Theory of Urbanism

History and Theory of Urbanism (AR1U121) is run once a year beginning in September. The course's main coordinator was Birgit Hausleitner (now Taneha Bacchin). The course itself lasts for approximately two months and consists of lectures, formal debates, and informal discussions culminating in a 3,000-word essay. The lectures introduce students to urban history and theory, with topics like Paradigms, Reading the City, Urban Landscape, Form of the City, Open City, and Town Planning in the Netherlands. Each of these topics has a list of required (and also recommended) reading, which include such diverse authorities as Neil Brenner, Matthew Carmona, James Corner, Margaret Crawford, Michel Foucault, Bill Hillier, N.J. Habraken, Batty Marshall, Ian McHarg, and David Grahame Shane. Students are expected to demonstrate the ability to gather and present research, situate it in various discourses, and communicate their ideas clearly. They are also expected to show that they have reflected on what they have done. The coordinators and teachers involved in this course grade the essays and give the students feedback. The students also receive feedback on draft versions of their essays during the course. This is true for all the courses, and there will be more details on that feedback in the next sub-section.

3.2 Theories of Urbanism

The Theories of Urbanism course (AR3U023) is for second years, these are students who are doing their graduation project. The course used to be run every semester, beginning in September and February. Due to a recent reorganisation, it is not being

run at the moment but will (hopefully) be reconfigured to run again in the not-too-distant future. The September intake was always considerably larger than that of February, with up to four times the number of students, making the spring course more of a seminar series.

Like the first-year course, it also lasted for about two months. The first half of the course consists of lectures introducing the various studios to the students to help them make better-informed decisions about which one to join to do their graduation project. There is also a general introduction to different theories of urbanism. The aim is not to go into any one theory in detail, but to make students aware of the wide range of topics available to study so that they can use the best and most appropriate ones in their own graduation projects.

The students are also encouraged to use their projects as a way of critiquing the theories they have used. This circular approach, enabled by the iterative method of learning encouraged during the masters, means that theory is seen as a support and framework informing empirical research, with the empirical research in turn interrogating that theory, leading to a synthesis that enriches both.

In the second half of the course, students are divided into groups according to themes they wish to explore (e.g. sustainability, citizen participation, transit-oriented development, etc.). Here, under my guidance, they pick research readings and are helpful to one another in analysing them. These discussions in small, focussed groups greatly enhance the students' understanding of the theories they are examining. It also improves their ability to interrogate or critique them as they have to present their findings to their classmates.

The students are also required to produce an es-

say (3,000 to 5,000 words). They pick their own topic and the readings and theories that support it, but these must have relevance for their graduation project because the essay becomes the theory chapter in their Graduation Report.

Essays are reviewed and graded by a team of teachers, each of whom grades three to four essays. The teachers who act as mentors do not grade their own students' work. Reviewers use a rubric and follow guidelines to ensure consistency of grading. Students have access to the grading rubric before they submit their essay so they know exactly what the reviewers are looking for (as is the case for all the theory courses).

The course used to be run in parallel with the Methods of Urbanism course (AR3U013), and was complimentary to it (this has also disappeared in the recent reorganisation). Methods helped students decide *how* they were going to do their research, while the Theory course helped them answer *why* a given theory is important.

The essay is not the end of the course, because towards the end of the graduation project students are expected to reflect on the processes they have gone through to produce their proposals. This reflection is important, not only for a critical appraisal of the processes they went through, but also as a useful way of revisiting the theories they used. Here they can take the opportunity to critique their own theoretical work, since they should have a deeper understanding of the issues involved thanks to their empirical research and analysis. Often, the students rewrite their theory chapter at this stage to incorporate their new insights.

3.3 History and Concepts of Urbanisation

The third and final course is History and Concepts of Urbanisation (ABE004). Originally set up as a support course for the European Post-master in Urbanism (EMU), it had also attracted increasing numbers of PhD students, which raised its level. It also occasionally attracted practitioners from outside the university. Sadly, TU Delft is no longer part of the EMU network, so this course has stopped.

The course was run once a year in the autumn and was coordinated by myself with Wil Zonneveld. In its last year, Wil was replaced by Rodrigo Cardoso. Its structure is modelled on the seminars I attended while doing my own PhD in Architecture Theory in TU Delft. The course ran for eight weeks, with anything from eight to sixteen students (although there were on occasion as many as twenty-four – but I find twelve to sixteen an ideal number for this sort of seminar).

The first session was an introduction, where I made a presentation on how to write English to academic standards (which I will return to in a moment). There then followed six sessions where students made short presentations based on set readings. There were two readings per week (and this changes year on year). The readings followed a trajectory that covered the emergence of the city, and how they formed networks, to the emergence of the world economy and the role cities play in it. The readings also examined city regions and other related topics, such as theories of mapping. Students were split into two groups, each presenting one of the texts to the other. There then followed a discussion on the text before moving onto the second group. There were six of these sessions, with a break

in the middle for students to present essay ideas.

The essays were graded by the course coordinators, giving detailed written feedback with not only a breakdown of the grade (e.g. use of sources, originality of ideas, development of these, etc.), but also feedback on how the essay was written (i.e. hints on what could have done better, and how – this has no bearing on the grade, it was just an extra we provided).

4. Learning objectives: explicit and implicit

The aim of all three courses was and is the same: to help students arrive at their own understanding of key concepts relating to spatial planning and urbanism. This is something that has already been highlighted in the companion to this volume: *Celebrating Spatial Planning at TU Delft 2008-2019* (2019).

The courses were and are tailored to students' different academic levels, and enable them to define (and redefine) theoretical concepts. This helps them take a critical stance towards what they are learning and it also enables them to better establish parameters for their research.

The learning objectives are both explicit and implicit, and these are clearly communicated to the students throughout the courses. The explicit learning objectives are that students should demonstrate knowledge of various theories and communicate them effectively. The implicit objectives are for them to show that they can work to deadlines, organise themselves, and write well. In other words, act professionally.

Each of the courses has a section focussing on

improving students' written English. The vast majority of the students are not native English speakers. Being able to write good English, with clarity and concision, is a vital skill – brilliant ideas are useless unless they can be communicated clearly. Each course began with a Writing Academic English presentation. These are tailored to the different levels of the students, and with my own background as a native speaker, as well my editing experience, this helped give a valuable extra dimension to these courses.

To sum up: the aim of all these courses is twofold: 1) in the short term, to help students use theory to make informed decisions about their research, and to show that they can evaluate it; and 2), in the longer term, to prepare them for professional life, where habits of punctuality, the ability to meet deadlines, and write good, clear English, will stand them in good stead.

5. Conclusion: the relevance of urban theory today

As we saw in the introduction to this chapter, the world's population is now more than 50 percent urban and that figure is set to rise to 85 percent by the end of the century. With so many people inhabiting urban environments, it is increasingly important for us to understand them. And that is one of the main tasks of the urbanist.

Making sense of things includes looking at what has gone before. The attentive reader will have noticed that two of the three courses have 'history' in their title. This is because we need to look at what has gone before, the better to understand the present, and, by that understanding, plan for the future.

Theories help us make sense of the world; they

help us to reflect, and, through that reflection, make better plans for the future. But, as we have seen in the theory courses, it is not just about what is happened, important and interesting as that is, it is **why** something is happened this is important. Once we understand the why then we will have the key to understanding what we can do about it.

Looking at history, looking at theory, are both important, but what is most important is seeing **how** we look at them. Theory not a thing in itself, its real value comes from enabling us to approach learning, and that is the main aim of all of these courses. It is not knowledge itself, although that is of course valuable, it is the understanding of ways of apprehending knowledge that we wish to impart to our students. In order for them to get their degrees, students have to demonstrate the ability to do certain things. No theory is more important than any other in this regard, it is the process the students use in deciding whether they are important or not, and what to do with this knowledge, that is key. Once we see them demonstrate these knowledge and skills, both theoretical and empirical, in planning or design, or both, then we know that the student is ready to go out into the world.

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Delft Winter Scene. Photo by Marcin Dabrowski.



 Delft



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JOY

Visual Storytelling

Assessing the power of maps in planning

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There is an abundant use of visualisation in spatial planning. This chapter is particularly concerned about planning on the regional level and beyond. On these higher levels of scales maps form the dominant visualisation mode. To fully comprehend and evaluate the content of these maps this chapter first discusses a set of theoretical concepts and considerations under the heading of maps as constructs. This is followed by the main part of the chapter: a discussion about the techniques which map makers seek to use. The main objective of this particular section is to provide a number of tools to interpret and assess the stories told by maps and to look beyond the visual style and seductive image of maps. We round off with the conclusion: the unity of text and maps in (supra)regional planning.

MAPS, VISUAL STORYTELLING, PLANNING, DESIGN, SEMIOTICS

1. Introduction

One can define spatial planning in many different ways. In this particular chapter the emphasis is on planning as spatial design. We then enter the domain of spatial images (see also Zonneveld, 2021a). The range of such images or 'visuals' which are used in spatial design is bewildering: photographs, drawings, diagrams, and schemes to name just a few (for examples see for instance Thierstein and Förster, 2008). Certainly, the most widespread imagery is that of the map. Briefly a map can be defined a schematic, reduced depiction or representation of a territory where there is at least some sort of connection between the territory in question and what has been selected and imaged on the map. At first sight this short description looks rather neutral. However, what is depicted on maps is most certainly not. We know from literature, especially the literature known as 'critical cartography' that the so called 'correspondence theory of mapping practice' is profoundly flawed: there is no direct relationship between a map and the territory it supposedly represents (Crampton, 2001). In fact, maps are socially constructed (Harley, 1989). With spatial planning in mind, we can even say that maps are politically constructed.

What this chapter seeks to do is twofold. First, to arrive at an understanding of the role of maps in planning. Second, to provide handles and levers to interpret and critically discuss the content of spatial planning maps. These two objectives basically structure this chapter. In the next section we discuss a number of theoretical concepts and considerations under the heading of maps as constructs. This is followed by the main part of this chapter: a discussion about the techniques which map makers

seek to use and methods to identify and assess the stories told by maps and to look beyond the visual style and seductive image of maps. We round off with a short conclusion.

2. Maps as constructs

2.1. Framing and storytelling

In Dutch academic discourse the use of maps in spatial planning has been approached in its own unique way. There is distrust that comes very close to the title of Mark Monmonier's well known book 'How to Lie with Maps' which got its first edition in 1991. In fact, the book is an evergreen; the third edition dates from 2018. Other scholars take a more neutral stance. They look at how maps can lead to controversies but how they can also be used to reach consensus (Carton & Enserink, 2006; Carton, 2007). Abroad, Throgmorton became widely known as he interpreted planning as persuasive storytelling about the future where persuasion is based on power and the use of verbal as well as visual languages in discourse (Throgmorton, 1992; 1996; 2003).

Let us first look at what might be called the 'Dutch school of distrust'. In a paper in the Journal of the American Planning Association, Van Eeten and Roe (2000; see also Zonneveld, 2005) attack the Dutch Green Heart policy in an unprecedented way. For the readers who are not familiar with the Dutch concept of the Green Heart: preserving the openness of this large rural landscape amidst a wide circle of fast-growing cities known as the Randstad was a cornerstone of Dutch national spatial plan-

ning for decades (Zonneveld, 2021b). It only came to an end when the policy was handed over to local government about two decades ago (see Zonneveld & Evers, 2014).

The main argument of Van Eeten and Roe is that the spatial planning concept of the Green Heart is a fiction but nevertheless has become immune to criticism. They argue that alternatives to the Green Heart policy have not given a fair chance. In trying to explain this hegemonic position of the Green Heart they point to the communicative power such a metaphor can have and conclude that planning must renounce that which has proven to be the most powerful weapon in planning discourse, namely mapping. Certainly not ill disposed towards using metaphors for their own rhetorical purposes, they reject any planning strategy which uses maps as nothing less than an 'iconographic gaze' (Van Eeten & Roe, 2000: 64). Following Denis Wood's well-known book, *The Power of Maps* (1992), Van Eeten and Roe conclude that maps are by nature fictional if for no other reason than that they exclude certain details of what is present 'on the ground', which of course is a truism. Indeed, maps are useful and powerful precisely because they always have to leave out detail, even the most detailed Ordnance Survey maps (in literature, see Lewis Carroll, Jorge Luis Borges, Adolfo Bioy Casares, and Umberto Eco for interesting discussions on drawing maps at a scale of 1 to 1; see also 'exactitude in science' on the Internet). As alternatives to the seemingly hegemonic Green Heart policy have all used mapping strategies, 'there is no mapping our way out of the deadlock [...] One way out of the controversy is to adopt planning approaches that depend much less directly on maps and cartographic imaging' (Van Eeten & Roe, 2000: 65). To summarise their conclu-

sion: let us plan, but please try to do this without maps.

Does the proposal of Van Eeten and Roe make sense? Not really, I would say. Simplification, stereotyping, and hegemonic discourse could also be reached through mere verbal language. Being critical towards the societal groups or governmental agencies using maps and metaphors makes far more sense. On top of that, is the making of spatial plans possible without making maps? In a response to Van Eeten and Roe, Christopher Alexander, well acquainted with Dutch planning, and familiar with the Dutch planners' predilection for spatial imagery, strongly rejects this idea, but not because he wants to protect the Dutch style of spatial planning or the protagonists of the Randstad/Green Heart 'doctrine'. Alexander asserts that 'some form of graphic representation [...] is essential for communicating any ideas that have a spatial dimension, as planning concepts and doctrines must have; and [...] the fact that all metaphors are essentially fictions in their relation to reality in no way diminishes their usefulness in conceptualising and communicating planning ideas.' (2001: 98). Similarly, Faludi argues that what sets planning apart from other policy fields is its focus on spatial dispositions and activity patterns, and that space is best depicted visually, saying that the 'most common way in which this is articulated is by means of a plan in the classic sense: a map' (Faludi, 1996: 96). He relates imaging, or figuring, to framing. Hence the title of his journal paper: 'Framing with Figures'. Problems are never objectively given, but socially constructed 'through frames in which facts, values, theories and interests are integrated' (Rein & Schön, 1986: 4).

Power, hegemonic discourse and a variety of different sorts of languages come together in what the

American scholar James Throgmorton calls planning as persuasive storytelling about the future (Throgmorton, 1992; 1996; 2003). This interpretation of what planning in essence is and how it works drew a lot of attention at both sides of the Atlantic. Many recognised that persuasion is highly important to get any planning message across. Some criticised Throgmorton because his nutshell like description of planning seemingly underestimated power. In fact, he was highly interested in the rhetorical and often manipulative sorts of storytelling: power comes first and stories second (Throgmorton, 2003). One of the interesting dimensions of Throgmorton's analytical approach is what may be called the unity of text and images. Texts which may include imaginative but often also manipulative metaphors and tropes combined with visuals together constitute a storyline.

2.2. Agency

The combination of mapping, other sorts of spatial representation (like photographs, satellite images, and schemes and diagrams) and verbal expressions have acquired certain names in the relevant literature. Examples include 'imagery' (Van Duinen, 2004; 2021), 'imaginaries' (Davoudi, 2018) or 'spatial concept' (Zonneveld, 2007; Balz, 2019). The visual language of the map and the verbal language surrounding it come together in its legend. A legend explains in a concise way the signs which have been used to create the map. There is another word used interchangeably with legend (which is in fact a metaphor!) and which is rather meaningful in understanding the map: the key. As a thing a key unlocks a door, and the map key unlocks the map. This does not necessarily mean that all maps in planning or

regional design have a key. There is an abundance of maps which are not 'unlocked' via a legend but through a supporting explanation in a text or storyline. According to Van Dijk (2011) this combination can be very powerful, much to the chagrin of some of the observers we have met above.

Mapping as part of a design strategy is not necessarily to depict possible or desired futures. Design through mapping can also have understanding as its prime goal; to grasp, for instance, the structure of a region or how a particular place is positioned in its wider setting and what determines this position. Whatever sort of mapping is applied, according to Corner 'the function of mapping is less to mirror reality than to engender the re-shaping of the worlds in which people live' (Corner, 2011). In fact, 'mapping is the most formative and creative act of any design process, firstly disclosing and then staging the conditions for the emergence of new realities' (Corner, 2011; see also Zonneveld, 2021a). Corner calls this the agency of mapping. However, in which direction map agency works is not easy to foresee: 'designers' of visualisations and maps, 'like designers of anything, cannot anticipate all the ways people will understand and use their design' (Tversky 2019: 193). One example is given by Van Duinen (2004) when she wrote an interesting analysis of the (former) Dutch National Spatial Planning Agency's blundering when it sought to introduce a novel perception of the spatial structure of the Randstad in which there was no longer a place for the city of Utrecht. The agency completely underestimated the intrinsic power of an existing spatial concept and its adherents, both in the national parliament and among a regional advocacy coalition (i.e. Utrecht). This example shows that being on a map (Jensen & Richardson, 2003) can be as contentious as being omitted from one.

2.3. Constructed realities

Before we turn our attention to a variety of interpretative tools to analyse the content and meaning of planning maps, we have to say a few words about the question: is there any objectivity in cartography? Is there a clear dividing line between planning maps, overwhelmingly the result of political decision-making combined with designerly knowing (Cross, 2001), and the cartography to be found in, for instance, atlases?

It seems that cartography must deal with more persistent demands for objectivity than other areas (Zonneveld, 2005). The introduction of new seemingly clean technologies like the Global Positioning System, remote sensing, or Geographical Information Systems may lead to a belief that such technology could lead to a sort of new objectivity in cartography, or at least intersubjectivity; a sharing of subjective experience. There is a parallel here with photography and its introduction in the nineteenth century, namely that photographs could show reality as it is. We now know that photography is not 'innocent' (Verweij & Boie, 2000). A photographer constantly makes decisions on focus, distance, and framing, not to mention the possibilities for manipulation in the darkroom, or on the computer. Likewise, Robbins (2001) shows us how emergent technologies, like remote sensing and geographic information systems, are not the impartial tools we may expect them to be. Satellite images always have to be interpreted and, in the process, one must make decisions about, for example, in Robbins's case, what exactly constitutes a forest in India which then becomes an element on a map legend. Frames like this are inextricably linked to the institutions in which the interpreters operate, their practices, and

their interests. In the case of forest policies in India, Robbins explains how state authorities used their power to produce outcomes that were detrimental to local farmers. Robbins calls this the hegemonic position of state-fixed categories (Robbins, 2001: 163) and speaks of the 'politics of categorisation' (Robbins, 2001: 172). By fixing certain interpretations of the environment, certain forms of management are forced, reengineered to suit technical means (Robbins, 2001: 175). This is perversely reminiscent of the computer term 'what you see is what you get'. As a counter strategy Robbins advocates the creation of competing maps to break through the hegemonic practices of state institutions (Robbins, 2001: 162). In planning, this may translate as multiple visioning: creating a diversity of possible futures supported by different sorts of cartographies.

According to Crampton (2001), one of the leading figures in an area called critical cartography (see various essays in Dodge et al., 2011) it is only fairly recently that cartography seems to have broken with the 'correspondence theory of mapping practice', based on the assumption of a direct relationship between a map and the territory it represents. Maps, as Wood (1992) points out, construct and do not reproduce the world. According to Crampton, quoting the cartography theorist Harley: 'Cartography has never been an autonomous and hermetic mode of knowledge, nor is it ever above the politics of knowledge. My key metaphor is that we should begin to deconstruct the map by challenging its assumed autonomy as a mode of representation' (Harley quoted in Crampton, 2001: 24). On this basis, Crampton infers that maps are social constructs. A map is not objectively 'above' or 'beyond' that which is presented; one cannot use the representation to trace back to some ultimate object, knowledge,

or thought. Maps should be accepted as rhetorical devices which dismantle the arbitrary dualism of propaganda versus true maps, or scientific versus artistic maps. Or, we would also like to add, planning maps.

3. Reading maps

There are all sorts of possibilities for reading and interpreting maps. Various levels of abstraction are possible. The guidelines below are arranged in a particular order. We start with guidelines addressing major, contextual issues. Gazing at maps and trying to understand their logic and connections with textual elements is not enough. What is needed, first, is to arrive at an understanding of the nature

of the carrier of maps, the strategic plans, as well as their makers. Only after that can map analysts apply guidelines to identify the linguistic structure of a particular strategic plan, and how to make sense of the particular graphics to be found on concrete maps. Four elements form the structure of this section.

3.1. Understanding the nature of a strategic plan and explicit or hidden objectives

Strategic plans may have all sorts of formats on different sorts of scales and can be written and compiled by a wide range of actors which may have

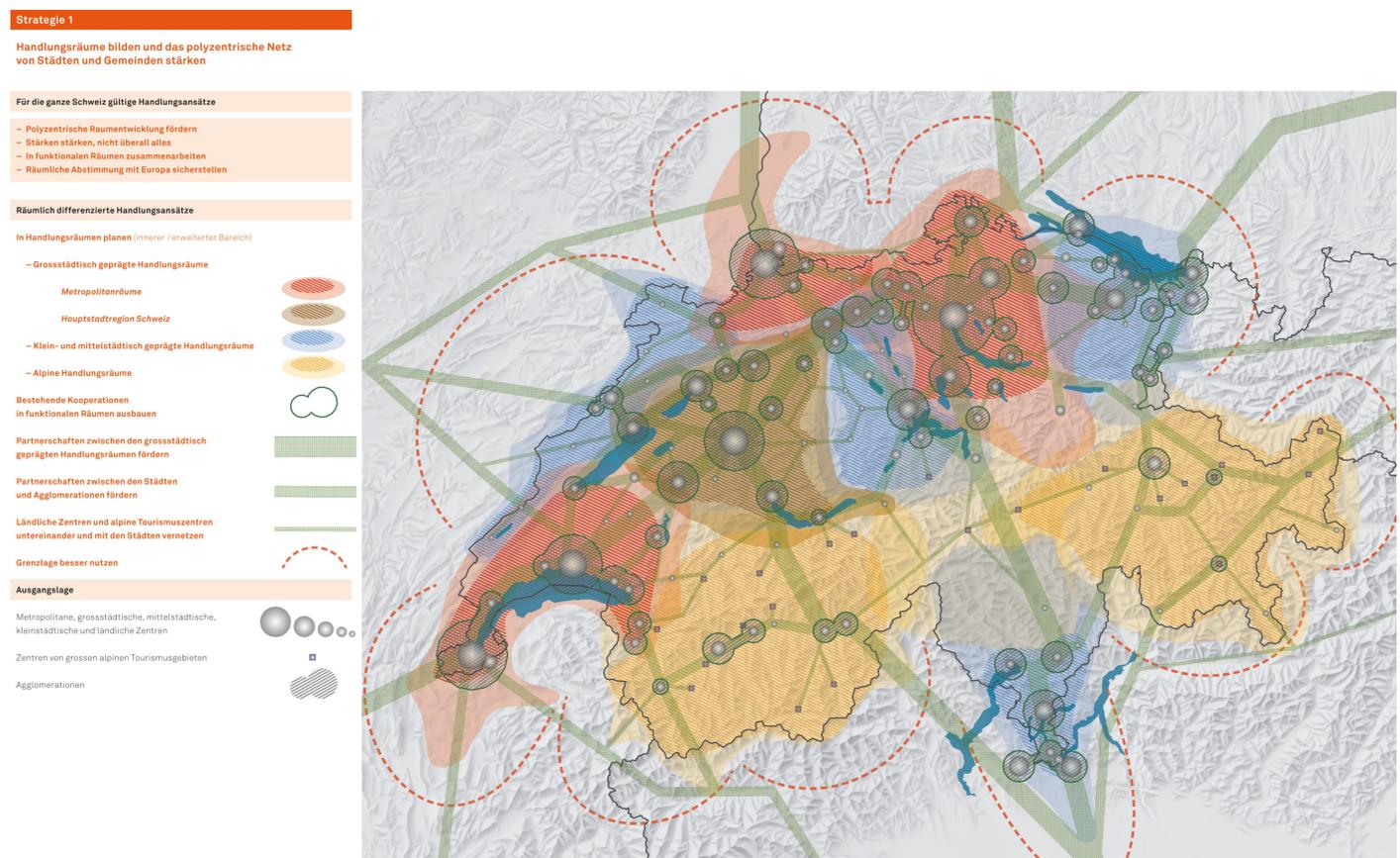


Figure 1: "The Swiss Territorial Project presents a common strategy in favour of sustainable territorial development, in which partnership reflection and action in terms of intervention areas take on a priority role". The Swiss Territorial Project, Development and Planning, Swiss Confederation. Consiglio federale svizzero, CdC, DCPA, UCS, ACS (2012): Progetto territoriale Svizzera. Versione rielaborata, Berna. Available at: <https://www.are.admin.ch/are/it/home/sviluppo-e-pianificazione-del-territorio/strategia-e-pianificazione/progetto-territoriale-svizzera.html>. Printed with permission

particular repercussions on the sort of visuals and maps. Several distinctions can be made and it is up to the researcher to determine the sort of correlation between the nature of a planning document, i.e. its particular form and anticipated effects, and how space is mapped.

First, the nature of the match between a strategic plan and a particular sort of administrative level needs to be determined. If there is a match, the question needs to be asked whether the strategic plan is formal or informal. Formal means: based on a concrete (planning) law, regulation, or directive. In most cases this means that the plan is focussing on the territory of a specific administrative authority with planning competences. Imagery may zoom out beyond the borders of this territory to determine the nature of all sorts of connections ranging from infrastructure to functional relationships between, for instance, cities. Imagery may also zoom in on certain sub-areas. Why is that?

An informal sort of plan often means that the plan in question is based on a sort of political agreement between actors; for instance, between representatives of various administrative levels as strategic plans are often created in a sort of multilevel governance context (Zonneveld & Stead, forthcoming). Often, such a plan maps indicative interpretations of spatial structures which may serve as a kind of framework for decision-making by planning authorities on each individual level. In Europe, such multilevel strategic plans are common in countries with a federal structure: Germany, Switzerland, and Austria.

There may also be national plans which are not prepared in a multilevel setting but serve as a framework for how national governments (this may be a particular national agency or a specific ministry) perceive the national territory. In a fol-

low-up process, spatial perceptions may be used in operational decision-making. One can think of policy programmes for specific areas or regions or particular sorts of investments in particular places (often in the field of infrastructure) or yet changes in certain legal frameworks. An informal strategic plan may also be prepared and published by a particular administrative agency to start a political debate or to test certain proposals as a sort of kick-off of a process which is expected to lead to a formal strategic plan. In such a plan, maps often present novel interpretations of spatial structures. The general idea of this particular sort of informal plan is to test whether consensus within and outside administration can be reached which can then function as a sort of foundation to prepare formal strategic plans and/or policy frameworks. This sort of approach is known in many countries. Terms used here are, for instance, reconnaissance, outline, Leitbild, spatial vision, or scenario (see also Dühr, 2007: 55-70).

Informal plans may be prepared by a wide variety of actors, for example, (statutory) advisory bodies, academic institutes, NGOs, or even individuals. Often agenda-setting is the prime motive. Classic examples dating from late 19th and early 20th centuries include, for instance, the famous 1909 plan of Chicago prepared by Daniel R. Burnham and Edward H. Bennett under the direction of the Commercial Club of Chicago (Krueckeberg, 1983). At this time, plans formed a sort of elaborate plea towards government to become active in the field of urban, regional, or national planning. The level of scale determines to a high degree the sort of imagery and maps. The 1909 plan for Chicago includes a bird's eye view of the (future) city plus a wide range of other imageries, including photographs, while the America 2050 report of the Regional Plan Association contains somewhat

abstract maps of the entire country and a call for a federal approach towards spatial development. So, again, agenda-setting is the prime motive.

3.2. Identifying the 'authors' of a strategic plan

Next, and highly connected to the sort of strategic plans briefly discussed above, is the identification of what may be called authorship. This is relatively easy in the case of a formal plan as it explicitly refers to an administrative level. But even then, certain difficulties may arise. For instance, a specific sort of national plan may be prepared by a ministry with its logo on the cover, but this may not say a lot about the planning competences or political weight of that particular planning ministry, and similar questions may arise at sub-national levels.

To determine authorship is often far more difficult when the map interpreter has to deal with informal plans, in particular those which have been prepared in a multi-level setting. For instance, a plan or planning document may be obtained from just one of the participants, or from a specific publisher, printer, or website. It then becomes quite critical to have a careful look at the first few pages or, alternatively, at the rear pages to determine who made the plan.

Mistakes are easily made. An example from the recent past is illustrative: the 1999 European Spatial Development Perspective (ESDP) was published by the Office for Official Publications of the European Communities in Luxembourg. This office normally prints material from the European Commission. Academic literature referring to this document invariably refers to the European Commission as

the author but this is not correct. In fact, the Commission did not make the ESDP it just participated in its making. One has to read the document to find out that it has been prepared by a committee and agreed upon by national ministers responsible for spatial planning and that neither the European Union nor the Commission have any sort of competence in spatial planning (the full story of the making of the ESDP can be found in Faludi & Waterhout, 2002). This absence of such a competence explains why the ESDP does not contain any sort of policy or analytical maps presenting spatial structures on the European level. What it does contain are rather abstract icons illustrating aims and options (note the language) which may inspire national and sub-national decision makers on spatial planning issues. The present Territorial Agenda 2030 is just text, so this is certainly no framing with figures. It is up to the analyst to find out why a spatial planning document does not contain any sort of map. The answer may be impossible to deduct from the document itself. Secondary literature may help, including professional journals or newspapers. If these do not give any sort of clue then an answer really is needed and finding spokespeople to interview seems an obvious route.

So, questions about authorship of planning documents may lead to all sort of follow-up questions on the content of these documents and the use of visuals and maps. Yet another illustrative example is the so-called Finger Plan for Copenhagen, which is widely known internationally because it has been consistently applied in spatial and infrastructural decision-making over a number of decades. The most recent 2015 planning document bears the title: The Finger Plan: A strategy for the development of the Greater Copenhagen Area. The responsible gov-

ernment actor is the Danish Nature Agency which, on the surface, seems rather surprising. The obvious question is: Why? Does a nature agency have a say in urban development? and, if so, to what extent in relation to other governmental agencies and departments and towards municipalities in the capital region? The analyst has to find out. For the curious reader, the document contains a highly stylised image of the capital region (indeed, this map looks does show a sort of hand). The resolution of the map is very low, however. If one were to increase the map resolution would the finger shape of the urban structure of the capital region be as distinct as the maps pretends to suggest?

3.3. Unravelling the structure of storylines: text and maps

Above we briefly discussed the linguistic structure of (in our case) a planning document. A general method to analyse this structure has been introduced by John Pickles (1992) and adapted by Stefanie Dühr (Dühr, 2007: 82-84). Before we discuss principles and suggestions, it is important to emphasise a critical difference between a verbal and a visual image. Although there are people who have the intellectual capacity to understand what is in a text through scanning techniques, most people will read a text word by word, sentence by sentence, and paragraph by paragraph. Most visuals, however, can be read at a glance. A map, for instance, is one single whole, although one needs movement of the eyes to fully comprehend what is on it.

A first step in the analysis of the linguistic structure of a particular planning document is the assessment of the relative weight given to text and maps.

Dühr rightfully assumes that the more use is made of visual language in general and maps in particular the better what she calls planning actors are able to read and communicate through maps. But who are planning actors? In a narrow sense we are talking about those who prepare drafts of a planning document and, in a wider sense, those who finally decide what can be found in a document (a minister, an alderman, member of parliament, or councillor). Skills in reading maps may differ substantially.

In many cases it is highly interesting to find out what sort of maps appear in the very first drafts of a planning document, and what ends up being allowed to stay in the final version. So, comparing various versions can guide the researcher in follow-up investigations: why have some maps disappeared? or, the opposite, why have some been inserted? Are there key differences between various versions of the same map? And, if so, why?

Healey, in discussing the imaginative power of strategic spatial planning (Healey, 2006), assumes that the number and cartographic qualities of a map give an indication of how spatially conscious a planning tradition is (Dühr, 2007). On the one hand, this is about the capacity to unravel spatial structures and make sense of those structures (which of course can be highly normative). On the other hand, certain competences are needed to broadly assess potential spatial impacts of policy aims and options as well concrete policy decisions.

The above may give quite a bit of room to all sorts of speculations by the map interpreter. Some concrete aspects may contribute to a more rigid interpretation (these are partially based on Dühr's suggestions: Dühr, 2007: 83):

- The number of pages with text compared with the

number of maps

- The difference between analytical and policy maps. One has to realise that although the dividing line between these two categories is rather thin and porous, one may also assume that the insertion of any sort of analytical map has a purpose which the map reader needs to detect through connecting the map with the text (and follow-up research techniques). Also, if one category outnumbers the other there is something else to find out

- The relationship between the themes and, if present, the policy options discussed in the plan text and those that are pictured on policy maps. According to Dühr, this may give insight into the spatiality of such options and, again, into the sensitivity of plan makers in this field

- Finally, the plan analyst has to find out what are the dominant policy themes in texts and maps. Is there some sort of selectivity or bias? If plan makers speak (write and draw) in terms of comprehensiveness (remember, this claim is often made) what is included or excluded?

The above is about relationships between text and images. One can also try to unravel the linguistic structure of a map. Dühr mentions two critical aspects (Dühr, 2007: 82-84):

- Visual hierarchy. What are the most dominant visual elements in the cartographic representations of spatial policy? Obviously, the door to speculation is wide open here. Some sort of intersubjectivity can be found in a proper analysis of the map legend. What elements are to be found here? Is it possibly to identify themes behind a legend? What is actually pictured on the map? Does a map show some sort of interpretation of the present or desired spatial structure of territory? or does it only show the location of projects? If the latter sort of map is the most impor-

tant or even the sole map in a strategic plan, then this may lead to the conclusion that some sort of refined reasoning about spatial structure was probably absent in the making process. Triangulation through interviews or the analysis of internal documents may be needed

- Visual representation of the planning context. This is (or should be) an important element in any sort of strategic plan because this is about the conceptualisation of the position of a particular place or territory in its wider spatial setting. If this sort of thinking cannot be found in a plan, in most cases everything outside the planned territory is simply kept white or left blurred, therefore it is relatively easy to detect. A next level for this analysis may be reached through an identification of key relationships, and how they are visualised. Here we enter the field of semiotics (see more on this below). The use of arrows is widely applied in regional and national planning documents. Some sort of exaggeration of the strength of such relationships can often be found (big and bold arrows which – depending on the scale of the map – may be tens of kilometres wide) to substantiate claims for the funding of new infrastructure (see various examples in Davoudi & Strange, 2009)

3.4. Probing the semiotics of maps

Maps created in planning processes usually do not follow clear standards, like (for instance) atlas makers do. For this reason, the possible choices map makers can take are bewildering. Let us discuss a few possibilities (using words) (Zonneveld, 2021a).

A key choice is the frame of the map: where does a map begin or end? What kind of cropping is used? An example of how this might work is a map in the 2001 Dutch fifth spatial planning report which shows

Europe with a range of squares and rectangles on top of each other; each shape, each cropping stands for a different set of planning issues (Ministerie van VROM, 2001: 10-11). So, planning in connection with the North Sea and its coast (OMA, 2008) is about different issues compared with, for instance, a frame which connects the Netherlands with Belgium or the Flanders Region (de Vries, 2015).

Closely connected to cropping or framing is the use of scale. Many maps in strategic plans take an aerial perspective. On an intermediate scale, the projection can be tilted. The bird's eye view, heavily used in urban design, with some famous examples like the 1909 plan for Chicago, mentioned above, as well as Le Corbusier's 1925 Plan Voisin for Paris.

Rotation can also vary. North has become standard, but sometimes the rotation is deliberately turned around. Van Duinen (2021) gives an interesting example taken from Dutch planning discourse. An informal plan for the western part of the country was made to influence political agendas by planners and designers outside the government. This used an image of the Dutch Deltametropolis (framing with words!) but turned it clockwise 90 degrees. The resulting map shows a massive landmass criss-crossed by rivers on one side with a 'seamass' opposite; an interesting combination of cropping and manipulating projection.

The combination of frame, scale, projection, and rotation together is called the 'field' by James Corner, whom we already met above: 'The design and set-up of the field is perhaps one of the most creative acts in mapping, for as a prior system of organization it will inevitably condition how and what observations are made and presented' (Corner, 2011: 94)

Map makers have a lot to choose from when the field is determined. Dots, lines, and planes, as well

as triangles, squares, diamonds, and other shapes belong to the basic graphic language, but even here a lot of decisions can be taken. There are some regularities, however. For instance, cities and towns, depending on scale, are often pictured like circles. Questions which map readers may pose are: which cities are shown? and for what reason? and how big are the symbols? Presumed relations between cities are often visualised through lines, which causes visualisations of urban networks to look like molecular visualisations in chemistry text books. Of course, map readers may (indeed, should!) question the true existence of relationships and their nature.

Other map decisions include the use of colour (see also Dühr, 2007: 80). Questions to be posed: what colours have been used? are the colours strong or pale? do they follow certain conventions (for instance, urban is red, non-urban green) or deliberately do not? is the transition from one colour to another strong or faint? and what suggestions may arise from that? Often, the use of colours (or shading, if the map is grayscale) refers to land use. The map interpreter needs to assess whether the differentiation, as well as the chosen resolution, match reality. Overall, there is a need to analyse the legend (key!) of any map and critically question various legend elements.

Typically, spatial planning maps today are created with computer graphic programs which generally gives them a smooth character. There is one class of maps which is nearly always made by a spatial designer: hand-drawn maps. They have become quite exceptional, however, as many maps in strategic plans are made as the outcome of political discussions, while hand-drawn maps are regularly produced in earlier phases of such discussions, or in informal sorts of plans. Drawing, i.e. holding a pencil, is seen by some (Palmbloom, 2018; Lyn & Dulaney,

2009) as rather powerful because it brings the map maker closer to the design object in a state of 'reflective conversation with the situation' (Schön, 1983).

4. Conclusion

Often, planners (particularly those with a social science background) tend to regard maps and other visuals commonly used in strategic plans and planning reports as mere illustrations which can be ignored or, as we have seen, should even be deleted! Indeed, there are (strategic) spatial plans which do not have any sort of future-looking map. This is not to say that those plans are completely beside the point because, in many cases, such plans (or better, the plan makers) followed a distinct planning principle which we may call the objectives approach. This is an approach which first of all seeks to reach consensus about the underlying goals of spatial planning. When such consensus has been reached, and diffuses across different societal actors and administrative levels, other planning principles come into the picture which focus on particular places and spaces.

The main message of this chapter is that the verbal and visual languages used in strategic plans and plan making form one single storyline. Plan makers, as well as plan analysts, need to focus on the connections between these two languages as well as arrive at a proper understanding of the construction of maps. Students may use the content of this chapter to evaluate plans and come up with recommendations and alternative strategies in their graduation reports. Planning maps are utterly fascinating!

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Winter scene in Delft. Photo by Marcin Dabrowski.



Space Syntax in Spatial Planning

A short introduction to its methods, theory development, and application in practice

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This chapter gives students an introduction to space syntax in spatial planning. The first section gives an overview over various research traditions in carrying out spatial analyses on the built environment and clarify which tradition it belongs to. Various definitions of urban space and spatial elements are given in this part. In the second section, an introduction of various analyses techniques of the space syntax method is given. For urban studies on metropolitan and city scales, axial and segment analyses are presented. In the third section, various techniques for correlating the results from the various space syntax analyses with socio-economic data are demonstrated – methods such as gate counting, static snapshots, and snail trailing. Finally, a presentation of theories and general understandings developed through space syntax research is given. These theories are essential for applying space syntax into urban design and planning with the purpose of evaluating the various spatial and socio-economic impacts of each proposed planning alternative.

SPACE SYNTAX, ANALYSES TECHNIQUES, THEORY DEVELOPMENT, OPTION TESTING

1. Introduction

The spatial properties of the built environment play an active role in the way activities in society take place. However, the spatial drivers are often forgotten during planning processes and discussions. The reason might be that various spatial analyses methods and tools have been undergoing large changes in the last two decades, and software skills are required to conduct these analyses. Moreover, the spatial elements used in the discussions often lacks precision, and therefore becomes un-operational in evaluating and testing out various proposals.

So far, there exist three established research traditions in analysing the physical aspects of built environments: 1) the school of urban morphology, 2) the place-phenomenology tradition, and 3) the urban network tradition. Often their methods and focus overlap. The space syntax method differs from those used in urban morphology and place phenomenology in the way it focuses on the spaces between physical objects and their spatial inter-relationships. Whereas research from the urban morphology tradition focuses on spatial pattern, space syntax researchers deal with spatial structure (van Nes & Yamu, 2020).

In the past three decades, space syntax methods have been applied to urban studies. Originally, the space syntax method was applied in analysing small settlements and buildings (Hillier & Hanson, 1984). Later, more advanced computer programs made it possible to analyse the complex spatial relationships larger cities accommodate. The results from the spatial configurative analyses can be compared with societal activities, like the flow of pedestrians, land use patterns, dispersal of crime, etc. Results

from research have contributed to theories and understandings of how cities are built up spatially as an effect of societal activities and how space is a generative power for societal activities (Hillier et al., 1993; 1998; Hillier 1996; 2016; van Nes 2021; Ye & van Nes 2014; van Nes & Yamu, 2020).

According to Hillier, space syntax in urban studies consists of four parts. Firstly, space syntax has a concise definition of the spatial elements at issue. Secondly, space syntax is a family of methods and techniques for analysing cities as networks of space formed by the placing, grouping and orientation of buildings. These techniques make it possible to analyse how a street interrelates spatially to all other streets in a large city. Thirdly, space syntax provides a set of empirical methods for observing how networks of space relate to functional patterns such as vehicle and pedestrian movement flows through cities, land use patterns, area differentiation, crime dispersal, property prices, migration patterns, and even social well being and malaise. These methods and techniques have been applied to a large number of cities in different parts of the world. A substantial database now exists of cities which have been studied using space syntax. Fourthly, generalisation and theory building derived from the research results of the first two elements have contributed to theories and understandings of how cities are constituted spatially as an effect of social, economic, and cognitive factors and how urban space functions as a generative power for societal and economic activities and cognitive factors (Hillier et al., 2007).

Studying the spatial outcomes of activities in society requires a concise definition of space (Yamu

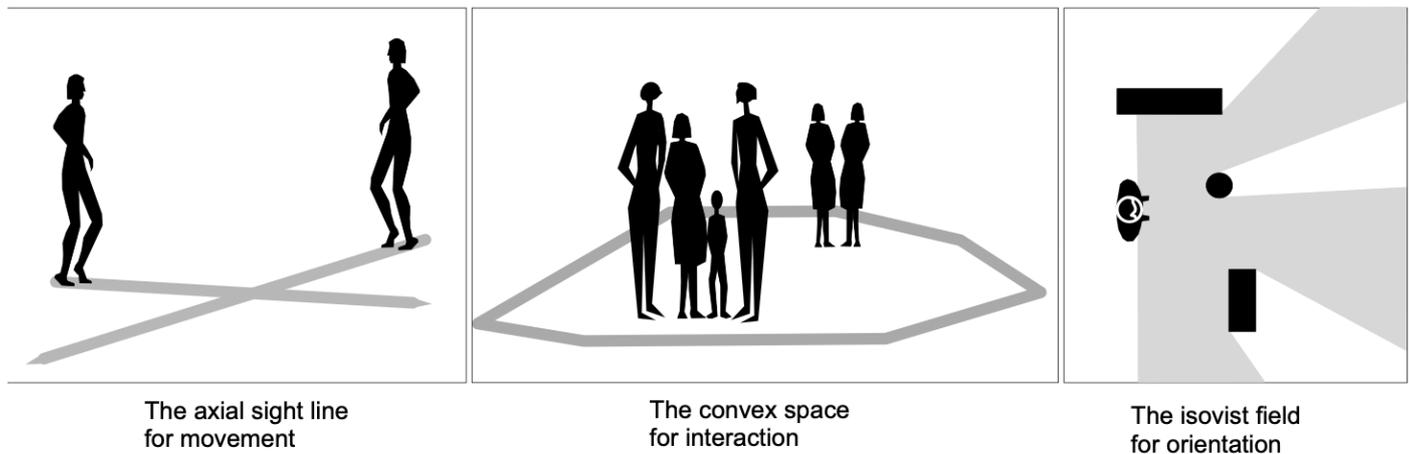


Figure 1: Three basic elements used in space syntax. Illustration by A. van Nes.

et al., 2021). As regards research on built environments, Hillier distinguishes between intrinsic and extrinsic properties of space. Extrinsic qualities determine how spatial units relate to one another; here settlements are regarded as sets of spaces. In this perspective, primarily topological issues become relevant. Volumes, textures, and size are not taken into consideration. When regarded in purely extrinsic terms, spaces are shape-free. It is just their inter-relational aspect or structure that is taken into consideration. In this respect, each space has one or more functions either in terms of occupation or with regard to movement (Hillier, 1999).

Intrinsic properties of space determine both built form and its possible function. While extrinsic properties of space consist in invisible, structural relationships, intrinsic properties relate to visible ones. They depend on aspects of things we can see, i.e. shape, size, volumes, and texture of physical objects or built mass. They present themselves mostly through geometrical properties. They account for the articulation of social meaning via built form (Hillier, 1999). We have many words for describing the extrinsic properties of space. Words like 'narrow street', 'large square', 'massive building', etc. make it possible to describe the artefacts of a city.

It is difficult to describe the extrinsic properties of space with words. Language seems unable to spell out complex spatial relationships. Therefore, abstract models or maps are often used to present or grasp such complex systems of space. These kinds of overall pictures of larger parts of our world seem to be necessary to explain spatial relationships. In the development of the space syntax method, Hillier and his colleagues set forth a number of basic terms suitable to describing intrinsic properties of space in settlements in a rather systematic manner. Hence, describing intrinsic properties of space requires considering the city as a set of spaces.

Being able to compare built environments with one another requires precision regarding the spatial elements used. Space syntax operates with the following three basic spatial elements: 1) axial line, 2) convex space, and 3) isovist (see Figure 1). In urban studies, the axial line is the element mostly used, and will be discussed in a moment.

In terms of how we name things, urban space is recognised being mostly linear. Apart from squares, we dispose of several names for the routes between them. Examples are alleys, streets, roads, avenues, boulevards, highways, paths, pavements, subways,

bridges, stairs, etc. All these kinds of urban spaces shape a network – a potential pattern of movement. The urban street network is defined to be ‘the pattern of public space linking the buildings of a settlement, regardless of its degree of geometric regularity’ (Hillier, 2001: 02.1). Regarding the sort of city maps that tourist offices distribute to visitors, the street network is the most detailed part, important buildings and squares may be indicated on these maps, but not in such a detailed scale as the whole street network.

The rule for building an axial line map of a built environment is to represent the street and road network as a set of the longest and fewest sight lines in a system. The next step is to present the various analytical techniques for calculating spatial interrelationships.

2. The space syntax analyses techniques

Independent from cultures and architecture, all built environments have the fact in common that they consist of private and public spaces. Public spaces are open to movement, from everywhere to everywhere. Private spaces are those inside buildings and gardens and connected to the public ones in differing degrees. In urban studies, the focus is on analysing the public spaces of a built environment.

Up to 2005, the most used calculations were the global and local axial integration analyses. It consisted in calculating the total number of direction changes from each axis to all other axes (global integration analysis) and to its direct neighbour axes (local integration analyses). The global and local

integration analyses is able to show how spatially integrated or segregated a street axis is in relationship to all others. Thus, the more integrated a street, the shorter topological distance it has to all other streets. Likewise, vice versa, the more segregated a street, the longer topological distance to all other streets.

Around 2005, the angular weighting of the lines and metrical distances were taken into account in the spatial analyses (Hillier & Iida, 2005). In order to conduct the angular analyses successfully, the axial map needed to be broken up into segments at every junction. There is a function in the Depthmap software that converts axial maps to segment maps (van Nes, 2020). In addition, the segment length is now taken into the calculations. When applying metrical radii, it is possible to analyse the degree of spatial integration of a segment within a radius of 500 meters, 5,000 meters, etc. As it turns out, the results from the segment analyses with these new measurements had a much stronger correlation with the pedestrian flow data than the axial integration analyses. Even though the axial map is still the basis for all space syntax analyses, there are currently experiments going on to use the road centre lines from GIS files for processing the segment-based analyses (van Nes & Yamu, 2021).

On the one hand, space syntax measures the to-movement, or accessibility potential of each street segment with respect to all others. On the other, it measures the through-movement, the potential each street segment has with respect to all others. Each of these types of relational patterns can be weighted by three different definitions of distance. The metric distance measures the city’s street and road network as a system of shortest length paths, while the topological distance calcu-

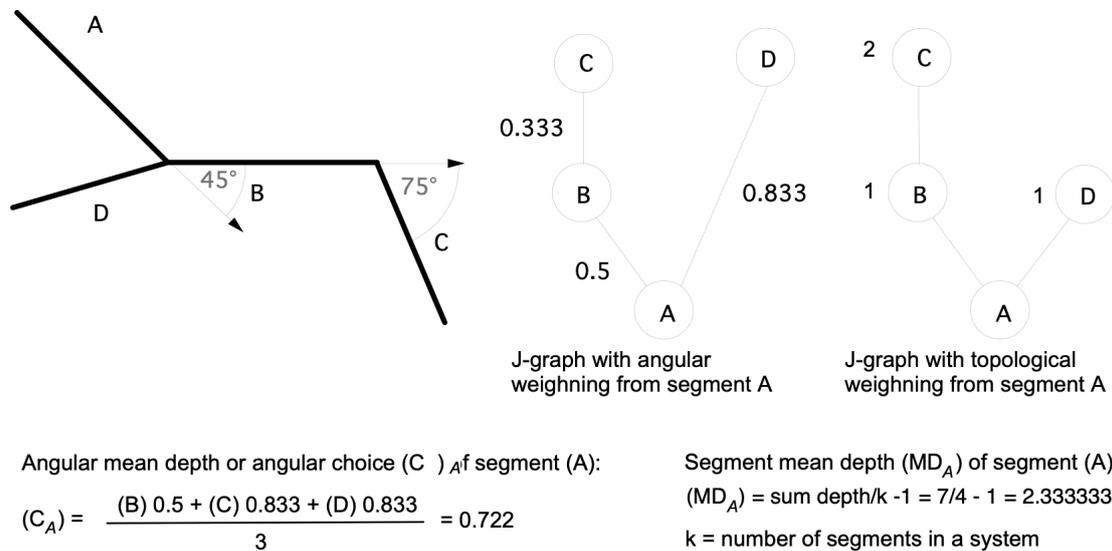


Figure 2: Two different justified graphs describing the spatial relationships of four street segments. Illustration by A. van Nes.

lates the city’s street and road network as a system of fewest turns paths. Finally, the geometric distance gives a picture of the city’s street and road network as a system of least angle change paths. Each type of relation can be calculated at different radii from each street segment, defining the radius in terms of shortest length, fewest turns, or smallest angle change paths (Hillier & Iida, 2005: 557-558).

The basis of space syntax is built upon graph theory. Figure 2 shows two different weightings of the spatial inter-relationships of four streets. Here, each graph presents how street segment A is related to B, C, and D, in terms of angular weighting and segment direction change. These two different calculations show the basis for the through-movement and to-movement potentials of a street and road network.

For showing the difference between a high and a low metrical radius, Figure 3 (left) shows an angular choice analysis of the city of Delft in the Netherlands with a high metrical radius of 5,000 meters. The highest integrated streets are colour-

ed in orange and red. Here, the main routes running through and between various urban areas are highlighted. These routes have the highest through-movement potentials on a city scale. Figure 3 (right) shows an angular choice analysis of Delft with a metrical radius of 500 meters. Now the most vital pedestrian areas are highlighted, which shows the through-movement potentials on a local level.

Regarding the to-movement potentials, Figure 4 shows a segment integration analysis of Delft with a high metrical radius of 5,000 meters. Here, the main centre with the largest to-movement potentials on a city scale is highlighted. In the case of Delft, the car-based shopping centre in the modern areas of Delft are highlighted. Figure 4 (right) shows a segment integration analysis of Delft with a metrical radius of 500 meters. Here, the various local centres are highlighted, which shows the to-movement potentials on a neighbourhood level. And here, the old city centre of Delft is highlighted.

When comparing all these four maps with one another, the historic centre has the highest



Figure 3: Angular choice analyses of Delft with a metrical radius of 5000 meters (left) and 500 meters (right). Maps by A. van Nes.

through-movement on the city as well as the local scale. A main route runs through the centre and is well connected to local streets that have high values with a low metrical radius. Conversely, the modern city centre has high values on both the choice and

segment integration analyses on a city scale level. However, on a local level, the streets have low to- and through-movement potentials for pedestrians.



Figure 4: Segment integration analyses of Delft with a metrical radius of 5000 meters (left) and 500 meters (right).

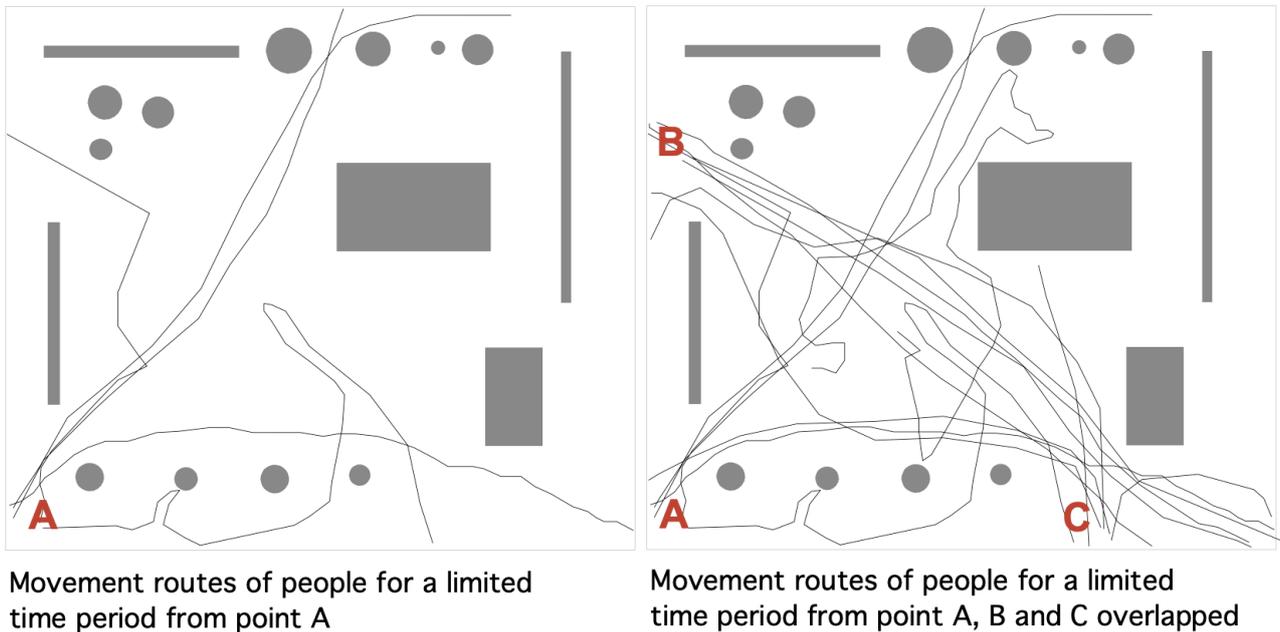


Figure 5: Example on snail trailing. Illustrations by A. van Nes.

3. Correlating spatial analyses with socio-economic data

Registering where and how people behave in urban spaces contributes to an understanding of the spatial conditions for certain kinds of human behaviour in the built environment. Whereas methods in the social and behaviour sciences are lacking spatial analysis tools, a space syntax approach can analyse the spatial set-up independently of the registration of human behaviour. In many cases, the results from the space syntax analyses can be correlated with various socio-economic data, such as land use prices, distribution of crime, location of commercial activities, distribution of various urban functions, etc. (the list is endless). Here in this section, three well-known methods for gathering primary data on human behaviour in urban space are presented.

So far, the most commonly used method is bar-counting. It consists in registering the flow of human movements through all streets in an area. One way is to make a 'bar' on each street segment and register the number of pedestrians, bicycle, and cars passing through it for five minutes. One or two hours later the flow of people is recorded for five minutes again at the same bar. This way gives indications of the number of people for the next one or two hours. The two-hour time slots are mostly used between 8 a.m. & 8 p.m. Naturally, the choice of time slots depends on the research question at issue (van Nes & Yamu, 2021). The bar-counting method has been applied to provide evidence that highly integrated streets consist of high flows rates of human movement (Hillier et al., 1998: 59), while highly segregated streets have low number of people frequenting them (Hillier et al., 2007).

Snail trailing consists in 'stalking' randomly chosen persons and tracing their movement routes in

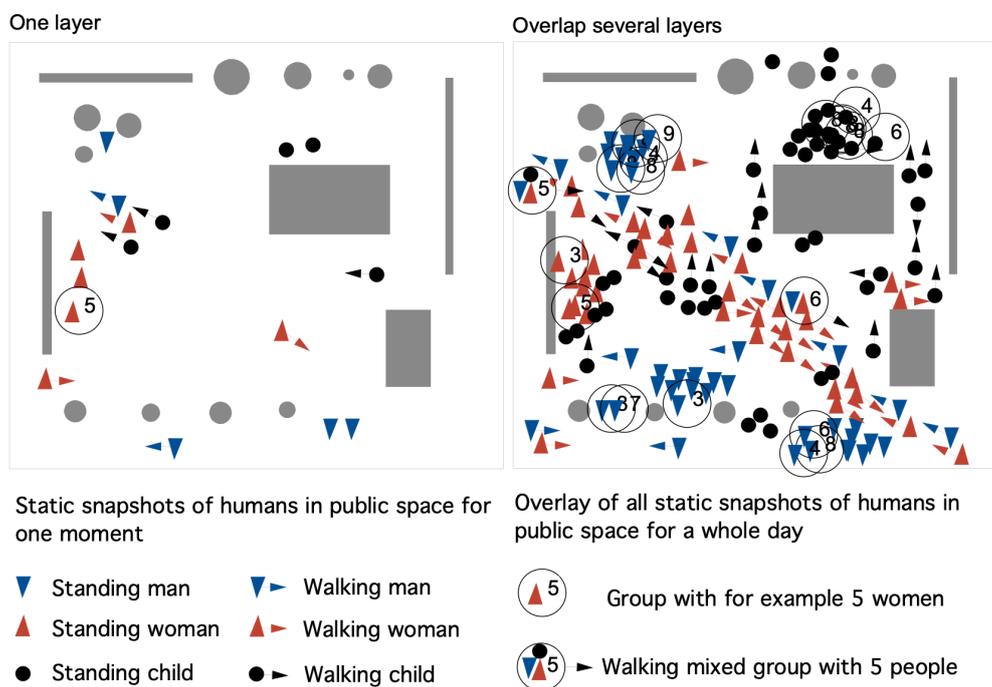


Figure 6: Example on static snapshots. Illustrations by A. van Nes.

a built environment in a given time period. When finding out where people move or which direction they prefer to choose when they exit, for example a railway station, different persons can be followed for 10 minutes, for example. After tracing the movement patterns of, say, 60 different persons, a certain structure of a movement pattern will emerge on a map (van Nes & Yamu, 2021). The snail trailing method (see Figure 5) is mostly used for visualising people’s movement pattern in relationship with the spatial set-up in built environments.

Finally, the static snapshot method (see Figure 6) is an effective method for registering human beings’ various types of social interactions in urban spaces. It is carried out in the following way: at a given moment the places where people sit, stand, and walk in a street or a square are registered on a map. One or two hours later the same registration is done on the same location. Like the bar counting, static snapshots can be done within different time

periods. Later, all the registrations can be plotted on one map. A difference can be made between gender, ethnicity, and age. Likewise, a registration of where people sit, stand, or walk can be added. It all depends on the size of the area, the available time, the scale, and the proposed research question. Overlaying the registrations from the static snapshots gives an overview over which areas of a square, park, or in a housing estate are most or least used, and how different types of people use urban space (van Nes & Yamu 2021).

The results from the snail trailing and static snapshots can be used in statistics for correlation between human behaviour in urban space and the various integration values from the spatial analyses.

4. Theory development

Space syntax develops constantly. New development in computer sciences allow for improvements to the formal application space syntax tools relies on. In particular, the increasing number of context dependent case studies calls for a refined application and adequate interpretation of space syntax methods. Continuous research and its lasting results depend on methodologically reliability and on a systematic account of the conditions under which the claims could turn out to be false. This is what theory development on built environments is dependent on, and hence, how various space syntax methods has been improved and developed during the last three decades.

While disciplines like sociology were well-established during the last century, theory development and understandings on the role of the spatial components in the field of urbanism is in its beginnings. There is a lot that still needs to be done in terms of refinements of the definition of spatial components, empirical testing, and making generalisations and theories applicable in urban design and planning.

The application of space syntax has contributed to an understanding of the spatial structure of the city as an object shaped by society on the one hand and, on the other, how this object can generate or affect certain socio-economical processes in society. To some extent, space syntax is able to predict some types of economic processes as an effect on urban interventions (van Nes, 2007; 2021; Kayvan, 2012). Likewise, space syntax provides understandings on the spatial possibilities for certain social activities such as crime (van Nes & López, 2010; Hillier & Salbaz, 2005), social segregation (van Nes & Agh-

abeick, 2015), and anti-social behaviour (Miranda & van Nes, 2020). It is all about how spatial integration and segregation conditions social integration and segregation.

Results from systematic space syntax research has contributed to three descriptive theories that are able to explain the relationship between cause and effect: 1) the theory of spatial combinatorics (Hillier, 1996, Chapter 8), 2) the theory of the natural movement economic process (Hillier et al., 1993), and 3) the theory of the natural urban transformation process (Ye & van Nes, 2014).

The theory of the spatial combinatorics is based on four principles that are connected to the geometry of urban blocks, to where they are placed in space, and in what kind of street they are located. Together with the placements of physical objects in urban space they influence the degree of inter-accessibility, which is again connected to degree of centrality, urbanity, or anti-urbanity of an urban system.

The four principles are: 1) principle of centrality: a centrally placed object in a public space increases the topological depth more than one placed at the edge, 2) principle of extension: partitioning a longer line (or street) increases topological depth more than partitioning a short line, 3) principle of contiguity: large, continuous urban blocks increase topological depth more than smaller, separate ones, and 4) principle of compactness: straight long buildings increase topological depth more than 'curved' long ones.

As regards the theory of the natural movement economic process, the configuration of the street network influences the movement rates through an urban street network and where economic activities take place. Attractors, such as shops and large

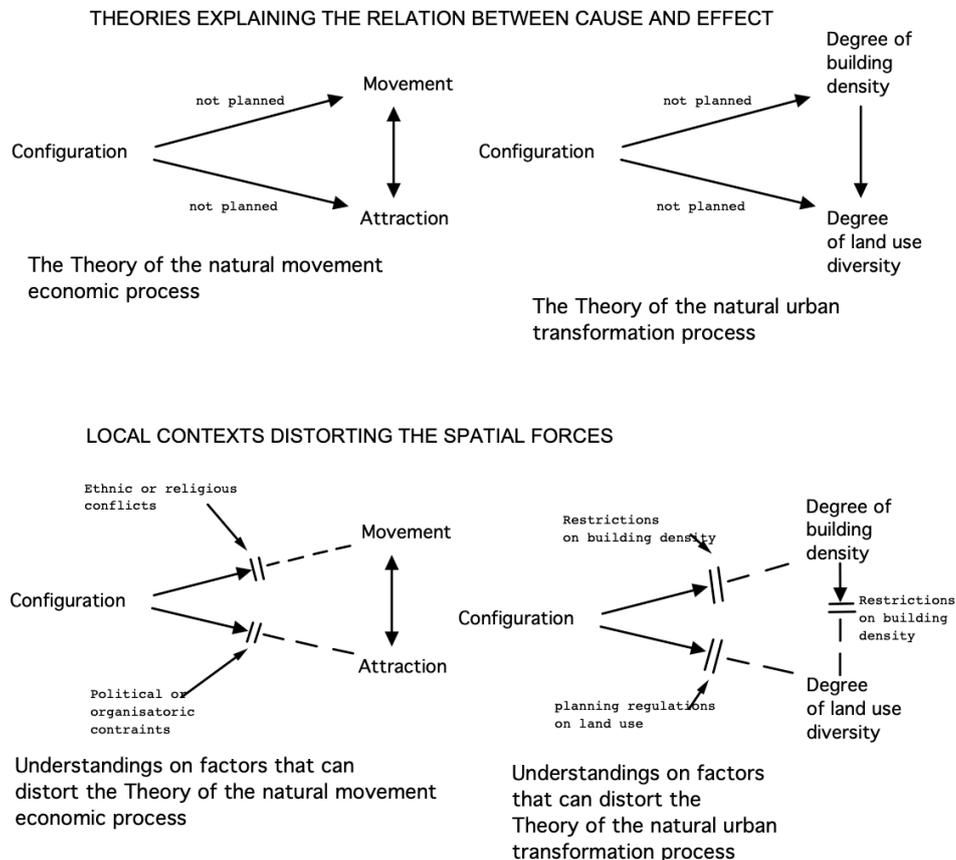


Figure 7: Two space syntax based theories and their distortions. Diagrams by A. van Nes.

firms, tend to locate themselves along the most integrated streets (Hillier et al., 1993: 31). The more people in a street, the more it attracts shops to locate along these streets. The more shops locating along a street, the more they attract people into this street. It gives a multiple effect process. After all, movement and attractors do not influence the street network’s spatial configuration, it is the street network’s spatial configuration that affects the flow of movement and the optimal location for economic activities.

The theory of the natural movement of economic process provides the basis for the theory of the natural urban transformation process (Ye & van Nes, 2014). This theory states that the spatial configuration of the street and road network influenc-

es the degree of building density and the degree of multi-functionality of land use. The higher the overall spatial integration of the mobility network on various scales, the higher the building densities (both for the Floor Space Index (FSI) and Gross Space Index (GSI)) and the higher the diversity in land use. Seemingly, the spatial configuration of the street network, as the foundation for steering urban transformations, influences the degree of building density and land use diversity. Likewise, the degree of building density influences in the long term the degree of land use diversity. This theory contrasts with current planning practice in the United States and in several European and Asian countries (van Nes & Yamu, 2020).

Sometimes there might be distortions on these

abovementioned theories. Shops do not always locate themselves along the highest integrated street, and therefore the local planning context needs to be investigated in these cases. Likewise, the flow of human movement does not always correspond with the degree of spatial integration. This yields a representation of the local cultural or political context. Highly integrated urban areas do not always have a high degree of building density or a high degree of land use diversity. Likewise, high building density does not always entail multi-functional land use (van Nes & Yamu, 2020). Figure 7 shows the distortions in the theory of the natural movement economic process and the theory of the natural urban transformation process. Gaining understandings of all of these distortions depends on each local or national context. There might be rigid restrictions on the local planning regulations, restrictions from conservation authorities, or laws and rules that block the desired intentions in the planning process. These aspects have to be taken into account when the results from the spatial analyses do not correspond with the results of socio-economic data.

5. Conclusion: the application of space syntax in urban planning and design practice

When applying space syntax into strategic spatial planning and urban design practice, one has to solve the spatial arrangement before the urban form. Regarding space syntax theories, the mobility network is the spatial armature of a built environment. Already some urban renewal projects have been implemented with the space syntax method. The most well-known example is the renewal of Trafalgar Square in London

(Dursum, 2007).

First of all, the present situation has to be analysed and correlated with the relevant socio-economic data. The space syntax method is able to describe the spatial features of a present urban context. Then the next step is to test out various options and to describe the spatial potentials for each proposed solution. It is about asking what happens if we do this or that.

Consider if we want to improve the connection between the modern shopping centre and the TU campus in Delft by adding one line. What would happen if we make this new connection over the canal? Figure 8 shows a before and after situation. Here the segment analyses with a high metrical radius is used to test out the impact of the to-movement potentials. As can be seen on the map, this link will improve the to-movement potentials on a city scale on the campus as well as the modern shopping centre. However, on a local scale, no changes can be seen. The reason is that both areas lack a fine-grained and well-connected street network on the local scale.

Using space syntax in spatial planning consists in presenting the spatial outcomes of each proposed alternative and to discuss the advantages and disadvantages for each planning proposal. The spatial impacts, as well as to some extent economic and social impacts can be predicted for each proposal (Yamu et al., 2021). This gives a platform with less need for guesswork about the various impacts before each alternative is proposed for discussion with various stakeholders, NGOs, and other participants in the planning process. In the United Kingdom, space syntax has turned out to be a useful tool in the decision-making process for several urban renewal proposals. The most famous examples being the location of the Millennium Bridge and the regeneration of Kings Cross in London.



Figure 8: Before (left) and after (right) situation of a new bridge. Maps by A. van Nes.

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Street scene in Amsterdam. Photo by R. Rocco.

Regression Analysis

Quantitative exploration of interactions between the built environment and spatial behaviour

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In many graduation projects in Spatial Planning and Strategy (SP&S), empirical research and spatial design are intertwined. This chapter introduces regression analysis; a 'family' of related models of quantitative statistical analysis in empirical research. It is very appropriate to study interactions between the built urban environment and people's spatial behaviour in a project location at a high level of quantitative precision. The outcomes of such quantitative studies can be very useful in urban design or planning, either in preliminary empirical research, i.e. prior to design, or in the iterative cycles of Research by Design. There are several types of regression models; which one is most appropriate for your project (if any) depends on the specific questions about that interaction you want to answer, and on the empirical data that is available for that answer.

**REGRESSION ANALYSIS, QUANTITATIVE METHODS, SPATIAL BEHAVIOUR,
SPATIAL QUALITIES**

1. Introduction

As a student (or practitioner) in Spatial Planning & Strategy (SP&S), you might plan to study the interactions of the built environment and people's spatial behaviour in an urban area. Most students use a broad kaleidoscope of methods to collect and analyse data on these interactions, including literature review, interviews, on-site observations, policy analysis, case studies, and mapping. With the aim of 'deep understanding' of processes that influence these interactions in their project areas, they usually assess obtained data at face value in a qualitative manner.

For sure, these analyses yield insights for interventions in built environments to better adjust their qualities to people's behaviour. Great! that is what spatial planning or urban design graduation projects are about! But these analyses rarely lead to detailed insights on the variety of spatial behaviour by different groups of (potential) users in that built environment. Not uncommonly, there is only some implicit notion of an undefined 'average user'. Hence, spatial interventions based on such implicit notions are not optimal from the perspectives of most users.

This chapter presents various models of a specific type of statistical technique, regression analysis, that you can use to study spatial behaviour by users of the built environment, at a high level of quantitative precision. This behaviour can be either revealed or stated, i.e. being either actually displayed or planned intentional behaviour. To study these different types of behaviour, regression analysis can fit in different stages of your project; either in empirical research prior to design or in the iterative cycles of research by design. Regression analysis is being

used, yet in many different academic fields it appears rather unknown among graduates (and even practitioners) of SP&S. That is a missed opportunity because it can yield key knowledge that you can use for appropriate spatial interventions.

This chapter starts with sections two and three that present elementary features of the data that is required for regression analysis. Next, sections four and five discuss two key principles of regression analysis: 1) it explores causal relations, such as qualities of the built environment as explanation of people's spatial behaviour, and 2) it reaches conclusions on these causal relations for an entire population based on analysis of only a subsection (sample) of cases from that population. If you are primarily interested in the types of research findings that regression analysis provides you can skip sections two to five. Section six presents the simplest model to explain the essence of regression analysis. Next, sections seven to nine present more advanced models by means of examples of their application taken from literature. If you are afraid of the word 'statistics', do not worry, there is no reason to fear the word. Any mathematical explanations as to the basis of these models is limited to a basic minimum. Finally, section ten summarises in a very general manner the practical usefulness of regression analysis for spatial interventions by urban design or planning. But in spite of its usefulness, it ends with the conclusion that regression analysis is just one among various methods, including qualitative ones, that are required in complex multidimensional graduation projects.

Case ID	Age ratio	Gender nominal	Education ordinal	Place of Residence nominal	Frequency of Visits ratio
1	12	1	1	2	4
2	23	2	2	1	2
3	47	2	2	1	5
4	21	2	2	1	1
5	34	1	3	2	0
6	25	1	1	3	4
7	60	2	3	1	6
8	18	1	2	1	2
9	57	1	2	1	5
10	25	1	3	1	3
11	35	2	1	2	1
12	42	2	2	3	0
13	15	1	1	2	0
14	52	1	3	2	4
15	29	2	3	1	2
...

Table 1: Structure of the SPSS dataset.

2. Database

Regression analysis requires an adequate quantitative database. This database has the form of a matrix: it consists of rows, columns, and cells (see **Table 1**). These three elements correspond to the fundamentals of a database: cases, variables, and values. *Cases* are the individual members of the population in your project that are in the sample. They represent the *unit of research* of the project. In SP&S graduation projects, the unit of research is mostly either built-up areas in the city – for instance postal code areas – where spatial behaviour takes place, or the individuals who practice spatial behaviour in these areas.

The *variables* in the database are the features of the unit of research that are relevant in the project. In the case of built-up areas, variables can be building density, building typologies, population

size, available amenities, or level of liveability. In the case of individuals as units of research, variables can be socio-demographics like age, income, and educational level, use of amenities at specified hours, or frequency of visiting the postal code areas in the project location. Finally, a *cell* is the intersection of a specific column and row that contains the *value* of the variable in the column measured for the case in the row.

Statistical analyses like regression are mathematical operations that require numerical data. Therefore, all values in the database are encoded by a number even when the corresponding variable is not numerical in nature. For example, the codes of gender in **Table 1** (names of variables in this chapter are in capital letters) are 1 = male and 2 = female. The mathematical operations are carried out by statistical software. A rather user friendly and comprehensive package that is often used by researchers in social sciences, SPSS, is useful for SP&S graduation projects.

	Nominal categorical	Ordinal categorical	Interval continuous	Ratio continuous
Order of values	No	Yes	Yes	Yes
Distances between values	No	No	Yes	Yes
Zero point	No	Yes/No	No	Yes
Examples	Gender Province of residence	Type of education Spatial entity	Temperature	Population size Areal surface Annual Income

Table 2: Scale of measurement of variables.

3. Types of variables

One essential feature of the variables that are included in the analysis – their *scale of measurement* – is critical for the choice of the appropriate regression model. There are four different scales of measurement: nominal, ordinal, interval, and ratio. They differ in three aspects: 1) the indication of order (ranking) of values, 2) distances between points on the value scale, and 3) meaning of the zero point on that scale (see **Table 2**). The scale of measurement of each variable in **Table 1** is mentioned at the top of its column.

Nominal variables are *categorical*. The values of nominal variables take on only a few possible discrete categories in words or names. Examples in **Table 1** are gender and province of residence in the Netherlands, e.g. Groningen, Zeeland, or South Holland. There is no order of these values in terms of large versus small or more versus less. Further, nominal values have no unit of measurement, like € or \$ of the variable annual income. Without a unit of measurement, calculations with values are not possible and, hence, quantitative distances between values cannot be computed. Finally, the value scale

of nominal variables has no zero point. After all, that would mean that a case (person) has no gender or lives in no province.

Ordinal variables are also *categorical*. But unlike nominal variables, the values of ordinal variables have an indication of order: a secondary level of education is higher than a primary but lower than a tertiary level (**Table 1**). But distances between these values cannot be computed in numerical terms. Some ordinal variables have a zero point (like Level of Education) but most have not. A common type of ordinal variable is measured on a Likert scale, for instance, a five-point scale on which people score their satisfaction with quality of public space in their residential neighbourhood: 1) very dissatisfied, 2) dissatisfied, 3) neutral, 4) satisfied, 5) very satisfied. Mind that neutral is not a zero point!

Whereas nominal and ordinal variables have to be encoded by numbers to be included in statistical analysis, *interval* and *ratio* variables are *numerical* by nature. There is a difference between these two types (**Table 2**) but that is irrelevant for the choice of the appropriate statistical technique. Therefore, SPSS does not distinguish between them and takes them together as *scale variables*. Scale variables are *continuous*: whereas nominal and ordinal variables take on only a few discrete values, interval and ratio

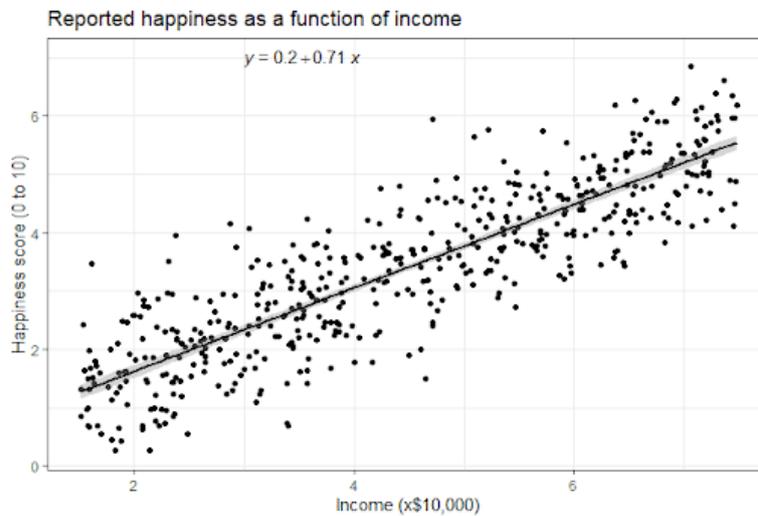


Figure 1: Linear regression of Income on Happiness. Source: Bevens, R. (2020), *Simple Linear Regression | An Easy Introduction & Examples*, Scribr, Statistics. Retrieved from: <https://www.scribbr.com/statistics/simple-linear-regression/> Printed with permission.

variables can take all possible values on a continuum: natural numbers or even decimal places. In addition, scale variables have an explicit unit of measurements: number of residents, square kilometres, and currency (e.g. €, £, \$ for the examples in **Table 2**). Due to their units of measurement, values of scale variables have an unambiguous order and distances between these values can be computed precisely.

4. Causality

Regression analysis is a type of statistical analysis that explores causal quantitative relationships between variables. In statistics variables in a causal relationship are habitually expressed by X and Y: X is the independent (cause) and Y the dependent variable (effect). In the conceptual model of research projects, the causality is presented by an arrow from X to Y. A conceptual model is a scheme that presents the set of supposed (!) causal relations between all variables that are selected by the

researcher. Regression analysis, then, will test these relations: do they occur, how strong are they and are they positive or negative? It is recommended in quantitative research of causal relations to sketch a conceptual model of these relation. **Figure 2** shows the conceptual model that can be tested by a basic regression model of one depend-

ent and independent variable (section 6). Figures 3 and 4 contain more independent variables: they represent conceptual models that could be but are not included in the papers by Lu et al. (2019) and Li et al. (2015). These two papers are used to illustrate two more complex regression models that the basic one (sections 7 and 8).

Causality means that changes in the values of X result in a systematic increase or decrease of the values of Y. Imagine level of education and annual income: in the causal relation between these two variables level of education is X and annual income is Y, not inversely. In the case of four-digit postal code areas in inner cities as a unit of research, a causal relationship might be found between the proportion of total length of streets that are Pedestrian Only (X) and the Degree of Liveliness (Y). As section seven shows, this is only possible when the broad concept Degree of Liveliness is first operationalised by a single measurable quantitative indicator.



Figure 2: Conceptual model of basic regression model

Individuals with the same level of education rarely have exactly the same annual income. But to make regression analysis worthwhile, a certain trend of systematic association between the values on both variables of all cases has to be visible in a scatterplot. Each dot in the scatterplot in **Figure 1** presents the score of one case (an individual person) in the sample on two variables (Level of Education and Annual Income). Regression analysis estimates both the strength and the direction of causal relationships between variables. The more narrow the point cloud in a scatterplot, the stronger the relationship between X and Y. The direction of the cloud indicates if the relationship is either positive (upward from left to right) or negative (downward). The relation between education and income in **Figure 1** is positive: an increase in educational level causes an increase of income.

5. Inferential statistics

Sometimes ready-to-use databases can be obtained from (semi-)public institutions. If that is not available for your project, you unfortunately need to gather data yourself. That is mostly done by means of a self-prepared survey (questionnaire). Most often the survey has to be conducted with a sample of respondents from the population by means of a well-considered sampling procedure. A sample is inevitable either when the population is too large to be included entirely in the survey or when the population is unknown, i.e. when you can't know exactly who does and who does not belong to it prior to the

questionnaire. The entire adult population of a city is too large for a survey and the population of visitors of an urban tourist bubble on a predefined day in the holiday season is unknown in advance.

Regression analysis is an inferential statistical technique: it infers quantitative properties of the entire population from the data obtained with the sample. In statistical language, such an inference is called an estimation. A sample of, say, 500 adults from the civil registry of Amsterdam already yields pretty accurate estimations of the strength and direction of causal relations between variables in the entire population of the city.

6. Basic regression model

The basics of regression analysis can be best explained by the *binary linear model* (equation 1). This model contains one dependent (Y) and one independent variable (X). Both are scale variables and the relation between them is assumed to be linear, meaning that the regression function that defines the model is a straight line. The key numerical parameters of the model are the constant or *intercept* (a) and the *regression coefficient* (b). The third parameter, the *prediction error* (e), is key in the mathematical process of estimation of a and b but can be ignored here.

$$Y = a + bX + e$$

(Equation 1)

Take for the example the relation between the two scale variables level of education (X) and annual income (Y) of **Figure 1**. The unit of scale of X is the number of completed years of education starting

with the first year in secondary level and that of Y is €10,000/year. **Figure 2** shows the conceptual model of this relation.

The parameters of the regression line in Figure 1 are estimated by statistical software, such as SPSS: $a = 0.2$ and $b = 0.71$ (equation 2).

$$Y = 0.2 + 0.71X$$

(Equation 2)

The regression coefficient b predicts the increase of Y if X increases by one unit on its value scale, i.e. one more year of secondary or tertiary education causes an increase of income by € 7,100/year. The intercept a is the value of Y for $X = 0$: a person with less than secondary education has an estimated income of only € 2,000/year, reflecting that it is most probably earned by an unskilled job. As said, a regression line can also be defined by a negative value of b . In that case, increases in X causes decreases in Y.

7. Multiple linear model

The multiple linear regression model (equation 3) is an extension of the basic model with additional independent variables. A regression analysis includes one and only one dependent variable Y, but the number of independent variables (X_1 to X_n) is limited for practical rather than theoretical reasons. In the multiple linear model, Y is also a scale variable. The independent variables X_1 to X_n are often scale variables but can also be ordinal or nominal.

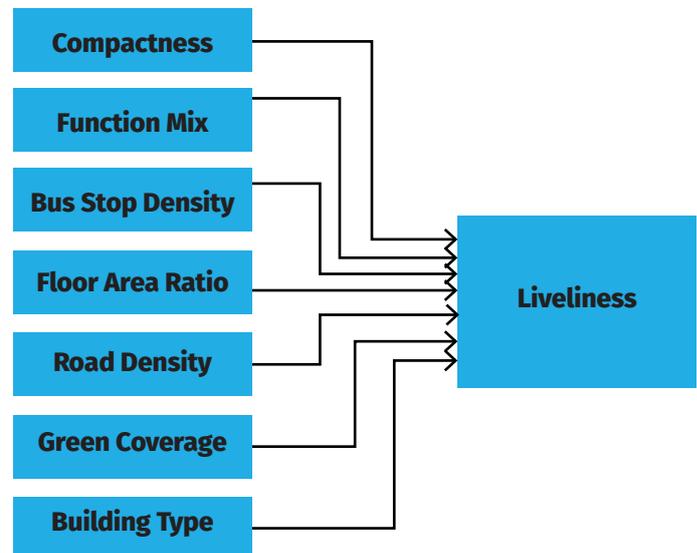


Figure 3: Conceptual model for Lu et al. (2019).

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_nX_n$$

(Equation 3)

Multiple linear regression is explained here by an edited version of the output of a study by Lu et al. (2019). The study analyses the impact of seven features of the built environment (X_1 to X_7 ; **Figure 3**) of the inner city of Beijing on its liveliness (Y).

The cases are 113 RPMUs (Regulatory Planning Management Units); small areas in Beijing's inner city. Liveliness is a multidimensional concept that includes, for instance, available amenities, numbers of people out on the streets and outdoor activities. Because there can be only one Y in regression analysis, the authors choose the scale variable Number of Check-ins on the micro-blog *Sina*, a major social media platform in China. This variable indicates human behaviour. The locational data of check-ins that is required to know in which RPMU people exactly check in is accurate to a single meter. The sample of check-in data covered the first week of

Independent variables	Scale of measurement	Standardized regression coefficients
Compactness index	ratio	-2.09
Function mix index	ratio	1.25*
Bus stop density index	ratio	1.63*
Floor area ratio	ratio	0.46*
Road density index	ratio	0.05
Green coverage index	ratio	0.03*
Building type	(nominal)	
office towers	dummy	-0,95*
modern shopping	dummy	1,25*
Adjusted R ²		0.52

* p < 0.10

Table 3. Output of linear regression of built environment features on urban vitality, Beijing. Based on Lu et al. (2019), authors' adjustments.

September 2016 and amounts to a total of 124,658 recorded check-ins spread across the 113 RPMUs.

Table 3 presents the key data of the regression analysis: regression coefficients of the independent variables, the level of statistical significance of each independent variable (the asterisks with its coefficient) and the 'explanatory power' (Adjusted R²) of the seven independent variables together. The intercept is not included in the Table. It depends on the research question how relevant the intercept is, but mostly it tells nothing really relevant.

Each regression coefficient estimates the impact of the corresponding independent variable on the number of check-ins while controlling for all other independent variables. Controlling means holding these other variables constant. Note that the regression coefficients in **Table 3** are standardised. Standardisation is a mathematical operation that makes the magnitude of impacts of all X on Y comparable, i.e. independent of their distinct value scales. They allow to conclude that the compactness

index has the strongest negative (-2.09) and bus stop density the strongest positive (1.63) impact on the number of check-ins. Furthermore, the impacts of road density and green coverage are positive but very limited in strength.

Crucial for the interpretation of a regression coefficient is the asterisk with it. **Table 3** shows that the coefficient of each independent variable has one, except com-

compactness index and road density index. An asterisk shows that the regression coefficient is *statistically significant*. Statistical software estimates a value, the *p-value*, for each independent variable that indicates the probability that the impact of that variable on Y occurs not by a true effect in the population but 'by chance'. 'By chance' is possible because the estimation of the coefficient is based on only a sample of cases from the population. A lower p-value means a higher probability of a true effect in the population. The researcher her- or himself decides on the maximum *p-value* that (s)he accepts. These are commonly either 0.10, 0.05 or 0.01, meaning that (s)he can be respectively 90%, 95%, or 99% sure that the independent variable in question has a true effect on Y in the population. Lu et al. (2019) decided to put that threshold at the 0.10 level (p < 0.10). Because inferential statistics infers quantitative properties of the population on the basis of a sample, this threshold cannot be as low as p = 0.00,

i.e. 100% certainty.

Adjusted R^2 indicates the explanatory power of the regression model. In statistical terms, the higher adjusted R^2 the higher the proportion of the variance of Y , a statistical measure for variation of it, that is explained by the set of independent variables. The value 0.52 in **Table 3** means that 52% of the variance of the number of check-ins across the RPMUs is explained by the seven selected independent variables. This may seem a disappointingly low proportion but the explanation of more than half of its variance by only seven features of the RPMUs built environment is in fact a good result! The value of the adjusted R^2 increases with the addition of more explaining independent variables. The value 1.00 means that all explaining independent variables are included in the model: an ideal but highly unlikely situation.

Independent variables in multiple linear regression models can be nominal and ordinal. To estimate their causal effects on Y , these have to be transformed into dummy variables or *dummies*. A dummy is a categorical variable with the values 0 and 1. A nominal or ordinal variable with n categories (values) is converted into $(n-1)$ separate dummies. The remaining category is the *reference category*. In **Table 3**, the nominal variable 'building type' indicates the dominant building type in an RPMU. It has three categories: traditional residential buildings, office towers, and modern shopping streets and mall. If we define traditional residential buildings as a reference category, the two $(3-1=2)$ dummies estimate the effect on the number of check-ins of, respectively, office towers and modern shopping spaces as dominant building types relative to that of the reference category. With 1,000 check-in records on *Sina* as unit of scale, the regres-

sion coefficient -0.95 of office towers predicts 950 records less in RPMUs dominated by office towers than in RPMUs where old residential buildings are dominant. On the other hand, the regression coefficient 1.25 predicts 1250 records more in RPMUs dominated by modern shopping spaces. Hence, RPMUs dominated by office towers are less popular and RPMUs dominated by modern shopping spaces are more popular to visit than those dominated by traditional residential buildings.

8. Logistic regression model

In the logistic regression model, the dependent variable Y is a categorical one, usually nominal. In case it has two values, logistic regression is binary and if it has more than two values it is *multinomial*. This section is about the binary one. Equation 4 shows its basic model. The two values of the nominal dependent variable are coded 0 and 1.

$$\ln(p_1/p_0) = a + bX + e$$

(Equation 4)

The term $\ln(p_1/p_0)$ that serves as the dependent variable is a *logit*: i.e. the natural logarithm (\ln) of a probability ratio. In Equation 4 this is the ratio of the probability that a case in the sample scores the value 1 of the dependent variable (p_1) divided by the probability that it scores 0. A probability is a number between 0 and 1 (Equation 5) and p_0 and p_1 are mutual exclusive (Equation 6).

Independent variables	Type	B	Exp(B)
Presence in 500 m radius around hotels			
Commercial Floor Space (x 1000 m ²)	ratio	.98**	2.66
Number of Metro Stations	ratio	-.02	0.98
Land Use Mix Index	ratio	.54*	1.72
Number of Cultural Attractions	ratio	-.15	.86
Number of Shopping Attractions	ratio	.85**	2.33
Topography			
False flat	dummy	-.21	.81
Hilly	dummy	-.95	.39
Steep gradients	dummy	-2.18**	.11
Nagelkerke Pseudo R ²		.232	.269

** significant at 0.05

* significant at 0.10

Source: based on Li et al. (2015) authors' adjustments

Table 4: Output of logistic regression of features of built environment on hotel location, Hong Kong. Source: based on Li et al. (2015) authors' adjustments

$$0 > p_0 > 1$$

(Equation 5)

$$p_0 = (1 - p_1)$$

(Equation 6)

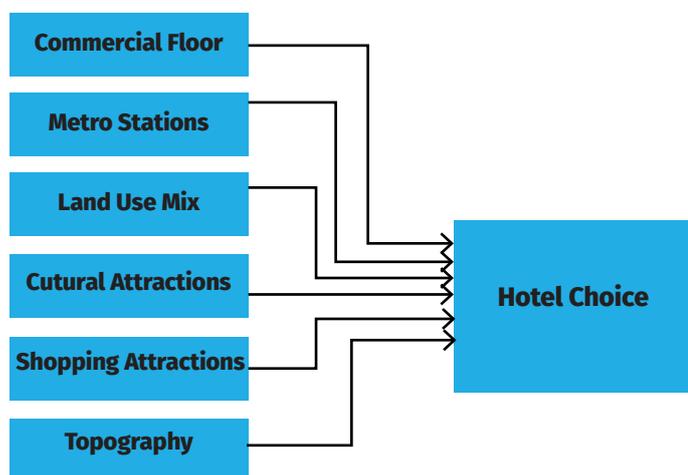


Figure 4: Conceptual model for Li et al. (2015)

Like the multiple linear regression model, the binary logistic regression model can – and usually does – include more than one independent variable (Equation 7).

$$\ln(p_1/p_0) = a + b_1X_1 + b_2X_2 + \dots + b_nX_n + e$$

(Equation 7)

Equation 7 shows that the multiple logistic regression model is also additive: contributions of the independent variables are simply added up to predict the value of the logit.

The case study by Li et al. (2015) uses a logistic regression model to analyse how the spatial distribution of types of hotels in Hong Kong are explained by a number of features of their urban environment. Table 4 is an edited and simplified version of the output of that analysis. The dependent variable Hotel is reduced to an ordinal one with two values: upper- and lower-grade. These grades differ in service levels and room rates. The independent variables are six different qualities of hotels' surrounding urban environments within a radius of 500m. Five of these are scale variables – either absolute numbers or indices. The sixth, topography, is an ordinal variable with four categories: flat land, false flat, hilly, and steep gradients. It is split into three dummies with flat land as the reference category. The conceptual model of this analysis (Figure 4) has the same structure as that of the multiple linear model.

The overall objective of the analysis is to examine if the existence of different types of clustered tourist districts can be conceptualised. It is assumed that the two different types of hotels are

visited by types of guests, i.e. tourists with different preferences of service levels set against room rates. Starting from that assumption, the logistic regression analyses if these two different types of hotels are surrounded by built environments with different values of these six qualities, i.e. values that fit better with these different types of guests' demands and budgets.

The regression coefficients B in **Table 4** express the impact of the six independent variables on the logit $\ln(p_{\text{upper grade}} / p_{\text{lower grade}})$ of hotel choice. It is practically impossible to know what a change in this natural logarithm means for changes in p_1 and p_0 . To get rid of the natural logarithm, $\text{Exp}(B)$ expresses the change in just the probability ratio ($p_{\text{upper grade}} / p_{\text{lower grade}}$). Every additional amount of 1,000m² of commercial floor space closely around a hotel increases the probability that it is an upper-grade hotel divided by the probability that it is a lower-grade one by a factor 2.66. The number of shopping attractions has a highly similar effect (2.33) on this probability ratio. The effects of both variables are statistically significant at the 95% *level of confidence*. In reverse, the probability that a hotel that is surrounded by steep streets, compared to flat land as the reference category, is an upper-grade one is nine times as low (0.11) as the probability that it is a lower-grade one. This indicates that lower budget guests accept the inconvenience of steep streets much more easily to save on the room rate in a hotel.

In linear regression models, adjusted R^2 indicates the amount of explained variation of the continuous variable Y by $X_1 - X_n$. For logistic regression with a categorical dependent variable, a few pseudo R^2 measures are available. Pseudo indicates a lower level of precision than of adjusted R^2 in linear

regression. The advantage of the nagelkerke pseudo R^2 that is used by Li et al. (2015) is the range of its values between 0 and 1, just like adjusted R^2 . The value of the nagelkerke pseudo R^2 (.232) is moderate, demanding for some more independent variables to explain hotel choice.

9. Discrete choice models

The types of regression analysis presented so far explain revealed human behaviour as being triggered by existing spatial qualities of the built environment in a specific location. That knowledge can be useful to evaluate the appreciation of qualities by users of the built environment. Discrete choice analysis that is presented in this last section analyses stated, i.e. planned intentional behaviour. Discrete choice models are based on multinomial logistic regression (MNL). Discrete choice analysis is largely unknown in urban design and spatial planning: a great pity because it can hit on the preferences of (potential) users for desired future spatial qualities of project locations. These qualities can already be existing in that location, or maybe not. The opportunity to include knowledge of users' appreciation of not yet present spatial qualities adds an important dimension to the utility of regression analysis for an urban design or planning process.

One of the rare examples of the use of discrete choice analysis in urban design is a project by Susanne van Rijn (van Rijn, 2020) in the municipality of Westland, the Netherlands. The objective of the project is to identify the appreciation of spatial qualities of outdoor public space by adolescents in the age range twelve to seventeen to take exercise, i.e. to become healthier.

Based on an extended literature review, van Rijn

No.	Attributes	Explanation	Level
1	Vegetation	Amount and variation	0 = little to no vegetation; little variation 1 = much vegetation and variation in the public space
2	Barriers	Physical barriers that hamper accessibility	0 = broad busy traffic roads often causing waiting times 1 = only quiet street rarely causing waiting times
3	Facilities	Facilities for sports and play	0 = none or few 1 = many, diversity of types
4	Paths	For cycling and walking	0 = only around public space 1 = around and through public space
5	Proximity	Walking distance from home	0 = more than 5-minute walk 1 = at most 5-minute walk
6	Lighting	Quality of lighting	0 = large parts of public space not illuminated 1 = public space is sufficiently illuminated
7	Seclusion	Spots where one is invisible from surroundings	0 = present 1 = absent
8	Water	Water features	0 = absent 1 = present
9	Seating	Open air furniture to sit	0 = absent 1 = present
10	Toilets	Public toilets	0 = absent 1 = present

Table 5: Selected attributes for physical activity in public space. Source: based on Van Rijn (2020), author's adjustments.

first carefully selected ten key attributes of public spaces that are supposed to influence physical activity behaviour of adolescents (**Table 5**). Attributes in discrete choice analysis are equivalent to categorical variables in the above discussed regression models. The categories (values) of attributes are called ‘levels’.

Each attribute in **Table 5** has two levels: 0 and 1. One level is assumed to be positively associated with taking exercise and the opposite holds for the other level. Attributes in discrete choice analysis can have more than two levels, but for reasons of validity and interpretability these are rarely more than three.

Next, sixteen different alternatives were composed: A to P in **Table 6**. Alternatives are imaginary constructs: deliberately composed combinations of levels of the ten selected attributes. By means of an online questionnaire with the software Qualtrics, a

sample of adolescents was asked to make choices between alternatives as they would do in the real world, i.e. in case these alternatives would really exist. Each respondent answered five questions. In each question two alternatives out of the sixteen (A to P) were randomly combined and the respondent was asked which of these two (s)he prefers to take exercise in. The option ‘neither of the two’ was also possible. To enable them to choose, the alternatives were made visible with drawings, including a brief explaining text to emphasise some features of the alternatives (see Figures 5 and 6 for examples). These are in fact simple spatial designs for the project location. The questionnaire yielded a dataset of 309 valid cases (N in **Table 7**).

Sixteen alternatives is a very low number if one realises that the total number of different alternatives in case of ten attributes with two levels each equals 1,024 (2¹⁰). In general, over one thousand

Attributes	Alternatives															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1 Vegetation	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0
2 Barriers	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
3 Facilities	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
4 Paths	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0
5 Proximity	0	0	1	1	0	0	1	1	1	1	0	0	1	1	0	0
6 Lighting	0	1	0	1	1	0	1	0	0	1	0	1	1	0	1	0
7 Seclusion	0	1	1	0	1	0	0	1	1	0	0	1	0	1	1	0
8 Water	0	1	1	0	0	1	1	0	1	0	0	1	1	0	0	1
9 Seating	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0
10 Toilets	0	1	0	1	1	0	1	0	1	0	1	0	0	1	0	1

Table 6: Designs of imaginary public spaces. Source: based on Van Rijn (2020).

alternatives are far too many in the practice of a project. Substantial reduction of the number of alternatives, without losing the possibility to estimate parameters with MNL, is made possible by using the appropriate basic plan that matches this 2¹⁰ situation as developed by the American mathematician Sydney Addelman in the 1960s (Steenkamp, 1985).

As Equations 8A to 8P show, the MNL model in discrete choice analysis is not one single equation, but one for each of the sixteen alternatives in the study

$$V_A = ASC_A + \beta_1 X_{A1} + \beta_2 X_{A2} + \dots + \beta_{10} X_{A10}$$

(Equation 8A)

$$V_B = ASC_B + \beta_1 X_{B1} + \beta_2 X_{B2} + \dots + \beta_{10} X_{B10}$$

(Equation 8B)

-

$$V_P = ASC_P + \beta_1 X_{P1} + \beta_2 X_{P2} + \dots + \beta_{10} X_{P10}$$

(Equation 8P)



Figure 5: Alternative O with the highest calculated utility. Source: Van Rijn (2020, 80)



Figure 6: Alternative J with the lowest calculated utility. Source: Van Rijn (2020, 80)

Attributes	Level of reference	β	Statistical significance
Vegetation	little to no vegetation; little variation	-0.403	0.000000846*
Facilities	none or few	-0.368	0.0000142*
Barriers	only quiet street rarely causing waiting times	0.255	0.00275*
Proximity	home is further away than 5 minute walk	-0.169	0.0458
Lighting	public space is sufficiently illuminated	0.152	0.0733
Water	water feature present	-0.125	0.123
Seclusion	visible throughout entire surroundings	0.097	0.239
Paths	only around public space	0.062	0.463
Seating	seating furniture absent	0.049	0.556
Toilet	public toilets present	-0,015	0.871
Sample	309		
Rho squared	0.223		

Table 7: Estimation of attribute parameters. Source: van Rijn (2020: 78).

The values of X_1 to X_{10} equal the levels of its 10 attributes in each alternative as defined in **Table 6**. The MNL analysis that was carried out with the software package Pandas Biogeme estimated two types of parameters: ten regression coefficients (β_1 to β_{10}) over all sixteen alternatives and one alternative specific constant (ASCA to ASCP) for each alternative. Together, these estimated and predefined values can be used to calculate the total utility of each alternative (V_A to V_P ; **Table 8**).

Table 7 shows the output of MNL. The values of the β s represent the relative contribution of each attribute to the appreciation of public space for physical activity by adolescents. In absolute value, the relative contribution is highest for vegetation (-.403). Its negative sign indicates that the reference level as defined in Table 7, i.e. abundant and highly varied vegetation, contributes negatively to the appreciation of outdoor public spaces by adolescents 12-17 years of age to take exercise. The sign of β for the attribute ‘toilet’ shows that the presence of public toilets in public space is not appreciated positively by the adolescents to go there to take exercise. However, its very low absolute value (0.015) indicates that the weight attached to their absence is in fact very limited. Moreover, its p-value (.871)

is much larger than 0.10, showing that it is not 90% sure that ‘toilet’ has any effect at all on adolescents’ appreciation of public space for exercise. The same holds for the attributes ‘water’, ‘seclusion’, ‘paths’, and ‘seating’. It is important, finally, to realise that the β values only give relative comparisons of the weight of attributes: they are categorical and lack a unit of measurement (section 3).

Table 8 shows the calculated total utilities for the alternatives A to P that are defined by the 2¹⁰ basic plan. Figures 5 and 6 show, as examples, the alternatives with the highest (O) and the lowest (J) total utility. You may think that full implementation of the alternative with the highest utility is the basis for the best possible spatial design or plan in the real world. That is, however, not necessarily the case. Because the basic plan that defines alternatives is based on mathematics and has no empirical connection to any urban design or planning context, the one with the highest total utility can include attribute levels that contribute negatively. Moreover, it is possible that local conditions make it impossible to realise a specific attribute level, despite how highly that might be appreciated. Imagine that the absence of Barriers appears important but the site is located at a major road which cannot be altered. In

Alternative	Utility function	Utility value*
O	V_O	3.13
C	V_C	2.30
A	V_A	1.94
D	V_D	1.88
K	V_K	1.63
E	V_E	1.62
M	V_M	1.47
B	V_B	1.40
G	V_G	1.36
P	V_P	1.26
L	V_L	1.13
N	V_N	1.06
I	V_I	0.69
H	V_H	0.50
F	V_F	0.34
J	V_J	0.31
0	V_0	0

*: rounded to two decimals

Table 8: Estimated utility values of alternatives. Source: van Rijn (2020: 78)

fact, the β -values give more specific information of the attributes and are therefore often more valuable for use in urban design or planning.

To conclude, the results of the MNL show the relative importance of selected attributes for use in an urban design as expressed by their β -values. But that still does not mean that ‘the one and only’ design follows straightforwardly. In fact, it still says little about how that design should be realised. The way in which attributes are combined into a composition of space in the real world is where the expertise of urban designers like you play a key role.

10. Conclusion

Master’s graduation projects like yours would result in well-elaborated and highly integrated proposals for spatial qualities in urban designs or spatial policies for your project location. If so, in your case it is highly likely that you would want to base your proposal for spatial qualities on users’ revealed or stated spatial behaviour. Regression analysis accurately estimates the quantitative amount of contribution of each separate feature of spatial quality to the explanation or forecasting of users’ spatial behaviour. The examples of the use of regression models that are discussed in the sections seven, eight, and nine explain revealed spatial behaviour (visiting specific places in central Beijing and types of hotels in Hong Kong) or stated behaviour (physical activity in Westland) by selected spatial features of these locations’ built environments. This type of knowledge can be significant for appropriate urban design or spatial policies in your project as well.

Not included in the examples are personal socio-demographic characteristics, like age, gender, or educational level, as independent variables. Including these characteristics might show that the relationships between built environment and behaviour is quantitatively different for different subgroups. That can be done in two ways. First, such characteristic can be included as additional independent variables in the regression model or the discrete choice model. Another way is to split the sample of users into subgroups according to such characteristics and run a regression analysis for each subgroup.

It should be noted that the use of regression analysis as a quantitative method is not mutually

exclusive from qualitative research methods: it is not a matter of choosing one or the other in your urban design or planning project. On the contrary, if you consider using regression analysis it is still essential to first construct an adequate conceptual model and then think very carefully about which variables in that model should be inserted into your regression model. Hence, a thorough review of relevant international literature on our research topic is required. Overall, qualitative methods like the review and also analysis of policy documents or interviews with key persons are crucial (!) in all stages of the iterative cycle of research and design during the project.

In a 2013 paper by Emeritus Professor of the Faculty of Architecture and the Built Environment, Taeke de Jong, commented that ‘the specialised probabilities or even “truths” of empirical research [...] cannot be successfully integrated in [a design of] one spatially, ecologically, technically, economic, cultural and managerial unique case’ (de Jong, 2013: 22). Key features of regression analyses are unidirectional causal reasoning, inclusion of only a limited number variables, and single moment bound data collection. Hence, it is not a panacea in its own right in dealing with the complexity of interwoven multidimensional challenges of designing unique locations. But the fact that it ‘cannot be successfully integrated’ underestimates the usefulness of empirical research techniques like regression analysis in urban design and planning projects. Just like yours!

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Rotterdam Centraal train station, Rotterdam. Photo by R. Rocco.

Planning as Critically Engaged Practice

Consequences for studio education

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Space, people, and time are all intertwined in the city, a complex system in which planners intervene. Their strategic plans and neighbourhood designs impact the daily lives of city dwellers. This emphasises the point that spatial planning and urban design are not technical disciplines. The everyday use of space and its symbolic meanings must be incorporated. Planning as an engaged practice involves explicit engagement with the Habitat III goals and, more specifically, the New Urban Agenda (NUA) goals. This commitment to sustainable urban development means we are working to create integrated and just societies for the future. The NUA paved the way for the right to the city to be incorporated into planning. This chapter discusses incorporating both aspects (socio-spatial complexity and the right to the city) into planning education, specifically the design studio. It begins by questioning the design studio's current functioning. It then shows a resurrected studio setting, where socio-spatial complexity and the right to the city can be gradually integrated meaning that the studio will no longer be about what is, but about what is 'yet to be'.

CRITICAL THINKING, DESIGNERLY WAYS OF KNOWING, ENGAGED PRACTICE, STUDIO PEDAGOGIES, ENGAGEMENT

1. Introduction

The strong entwinement of space, people, and time is ubiquitous in modern cities. Spatial planners are called upon to intervene in this complex system. With their strategic plans and neighbourhood designs, planners affect the daily life experience of the city's inhabitants. Thus, spatial planning and urban design cannot - and should not - be mere technical disciplines. We must incorporate the everyday experience and use of space and the associated symbolical meanings into how we imagine planning practice. This chapter proposes an engaged planning approach that is normative in nature and grounded in critical thinking. This engaged approach stands in opposition to previous technocratic approaches and current managerial practices. Planning as an engaged practice also requires an intentional engagement with the Habitat III agenda's goals, particularly those outlined in the New Urban Agenda (NUA). This commitment to the sustainable and just development of cities, towns, and human settlements means that we are working towards building future socially integrated and just societies. The NUA has cleared the way to integrate the right to the city in spatial planning.

The right to the city is a concept that came into existence in the late 1960s. The uprisings and student protests externalised the dissatisfaction with the uneven distribution of resources and goods at that time and with the processes that created an uneven urban situation.

In broad terms, we can understand the right to the city as twofold: it is first about the full use of the city and the right to appropriate it, but more importantly, it is also about a collective right to take part in the making of the city. Alternatively, as David

Harvey phrased it:

The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization (Harvey, 2008: 23).

Thus, the right to the city is ultimately a strong political principle that should lead to action in which the dispossessed, the neglected, and the discontented can claim back the city and shape it to their needs and aspirations.

Introducing both these aspects - socio-spatial complexity and the right to the city - in planning education, and specifically in the design studio setting, is the topic of this contribution.

The chapter starts with a discussion on the origins of the design studio as a tool in higher education, questioning its current functioning. Next, it presents a renewed studio setting in which the **integration of the socio-spatial complexity and the right to the city happen at different stages.** Therefore, the studio is no longer about what is, but about what is 'yet to be'. The pedagogical approach presented below is grounded in the work of Peter Marcuse (2009a) in order to foreground the critical approach and the right to the city. It also uses Henri Lefebvre's (1991) trialectic understanding of space to capture the socio-spatial complexity.

2. Design studio pedagogy

The design studio has become a popular method of teaching architecture and urban design in the twentieth century. The origins of this pedagogical model, whereby various aspects of the discipline are discussed in one exercise, can be traced back to the Ecole des Beaux-Arts in nineteenth-century Paris and even further back to the Académie d'Architecture. Established in 1635, the Académie was the first and only school dedicated to architects' education. Its impact on subsequent institutions both in Europe and globally can hardly be underestimated. An atelier (the studio), was run in parallel to the lectures and hosted by a master architect (referred to as the Patron). These ateliers became famous for the quality of their teaching and the success of their students. This success was demonstrated by the students successively winning the Prix de Rome (Griffin, 2020), perhaps the most significant prize for the arts in Europe in the nineteenth century.

Here, the foundation was laid out for the organisation of architecture education until today. Both the existing shortcomings and potential strengths of current design studio teaching are heavily influenced by the first approaches of the seventeenth and eighteenth centuries.

Before we demonstrate (in the next section) how this studio setting supports a critical spatial design and planning education, we will take a more critical look at highlighting some deficiencies of the design studio approach. Howland notes that when he looks back on his own educational journey

The long hours of work in a common studio space forged us into a close-knit group of men and women who were marked by our dedication, endurance and talent. We shared the excitement of learning to see

the world in a new way, of learning to distinguish between well and poorly designed glasses while our friends were drinking coffee unaware from styro-foam cups. We were the imaginative professionals with certified taste (Howland, 1985).

Furthermore, he felt that '[w]hat the architectural tradition and our mentors suggested and what we students were teaching each other was that boring and conventional people produced boring and conventional designs. We encouraged eccentric dress, hyperbolic speech and unconventional behavior' (Howland, 1985).

Both quotes illustrate how, already during the years of education, architects set themselves apart from others and developed an 'architect-artist' identity expressed in clothing style (see, for example, Rau, 2017), aesthetic taste, and behaviour. Professors and teachers reinforce this culture, nurturing the students' ambition and their assumed possibility to become the starchitect who will leave their mark on the world.

Secondly, an over-emphasis on the teacher (rather than attention to the student) poisons studio-based learning. This is detrimental for a constructivist pedagogy in which both student and teacher are on an equal footing throughout the design assignment (Webster, 2006).

Thirdly, the emphasis on the design outcome, along with the importance placed on evaluation moments during which students are judged, demands that students prepare for a final presentation in front of a jury of 'experts' or 'masters'. These one-off events not only harm a healthy student life (e.g. late nights, high levels of stress), but they establish a 'skewed' power hierarchy in which students must justify their work and thoughts to the teacher (and the experts), frequently in a spatial

setting that reinforces this hierarchical relationship and frequently accompanied by a discourse in which the experts demonstrate their expertise while simultaneously questioning the student's (Koch et al., 2002; Webster, 2006).

Thus, studio settings run the risk of creating a toxic environment, forming architects as experts, as masters of creation and architecture, and putting them high above the 'average man'. This Architect (with a capital A) is assumed to possess the knowledge and expertise necessary to create designs that are both reason and art. The interaction of these two facets – the architect as expert and the architect as artist – contribute to the architect's strengthening of his or her reputation as 'artist – genius', upon which 'the architectural culture to the outside world' (Till, 2009: 160) is built.

Research by the American Institute of Architecture Students in 2002 showed not much difference in the 'studio culture' between architecture schools in the country. There is an intense emphasis on the design outcome rather than the design process, and the context in the assignment is being reduced to a brief description in which, for example, the customer or the community at large are no longer of interest but are only marginal influences (Koch et al., 2002). This is a particularly worrying evolution because it fosters the illusion that architecture is an autonomous and artistic discipline, while Till (2011) has shown that 'architecture depends' (2009: 178). Architects are largely responsible for the outcomes of their work, and understanding the design intent is critical (Till, 2009: 166). Raising and fostering this awareness is crucial in today's studio-based education.

The organisation of the design studio gives students the chance to think and work holistically. As

an exercise, they start by studying the design challenge presented to them, then putting their expertise in practice. In ideal circumstances, students gather knowledge from a wide range of disciplines and areas of interest and process them as a whole. Alternative solutions are addressed and discussed with the teacher or with peers. Thus, students are encouraged to critically engage with their subject of study and leave the beaten track when searching for alternative possibilities. This setting, in which students learn-by-doing and are asked to reflect on their process and actions, is what Schön has called 'reflective practicum' (Schön, 1985: 89). Studio-based learning thus has the potential of facilitating learners to inspire and educate themselves. This hypothesis is based on the theories of Rancière (1991) and Freire (1970). Education, as both authors emphasise, is more than merely instruction; it is all about giving students control over their own learning.

Another point highlighted by Schön is that studio education is training in making things (Schön, 1985: 94). When designing, students are actually creating spatial arrangements, whether these are architectural objects or urban transformations. They have to be aware that, after graduating, the outcomes of their design process will have tangible implications in the real world. Evaluating the effect of the spatial interventions on the daily life of people, on the creation, or obstruction, of opportunities for urban dwellers, needs to be part of the design studio pedagogy. Schön (1985: 97) stresses that the work of the (architectural) design studio is a normative one, designing imagined futures and reflecting on their desirability.

In conclusion, studio education is thus about learning how to master a design process that is 1) anchored in research (on the topic and the loca-

tion), 2) creates a representation of the (desired) future situation, and 3) is cognisant of the impact of its outcome on the context in which it is placed.

3. Critically engaged planning

A critically engaged planning approach is deeply inspired by the work of Peter Marcuse (2007; 2009a; 2009b; 2009). Whereby, investigating the world as it appears before our eyes should go beyond accepting it as it is, but be about looking for the hidden potentials, exploring and unravelling in order to try and understand challenges and see opportunities for where change can be made. Thus, being critical is more than a negative criticism. Using a wide array of perspectives to analyse and scrutinise the world as we see and experience it, critical theory offers an opportunity to develop counter approaches, actions, and ideas that allow us to question the current organisation and management of our society (a good example of this being acts of counter mapping). It is then essential to act upon these things, following Marcuse's (2009a) call to expose, propose, and politicise.

As with critical theory, critical design is a way of designing that questions the existing ways of doing things (things that acknowledge the dominant thoughts of a society). This way of design is in opposition to a design that conforms to dominant ideas and anchors these ideas in the built environment. The design of the waiting bars at bus stops in London is an obvious example. By designing bars that people can lean against when waiting for the bus instead of benches to sit on, the designer also ensures that the homeless cannot use it as a sleeping place. This speaks a lot about the kind of society we live in and the decisions made by local governments

and institutions with decision-making power.

Critical design questions these dominant modes of living. Design becomes an act that exposes the given, dares to provoke, and triggers debate. Next to this, it can also imagine and represent the unthought of, spark enthusiasm for previously unconsidered possibilities, ignite the belief in another possible future.

4. The design studio's potential for critical design

Marcuse stressed the possible contributions of critical theory to current challenges; more specifically, he pondered how architects, designers, practitioners, activists, and urban intellectuals could establish a critical urban practise that promotes the right to the city for all. He proposes establishing a course of action that includes revealing, then suggesting, and eventually, politicising.

In a first step the root of the problem is examined and then the problem's results are introduced explicitly. Next to collecting information and analysing the current situation, injustices are explicitly exposed. Accordingly, the second stage is research-based strategy development. The strategies aim to respond to the problems the first step revealed, and plan desired outcomes. The techniques would likely include physical as well as social and legal components. The third step is to politicise. The ideas for future activities, political actions, and action plans need to be shared through the appropriate platforms, and support should be sought through various media and within the communities we belong to. Marcuse (2007) pointed out the importance of clearly disclosing the limitations of the planning process in order not to raise ex-

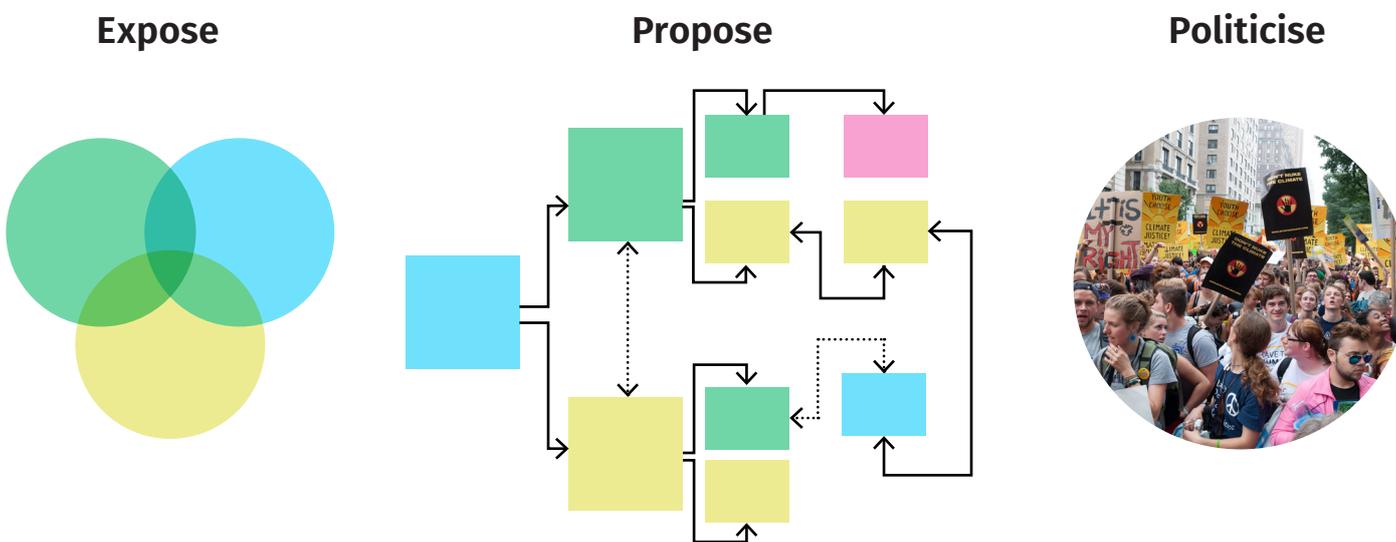


Figure 1: The design studio as a catalyst for critical thinking and engaged planning. Diagram by R. Rocco. Photo: The People's Climate March rally in New York City, Sept. 21 2014. Photo by Alejandro Alvarez - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=47718309>

pectations which planning cannot deliver. But importantly, Marcuse stresses that this does not mean that planning needs to limit itself to merely formulating immediate and short-term answers to the problems posed. Critical planning, according to Marcuse, ‘looks to the roots of problems as well as their symptoms and pursues a vision of something beyond the pragmatic and beyond what is immediately doable today’ (2007: 10). **If the design studio is empowered with this proposition, then it can transform from being a problem-solving exercise concerned with that which is, to a truly projective design that is about that which is yet to be.**

The organisation of the design studio has the potential to be the ideal locus for teaching planning as a critical engaged practice. The basic structure is empowered by **acknowledging the normative character of urban design and spatial planning** and by using the critical lenses and approach suggested by Marcuse.

4.1 Exposing phase

The design studio starts from an in-depth analysis of the challenges presented. It does so not only by a typical spatial mapping, by a morphological analysis, understanding the functional zoning or the relevant policies, it also looks into the socio-spatial issues and more importantly it uncovers the injustices and inequalities that are present within the context in which we will be intervening. We make use of Lefebvre’s trialectic understanding of space to do so.

Space is a complex social construction, not an abstract or neutral given (Lefebvre, 1991). Lefebvre’s theory gives a helpful insight for considering how people and their environments interact, and how people’s perception of these spaces functions. He suggests understanding space through a triad (conceived, perceived, and lived spaces), in which each part has a specific and explicit role in the reproduction of society and in securing the hegemony of a

dominant system (Lefebvre, 1991: 32–33).

First, the **conceived representations** of space are created by professionals and experts, such as planners, architects, and scientists. The representations of space have the experience of these experts infused within them, along with their normative positions and ideological perspectives. Space is often portrayed in an abstract manner, and as a result, it is difficult for lay people to understand. Experts use the objects that are representations of space, such as the maps, to highlight their knowledge and influence in society.

Second, Lefebvre speaks about the **perceived space**. In this case, he is referring to the spatial habits of the public. Space has a big effect on how people use it. The physicality of space, the morphology of the city, and the material nature of elements all influence how people use a space. The everyday routines of people are defined by the space in which they live. Consider these two examples: a car-free city centre where pedestrians can easily cross the street after the centre has become one wide pedestrian area; and the other: a gated community that obstructs straight routes, causing shortcuts and straight connections to be impaired.

Finally, Lefebvre speaks about the **lived space**. Urban spaces are both tangible and concrete, but they are also intangible, imbued, and informed by imaginaries, feelings, and personal experiences as well. Different individuals or groups can assign different meanings to the same space. The third aspect in Lefebvre's triadic model is important in helping people comprehend their environment.

In summary, the three Lefebvrian dimensions of space help us understand how urban spaces work and how inequality can be generated within them. Injustice will occur at any of the three levels in the

triad, from red-lining to physical checkpoints, or the absence of quality outdoor spaces, and the prohibition of cultural and/or religious gatherings.

4.2 Proposing phase

We need to move beyond the mere debate of a sustainable development for our cities. We need to think how to make **resilient cities** and neighbourhoods. Cities that are able to live through (thus be prepared for, respond to, and recover from) societal and environmental pressures that will increasingly become visible, whether these challenges are coming from demographical changes, climate change, natural disasters, or other threats. **The transition towards resilient cities** needs to take place within the transdisciplinary approach explained above. The relationship between planning and politics underpins an emerging debate about the political engagement and/or the possible complicity of planning and design. Recognising the importance of planning and design practices for the (co-)creation of knowledge (in societies characterised by scarcity and crisis) and seeking to reassert their relevance, designers are becoming more interested in social issues. Design is often projective and propositional; it uses the projection of possible future outcomes to explore and assess the different parameters and possibilities to reframe the investigative realm.

Scenario building in urban planning are explorations of possible futures that are constantly moving between interrogating the current and imagining the future, between the known and the unknown, between the familiar and the alien (inspired by Cook, 2013: 87). If we observe on the one hand and create on the other, the potential for questioning and developing alternative ideas and strategies can flourish.

4.3 Politicising Phase

As argued above, design and planning are not autonomous disciplines. The realisation of proposed ideas and concepts have a tangible impact in space and the everyday lives of people. Coming up with beautiful plans and ideas is not enough, ideas must be discussed in the public realm. So, the third step is to politicise. The future operation, political campaign, and action plan proposals that are needed to realise the plan need to be communicated through the right platforms, and support should be pursued via different media and among peers.

A crucial tool for the urban designer and strategic planner at this point is the drawing. Drawing is inherently a multi-layered form of communication, and is able to move from observational to investigative to propositional in seconds. This provides many benefits, including the ability to express concepts, as well as the development and the convincing communication of counter-hegemonic or alternative ideas and strategies.

Conceptual sketches of potential technologies and possible urban futures also motivates officials and civil society to act. If we can envision alternate worlds, we can create progress. As Harvey has argued, 'A global anti-capitalist movement is unlikely to emerge without some animating vision of what is to be done and why' (2010: 227).

5. Conclusion

As argued elsewhere (Newton, 2013), architects and urban planners need to reflect on their role in planning and design processes. The practice of the urban designer needs to be deconstructed and recalibrated in order to gain a better understanding of how to deal with the urban project and to dare to shift the question from 'where do things belong' (classical modern and functional planning) to 'to whom do things belong'. This search for a counter hegemonic planning (maybe what Miraftab (2009) would call 'insurgent planning') is imperative if we want to bring Lefebvre's right to the city back to centre stage. As stressed in the beginning of 'The Right to the City', it is 'the right to centrality, the right to not be excluded from urban form, if only with respect to the decisions and actions of power' (Lefebvre, 2003: 194).

In this renewed context, the role of the designer is put under scrutiny. **The focus in the whole (urban) design practice is no longer on the 'expert' planner, but on the process, grounded in a community base and the accompanying strategies and activism that have the ability to transform the city in co-creation with people.**

The studio setup as the pedagogical setting for this engaged approach helps students to develop a socio-spatial cognition; a knowledge and understanding of the socio-spatial intertwinement, not only through learning, but also through exploration, experience, and critical thinking. Students then translate this into strategies and actions that allow people, citizens, communities to take ownership of their right to the city.

Central in this reasoning is the idea of **critical design** as a 'mediation of theory and practice in social

transformation' (Friedmann, 1987: 391).

In this recalibrated role, we, as practitioners, urban planners, or architects, take a more active role. In other words, we are open to being surprised by the urban reality we meet and refuse to be swayed by easy-to-understand answers and conventional thinking in our efforts to handle the challenges ahead. Innovation in urban design practise requires a new mentality and a reconfiguration of design, transforming the practise into a catalyst for change.

The studio pedagogy presented above allows students to approach design challenges from the perspective of the people, or the perspective of a community without losing sight of the need to facilitate the re-appropriation of spaces for collective action.

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Old industrial buildings in Rotterdam. Photo by R. Rocco.



Vision and Strategy Making

**Teaching spatial planning in design
education in a situated learning
environment**

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This chapter introduces the pedagogical approach of guiding vision and strategy making in university design studios. This is a unique way of teaching spatial planning in design education, bridging research, planning, and design. It will use one of the master's courses at the Urbanism Department of TU Delft as an example: the regional design studio 'Spatial Strategies for the Global Metropolis'. This approach is based on the tradition of planning schools with design education – using the design studio as a key method for teaching. This tradition has made spatial planning in design education different from other planning schools that focus on policies or social/environmental sciences. The approach being introduced is not only evidence-based/scientific but also explorative at the same time, prone to search for the more plausible and desirable future scenarios. It is in line with the role of regional design in practice, in the context of collaborative planning. To teach such practice-related skills, an authentic assignment from and the interaction with the 'real world' are needed, namely a situated learning environment, which mimics the actual situation and collaborative efforts of spatial planning. Spatial vision and development strategy are both tools of spatial planning in practice, meant to frame and steer the development towards a more sustainable future, with the involvement of stakeholders. In design education, they are also seen as design products students could and should work on to understand the roles of these tools in spatial planning and how to use them to develop regional design proposals.

**COLLABORATIVE PLANNING, PLANNING EDUCATION, SITUATED LEARNING,
SPATIAL VISION, DEVELOPMENT STRATEGY**

1. Introduction

This chapter introduces a unique way of teaching spatial planning in design education, focusing on vision and strategy making in university design studio settings. As many authors suggested, one of the problematic issues with traditional ways of planning, more specifically blueprint planning, is that it cannot cope with the complexity (Healey, 2003; Amenta & Qu, 2020) or uncertainty (Balducci et al., 2011) brought by the current and future challenges cities and regions are facing. These challenges often involve global scale social, economic, and environmental risks, such as economic globalisation, migration, and climate change, which result in the loss of planning control in spatial development at the local level. The conflicts of interests in the use of space have turned spatial planning into a collaborative effort (Jabareen, 2006), which calls for tools to facilitate such a new way of planning. To enable and engage all stakeholders involved in the journey towards a more sustainable future, visions and strategies are needed to guide the collaborative processes of planning and development. One role of planners and designers in this new setting is to facilitate the making of these visions and strategies. Design is seen as a tool to experiment and visualise the possible and desirable future scenarios in spatial terms – the spatial development trends, including spatial structure, functionality, spatial quality, as well as the socio-economic and environmental performance. The question to educators at universities is: How to train future planners and designers in developing such skills within a short period of time in the classroom?

The answer can be straightforward: creating a situated learning environment for students and

guiding them through the planning and design process with hands-on practices. Learning by doing? Learning is doing! Design studios could contribute to this unique way of teaching spatial planning, particularly in universities that offer design education, provided that timely systematic input on spatial planning and scientific research skills is given. This chapter demonstrates this method with the example of a master's level regional design studio at the Urbanism Department of TU Delft.

The structure of the chapter is as follows: after the introduction, section two introduces the main concepts, including a thorough discussion on vision and strategy making in planning schools with design education, one of the various types of planning schools worldwide. This is to provide an overview of the disciplines involved within planning education and position the method to be introduced in this chapter. Section three analyses theories related to collaborative planning and situated learning to deepen the understanding of the nature of strategic spatial planning, the roles of spatial visions, and development strategies in it, and the importance of learning by doing in teaching the skills involved. Section four explains the teaching methods used at TU Delft for guiding vision and strategy making in research and design studios, using the master's level regional design studio as an example. The intention here is not to showcase the 'Delft method' because even within TU Delft there are multiple ways of approaching it. Instead, based on this case, the section discusses fundamental notions of teaching spatial planning that are applicable in other schools with design education. Section five discusses the author's interpretation and ideas concerning collab-

orative planning in practice and the roles of vision and strategy making in it, as well as how to mimic the situation in education to facilitate learning. It is followed by conclusions on the method of guiding vision and strategy making in university design studios and the situated learning environment that is needed.

2. The world landscape of planning education

In regard to spatial planning at the regional level, vision and strategy making are both seen as part of regional design (Lingua & Balz, 2020; Colombo et al., 2018). In the context of European countries (Albrechts, 2004), regional design as a tool for spatial planning has regained its importance along with the revival of strategic spatial planning. This is because the regional scale is becoming essential in tackling many challenges mentioned earlier, which calls for spatial strategies that match the regional scale (Neuman & Zonneveld, 2018). Generally speaking, regional design is about guiding the spatial development within the regional territory according to demands and claims, spatially connect interests from various stakeholders, delineate more sustainable and desirable future scenarios for the region, as well as correlate action plans.

For the global audience unfamiliar with the term 'regional design', there might be a tendency to relate it to regional planning or urban design in a regional context. This has to do with the type of planning education one has received or the planning context one is situated in. The teaching of spatial planning in different schools can vary, some focusing on geography and planning (e.g. Sun Yat-

sen University in China, Cardiff University in the UK, University of Toronto in Canada), some on land use planning and management (e.g. the State University of Land Use Planning in Russia, China Agricultural University), others on urban planning (those situated in schools of architecture and planning worldwide, such as Tsinghua University in China, National University of Singapore), or planning and governance (those located in schools of public administration, such as Renmin University of China, Erasmus University Rotterdam in the Netherlands).

Such a variety of planning education existing in the world of universities reflects the transdisciplinary nature of spatial planning, which indeed involves knowledge from (social and environmental) science, (urban and landscape) design, and technology. At the same time, it creates different vocabularies among these disciplines when addressing notions related to spatial planning. Therefore, the discussion of vision and strategy making in this chapter needs to be positioned within this landscape of worldwide planning education, which is, as indicated in the title of the chapter, more relevant to the schools that offer design education. This means, when talking about vision and strategy, they refer to the spatial dimension of envisioning and strategising, and are seen as design products in the university studio settings. These terms might be understood differently in the planning schools that focus on policies, where design is not at the core of the discussion. Nevertheless, the methods of vision and strategy making to be introduced in the following sections involve knowledge and skills from other planning domains, particularly geography and governance.

3. Situated learning environment mimicking collaborative planning

In the last section, I discussed vision and strategy making in the realm of planning education and positioned the method to be introduced in this chapter within that realm. This section elaborates collaborative planning theories (Healey, 2003; Albrechts, 2004), the planning context in which these two terms are situated, and the situated learning environment (Brown et al., 1989) in university design studio settings that mimic the collaborative effort of spatial planning in practice.

First of all, the terms 'vision' and 'strategy' need clarification, as they might be understood as the blueprint plans and the implementation of such plans in traditional perceptions. There used to be conceptions that development plans could be directly implemented, such as the construction of the British New Town Programme in the 1950s (Healey, 2003). However, as Healey (2003) stated in the context of the UK, since the emergency of policy plans, the delineation of the plans represents mainly the spatial specification of principles and norms to guide the development process, while the 'implementation' of the plans mostly refers to the take up of such principles and norms in projects, through the interactions among actors.

This is a visible trend of paradigm change in spatial planning. The unpredictable, complex world has led to the incapability of planning control in spatial development. The shift from hierarchical control from the state to new governance modes that involve networks of broader ranges of actors is seen, particularly in established democratic socie-

ties. Within such a context, collaborative planning is described as an 'emerging paradigm' (Innes, 1995). Vision and strategy making then become a collaborative decision-making process, in which the stakeholders involved jointly envision the possible and desirable future scenarios and identify strategic interventions that stimulate the transformation, aiming for win-win situations. As these decision-making processes often involve multiple scales of interventions, the importance of the regional level is increasingly recognised. The vision and strategy making are actually components of regional design that reflect spatial conditions, political agendas, and planning regimes of the regional context. Within such a comprehensive setting in practice, design as a tool contributes to the continuous (re-)interpretation of the spatial structure of the region, visualising spatial qualities of the future scenarios and spatial implications of the development strategies. In this case, design education's job will be to cultivate the next generation of planners and designers capable of participating in such collaborative efforts.

Therefore, as stated earlier, enabling learning by doing is an essential method in teaching spatial planning when it comes to vision and strategy making. This is in line with the tradition in design education. When students are assigned authentic regional design tasks extracted from the real-world of practice, the university design studio setting transforms into a 'simulated' planning context, a situated learning environment in which products of visions and strategies for the chosen areas are created and can be used in the real regional context. From the perspective of cognition, this is not only useful but essential for learning (Brown et al., 1989).

4. Vision and strategy making in design education

Following the theoretical discussion above on collaborative planning and situated learning, a regional design course at the master's level at TU Delft is introduced in this section – the research and design studio 'Spatial Strategies for the Global Metropolis'. It is viewed as a case study for reflection on a variety of issues, most notably the degree to which a situated learning environment focused on regional design could be developed within a university studio setting, and the characteristics of vision and strategy making in practice and design education.

In recent years, a further development of the Delft tradition of 'research by design; design by research' is seen in the interdisciplinary approaches applied in the research and design studios at TU Delft, experimenting with planning and design solutions that can tackle complex challenges, such as climate change and flooding issues, scarcity of resources and competing demands for land uses, etc. The regional design course at the master level is one of them. In the past five years, the course has collaborated with stakeholders from practice, such as The Deltametropolis Association (Vereniging Deltametropool) and the Province of South Holland. The Deltametropolis Association is a strong network organisation and inspiring knowledge institute in which the professional community, public interest groups, research institutions, and governments come together, conducting independent research in metropolis development in the Netherlands and the Eurodelta (<https://deltametropool.nl/vereniging/english-summary/>). The Province of South Holland is a Dutch province located in the south part of

Randstad, a key actor responsible for coordinating regional planning and development, collaborating with various stakeholders within the region and the national government. Both of the social partners are heavily involved in the regional design practice, and contributed to the creation of situated learning environment for the regional design course at TU Delft by defining the thematic focus of the assignments, giving knowledge input on the challenges of spatial planning in the Dutch regions, as well as feedback to student work and further dissemination of the final products.

Such a learning environment has generated enthusiasm and a positive atmosphere in the studio, equipped students with knowledge, skills, and facilitated learning by doing. However, it does not make vision and strategy making 'easier' within the studio setting. The making of spatial visions and development strategies in practice engages various disciplines and stakeholders, which usually take years to make real progress. In the educational setting, this is challenging due to the limited timeframe of university courses (usually two months for a design studio at TU Delft) and access to relevant data and stakeholders. In this regional design course, these issues were tackled with the support through additional course elements and from partners. Next to the design studio, there are lecture series that provide students timely knowledge and skills needed for the analysis of spatial development trends and development of regional design proposals. Besides, students get access to sources of data and direct contact with key stakeholders, thanks to the partners from practice.

In this ten weeks' course, students worked in groups on developing visions and strategies for the Amsterdam Metropolitan Area (2017, 2018, 2019),

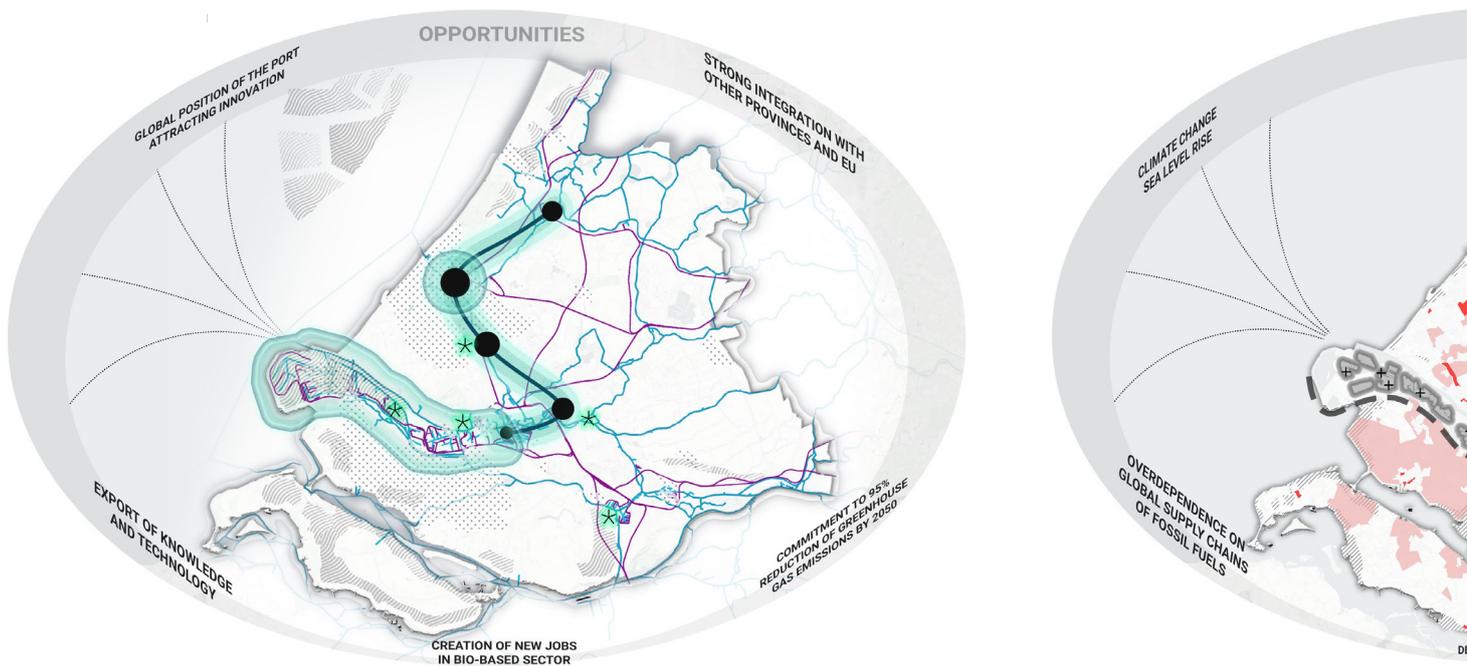
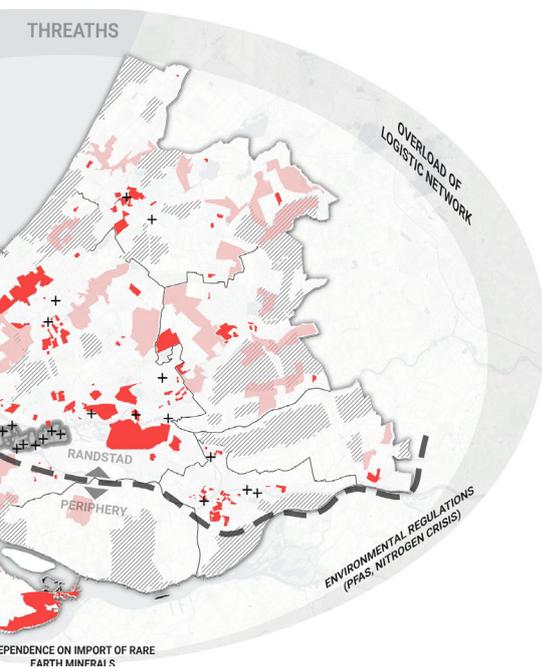


Figure 1: Examples of student work showing evidence of spatial development trends, on opportunities and threats related to energy transition in the Province of South Holland. Authors: Ramaiah Perumalsamy, G.B., Górz, M. & Aerts, M. (2020). Source: Energy Commons, A group report from the course “R&D Studio Spatial Strategies for the Global Metropolis”. TU Delft. Printed with permission.

and the Province of South Holland (2020, 2021). The theme was regional design stimulating the transition to a circular economy in these Dutch regions, with a particular emphasis on socio-spatial justice. In the syllabus, both the spatial vision and development strategy are defined as ‘design products’. The spatial vision is described as a normative agenda in spatial terms that describes a desirable future. It is expected that the spatial vision is persuasive, seeks to convince, enable, and engage actors involved. What is slightly different from the types of spatial visions developed in practice is that, in the design studio, we encourage students to explore extreme scenarios, as well as those nuanced ones that can be implemented within a timeframe. The second product – development strategy – identifies a timeline of strategic interventions to be implemented in line with the spatial vision, with an inventory of actors involved. These strategic interventions include

development projects that focus on specific areas or infrastructure networks, with dedicated actors, budgets, and defined timeframe, and/or policies that guide spatial development through rules and regulations for areas concerned.

While both are listed as design products, for the purposes of clarifying the course’s deliverables for students, vision and strategy formulation are evaluated using a variety of criteria. For vision building, students must understand the complexity, uncertainty, and multiscale nature of regional spatial development, as well as the limitations of regional design, and the ethical issues involved. The formulation and argumentation for a spatial vision should be based on evidence of spatial development trends (see Figure 1), commonly shared values and norms, and appropriate planning principles. For strategy making, students need to understand the basic roles and instruments of strategic spatial



planning in delivering public good, spatial quality and equality. The development strategy is consistent with the spatial vision, which should be effective and feasible within the constraints of a given institutional context and resilient in the face of long-term spatial development uncertainties. It is important to emphasise spatial justice within the context of collaborative planning in order to arrive at a fair distribution of costs and benefits among the stakeholders. Besides, visualisation and story-telling are both important in communication in collaborative decision-making. Students should learn to visualise design proposals clearly, consistently, and persuasively, and be able to engage in critical debate. By working on vision and strategy making, students are expected to understand and critically reflect on the role of regional design in collaborative planning processes.

5. Conclusions

The chapter briefly introduced the approach of guiding vision and strategy making in planning schools with design education. It looked into the experience of the regional design course at TU Delft and positioned this approach within the landscape of planning education. Creating a situated learning environment and embedding the teaching in the discourse of collaborative planning are both crucial for such a domain of planning education. By no means this TU Delft approach should be seen as the model to follow, neither will it be relevant forever. On the contrary, this chapter seeks continuous interpretation and reflection on the tradition of ‘learning by doing’ in planning schools with design education to cultivate the future generation of planners and designers who could contribute to the solutions for complex spatial development challenges in transdisciplinary settings. The future challenges in spatial planning research and education lie in this transdisciplinarity, which necessitates a wider understanding and skill set in vision and strategy formation that extends beyond the scope of spatial planning and design itself. Nevertheless, in relation to spatial development at the regional level, both spatial vision and development strategy are components of regional design, which is a tool that is increasingly used for creating dialogues within the collaborative decision-making process. The design ‘flavour’ makes it unique compared to other planning education that focus more on science and/or policy, and it also sets the context for this chapter when discussing the relevance of the approach of guiding vision and strategy making.

In a nutshell, guiding vision and strategy making

in university design studios has become an essential component in the teaching of spatial planning. Creating a situated learning environment is instrumental in getting students to understand the nature of collaborative planning. Such a learning environment can be enhanced by connecting teaching with research and practice in the design of assignments, organisation of teaching activities, and feedback moments, so that students have the opportunity to work on 'real' societal issues and keep connected to 'real' stakeholders in the planning context. Vision and strategy making in the university studio settings is a process of analysing, synthesising, envisioning, and strategising, which involves intense verbal and visual communication among students and teachers. It is an example of 'research by design; design by research', which is evidence-based and explorative at the same time. The essence is, through such a research and design process, to help students understand the multidisciplinary and multiscalarity embedded in the current issues or future challenges, the complexity reflected in the conflicts of interests in the use of space among stakeholders, uncertainty related to long-term spatial development, and limitations of spatial planning. Besides, it is essential to let students debate on values and norms behind planning principles, roles, and instruments of strategic spatial planning in delivering public good, spatial quality and equality, within the given institutional context. Hopefully, knowledge and skills needed by the future generation of planners and designers will be cultivated with this approach.

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Street scene in Rotterdam. Photo by R. Rocco.



Street scene in Delft. Photo by M. Dabrowski.



Dimensions of Socio- Environmental Approaches as a Platform for Local Development Under Climate Change

**Theoretical and practical considerations of
transdisciplinarity***

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The governance of urban processes, in the face of the effects of variability and extremes of climate change, requires a complex approach, especially because of the inherent uncertainty and high infrastructure cost those solutions entails. The urgency of the responses and actions imposed by extreme weather events transfers additional complexity to less developed societies, given the drift towards sectoral responses and the structural lack of financing at the municipal level. This chapter proposes a two-pronged approach: 1) linking climate adaptation processes and 2) outlining strategies for local development. This double effect facilitates the process of climate change adaptation through the active integration of a wider range of actors in local development, integrates agendas and actions of greater complexity, and ensures a long-term perspective of evolutionary change. The chapter has a theoretical framework defined by its transdisciplinary perspective (Lang et al., 2012), i.e. a reflective, integrative, scientific principle articulated by co-participatory methods that aim to solve or transition social problems and at the same time relate to scientific problems by differentiating and integrating knowledge from various scientific and social disciplines to validate the link between climate change strategies and local development. This is presented through a case study establishing a framework for possible interventions with integrated objectives in order to determine policy recommendations and local development strategies within the characteristics and conditions recognised in the case study, paying special attention to the high number of informal settlements in abandoned areas, and the limited economic capacity of the municipality to cope with their needs.

1. Contextualising climate change variability and local development through adaptation

The literature on climate change adaptation has its basis in risk management and had been expanded to include a recognition of levels of vulnerability (social, economic, and environmental) present in each place and defined in specific conditions. The assessment of these conditions is the fundamental factor in implementing necessary socio-environmental change. This is more evident in locations that have asymmetric responses to the satisfying of basic needs, such as the main urban localities of the Reconquista river basin in the Greater Buenos Aires area, considered here as a case study.

Recognition of the causes and effects of climate change variability is defined in the complex interrelationships of diverse systems (ecological, social, and physical components under a common decision-making system), so the approach to understanding them is framed as that of a 'complex system'. This is based on the dynamic coexistence of natural and anthropogenic processes in a context of continuous change (Meyer, 2009). The locations of the selected cases are within the Reconquista river basin and could be conceptualised as part (a subsystem of) an urban delta system (the Paraná delta), which in turn is considered a complex adaptive system (Dammers et al., 2014) given its dynamic interrelationships between the water system, soil characteristics, its level of urbanisation, socio-economic conditions, and production systems, among others.

This chapter defines systemic interrelationship as 'a complex whole, a set of interconnected things or parts, an organised body of tangible or intangible

things that interact to form a whole' (McLoughlin, 1969). The city is also understood as a complex system, composed of subsystems, encouraged by general systems theory (McLoughlin, 1969). From the point of view of complexity theory, cities can be understood as open systems because they exchange information with their environment (Portugali, 2006), as well as complex, because they are made up of numerous components or actors with interdependent behaviours, resulting in varied effects (Durlauf, 2005; Portugali, 2006; Zagare, 2018). In this chapter, the socio-ecological approach is proposed to reveal the interactions of the systems considered and, through it, to define the main challenges to be addressed.

Interrelationships between systems and sub-systems intersect within a non-static equilibrium (Pelling & High 2005; Johnson, 2012), i.e. one that is continuously changing and produces uncertain effects. Even a small change can trigger a qualitative impact on the whole system and thus require an adaptation process to reach a new equilibrium (Pelling & High 2005). Continuous interactions take place in a non-linear and unpredictable way, so it is necessary for the system to adjust to these changes to reach a non-static equilibrium.

Given that climate change variability has its most critical expressions at the local level, the main issues to counteract its effects lie in the capacity of territorial decision-making at the municipal level. In particular, those issues that make it possible to deal with adaptive dynamics, (necessary to manage the associated risks and embedded in a longer-term re-

silience strategy), are the development perspectives and challenges and actions to address the specific risks associated with the effects of flooding (also considering the lack of water during certain periods of the year).

This chapter argues that complex adaptive systems are defined by the resilience of the system, which implies its ability to absorb disturbances without being weakened or unable to adapt and learn. Some natural and social systems have the built-in capacity to recover from adverse circumstances, while others have to learn to be resilient. The chapter focuses on the role of networks as an interrelated support system and the role of institutions in building resilience in social and ecological systems under a framework of joint municipal territorial management, relying on their national actors and policies.

2. Resilience as adaptive capacity

The term resilience is based on three main perspectives: engineering, ecology, and evolution. Engineering resilience refers to the ability of a system to return to an equilibrium or steady state after a disturbance (Holling, 2001). Ecological resilience refers to the ability of these systems to 'absorb change [...] and still persist' (Holling, 1973). The main distinction between the two definitions is the maintained efficiency of the function versus its maintained existence (Schulze, 1996). In the proposed framework, which links territorial decisions with mandatory actions to cope with the effects of climate change, the concept of resilience needs to be broadened in order to apply it appropriately

to local development conditions and thus target the necessary change-oriented adaptation. Evolutionary resilience (Davoudi et al., 2013) extends the description of resilience from the engineering and ecological viewpoints of restoring and enhancing, also considering the capacity of complex social-ecological systems to change, adapt, or transform in response to stresses and disturbances (Carpenter & Westley, 2005). The concept of resilience is thus established by thinking about local conditions and enabling the activation of an integrated process of change that integrates local development and adaptation to climate change. This study requires the consideration of local, biophysical, and social conditions, proposing to define as a basis the scalar level of vulnerability of the main system at stake, in this case the water structure, and from there to define the risks associated with other vulnerabilities (social, physical, and economic).

Wisner et al. (2004) define social vulnerability to climate change as 'the characteristics of an individual or group and their situation that influence their ability to anticipate, cope with, resist and recover from the impact of a natural hazard' (an extreme natural event or process). Anderson and Woodrow (1998) expand it to 'long-term factors that affect a community's ability to respond to events or make it susceptible to calamities'. They go on to distinguish between material, physical, social, organisational, motivational, and attitudinal vulnerabilities. According to the latter definition, the appropriate framework for integrating local development into climate change adaptation strategies requires the assessment of existing socio-environmental conditions including the need for forecasting and planning. Furthermore, the proposed theoretical framework seeks to clarify that territorial decision-making, as a

vulnerable system, should also be considered within the requested action of change, considering Cutter and Finch's (2008) contribution on defining vulnerability as 'the potential damage incurred by a person, asset, activity or set of elements that are at risk. Risk is driven by natural, technological, social, intentional or complex hazards with the potential outcome being disaster. In our approach risk expands to social, economic, political and cultural conditions and factors in decision making, i.e. vulnerability is socially constructed'.

3. Returning to adaptive capacity

Under the theoretical re-conceptualisation of risk and vulnerability detailed in the previous paragraph, this paragraph seeks to define the next step: adaptation, defined as the actions people take in response to, or in anticipation of, anticipated or actual changes and risks, to reduce adverse impacts or take advantage of opportunities presented by climate change or other recognised risks.

Adaptation is not about returning to an earlier state, because all social and natural systems evolve and, in some respects, co-evolve with each other over time. This is the basis of evolutionary resilience (Davoudi et al., 2013). Evolutionary resilience extends the description of resilience from engineering and ecological views of restoration and enhancement to the capacity of complex social-ecological systems to change, adapt or transform in response to stresses and strains (Carpenter, 2005), and thus respond to our proposal to link local adaptation strategies with local development. Therefore, the social conditions within resilience can be framed to

consider the following:

- Social resilience is often used to describe the capacity to adapt positively despite adversity (Luthar & Cicchetti, 2000)
- Social resilience is the ability of groups or communities to adapt in the face of external social, political, or environmental stresses and disturbances (Adger, 2000)

This defines the basic conditions to which a social group needs to respond in order to be resilient.

4. The components of the applied approach

The theoretical approach presented in this study of modelling adaptive resilience and strategically aligning the management of climate change effects and local development began by proposing the necessary assessment of the biophysical systems involved (local conditions within various interrelated systems), defining environmental resilience in its main line of argument, and revealing its own limitations. It can be agreed that it depends on the capacity of natural systems to absorb change and still persist, 'functioning, maintaining its existence and maintaining a certain level of efficiency of its recovery functions' (Holling, 1973; Schulze, 1996) as a result of which we conclude that the proposed system can be induced by design. To do so, engineering and social aspects must be aligned with biophysical conditions and recognise existing social conditions to trigger change through an institutional perspective. This is proposed by defining an iterative process of opportunities designed through co-evaluations and strategic alignments over time.

Adaptation to present and future risks is increas-

ingly understood as an integrative process precipitated by the need to cope with extremes, within gradually changing average climatic parameters (Kelly & Adger, 2000; Jones, 2001).

Current adaptation strategies have recognised in the dynamics of biophysical systems, as well as in green spaces and urban water systems, potentials for enhancing biodiversity conservation and contributing to the solution of societal challenges (Goddard et al., 2010; Cohen-Shacham, 2016). Along these lines, the European Community has recognised the functioning of ecosystems as fundamental pillars for the mitigation of and adaptation to climate change (European Commission, 2015). While aligned to local development objectives and recognising their economic and operational constraints, these strategies can generate exponentially expanding environmental resources, economic benefits and social benefits (Kabish et al., 2015).

Within these strategies promoting the maintenance, enhancement, and systemic restoration of biodiversity by expanding urban eco-systemic capacity are nature-based solutions, as well as actions based on 'ecosystem-based adaptation', 'green infrastructure', 'ecosystem-based disaster risk reduction', and 'natural water retention measures'. All are defined around the search for answers to the various complexities that climate adaptation and local development demand today. These strategies and the concepts that validate them are mostly complementary, and can be and are used in both urban and non-urban contexts. It is important to consider that both nature-based strategies and potential associated strategies are highly complex to study and evaluate due to the multi-scalar nature of the dynamics of bio-physical systems, in both their spatial and temporal scales. As they are associated

with territorial decision-making systems for applicability, they require the intervention of various levels of governance, from the purely local to the transnational territory. The local context and its particularities must always be distinguished for their possible implementation, hence the proposal described here is structured on a concrete experience that evaluates and correlates them.

This chapter argues that adaptive management processes informed by iterative learning about the ecosystem and through a systemic evaluation of the successes and failures of previous management, increases resilience, which in turn can increase the capacity to respond to climate change threats in the long term.

Thus, a second concept is proposed: the necessary activation of an adaptive management process, where the evaluation of past actions and the level of constraints considered in each time period needs to be assessed and revealed in order to define a cumulative knowledge to guide an evolutionary process of change in the various pathways taken under different levels of risk in order to improve their performance. Again, this is a request for external input. This type of adaptive management (Lee, 1999) can be used to pursue the objectives of:

- greater ecological stability
- more flexible institutions/structures for resource management
- recognising and activating the adaptive cycle (Holling, 2001)

As such, evolutionary resilience, understood as a process of cumulative/reflective knowledge, is proposed here precisely to emphasise that the system goes through different stages of change to become adaptive (Schulze, 1996) and that each decision and its context are important elements to consider in

the more holistic decision-making processes proposed as a model of associated objectives.

To fulfil the integration of these objectives, from the environmental to the social sphere at the local level, it is necessary to implement a clear organisational structure under the recognised capacities of local government bodies, so that the process proposes including resources and skills of external bodies – in this case, academic support for systemic assessments which are already defined from a socio-environmental perspective.

This would result in a call for a transdisciplinary research approach, where possible changes can be jointly assessed by the various actors involved at each step of the process, from the main biophysical assessments to the social demands and the various capacities of the local government bodies involved.

The concept of adaptive capacity relates to the potential of a socio-ecological system to reduce its vulnerability (the level at which a system is unable to cope with adverse effects) and minimise the risks associated with a specific threat (Adger et al., 2003; Adger, 2006; Smit & Wandel, 2006). According to Folke (2005), adaptability is a prerequisite for the resilience of a system, which can be defined as 'the ability of a system to absorb disturbances' by reorganising itself to maintain its identity (Folke et al., 2010) before shifting to a radical state. The proposed path for change therefore requires a high level of flexibility and territorial action defined by a constant assessment of the various conditions considered in each system and through their interactions.

The complex interrelationship of the dynamics of the natural and built environment is constantly adapting, which means that the whole process must always be cyclical and evolutionary (depending on

gradual changes). Adaptations depend on each system and its interactions (positive and negative) so proposed transdisciplinary approach needs to consider co-evaluation from the scientific perspective of local conditions (including the human and economic municipal resources to support this process).

Adaptations can be seen as opportunities to improve each system and its interrelationships so that an active transdisciplinary approach that proposes various possibilities for change co-defines its main objectives and scope and needs to align with local governance capacities to result in concrete and feasible strategies (in line with the municipality's development goals) as well as effectively integrate local stakeholders in their evaluation.

5. Transdisciplinary process for a new vision of local adaptability: The Arroyo Morón case

This study is based on joint research between different institutions that bring together various disciplines with the aim of improving local development, coordinating agendas and actors to respond to the effects of climate change and the environmental crisis at the local scale. This is in addition to the concepts of evolutionary adaptation activated by participatory processes, those that integrate local, public, and private actors, academia, and various disciplines to facilitate the processes of evaluation, implementation, and monitoring of alternatives for institutional, social, and environmental change. These are recognised as systems whose effects must be assessed in their interrelationships, interdependencies, and capacities in order to define a

Transdisciplinary approach for climate change and local development			
Municipalities involved	Moron (AR) Hurlingham (AR)	Municipal Goals: Flooding controls Slum upgrading in situ program Derelict industrial area regeneration Municipal Park Local airport Nodal transport point	
		Content + Approaches	Disciplines: Conversations to Speculations 10-week course: 3 weeks in situ
Disciplines/ Technical Universities	Landscape / SLU Malmo Urbanism UBA Urban design	Landscape Urbanism Integrated planning (actor relational approaches) Urban/regional functional structures Socio-economic development Socio-environmental approaches Urban regeneration Urban design Slum upgrading strategies	A. Desk analysis: regional functional structures + densities + socio economics aspects + mobility + infrastructures + soil + water shed + flooding risk + planning operability. Synthesis: main Regional Challenges/ goals (per group) B. Site visits + meeting Municipal experts, Main local plans and interest. Synthesis: New revised set of challenges/ Goals at Municipal Level C. Meeting local inhabitants (slums), interviews and mapping daily systems. Synthesis: New local D. main spatial proposal: Local+ Municipal scales E. Final regional vision, local strategies
Other partners	City of Amsterdam AMS Institute AMS Water AMS Energy	Communicative planning Water System/ Public Private Models Water sensitive design/ local energy	A. Site visits + meeting municipal experts B. Joint speculations and proposed new case studies and experiences C. Alignment of new set of goals within diverse student groups, each choose accents and directions

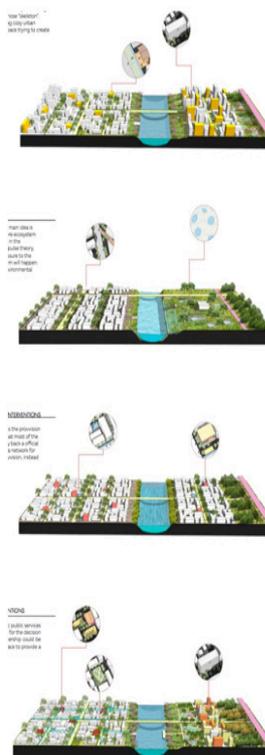


Image 1: Actors and roles in the transdisciplinary programme of the Arroyo Morón case. Authors: Diedrich, Janches and Sepulveda 2018.

plan of integrated actions in sustainable processes that increase their local impact.

From this perspective, during two three-month periods in 2018 and 2019, a research consortium called Transdisciplinarity for Climate Change in Complex Areas was formed, which offered the municipalities of Hurlingham and Morón on the periphery of Greater Buenos Aires to jointly define a possible framework of ideas for a strategic action plan for dealing with climate change. The full study forms a part of the research project ‘Tactics and Strategies for the Integral Improvement of the Urban-Water

Landscape in the Area of the Reconquista River Basin’ by Flavio Janches and Juan Carlos Angelomé (Strategic Development Project 2018-2019, University of Buenos Aires). This exercise was carried out as part of the activities of the Master’s Degree courses in urban and landscape architecture from three universities: Master of Landscape Architecture (SLU Malmo, Sweden), Master of Urban Design (University of Buenos Aires), and Master of Urban Planning (TU Delft).

The basic local conditioning factors of these two municipalities were evaluated from the disciplines

of urban planning, ecology, landscape, anthropology, and governance, recognising that: 1) the natural features present in both territories are part of the Reconquista river basin, a tributary of the Paraná river and interrelated with its deltaic dynamics, and 2) that the quality of the local tributaries combined in the Arroyo Morón reveals high levels of pollution, and that flood control infrastructure is urgently needed. At the same time, the social conditions of the area were considered, which feature a large number of informal settlements in flood-prone and polluted areas where the poverty rate is high, and informal employment is the main source of income for most of the population located in irrigated areas.

In addition, the good level of connectivity and mobility at metropolitan level was recognised, allowing for the possibility of growth and densification, so that in a first meeting the guidelines for the development of the project were agreed. In this way, the operational framework of a support agreement was followed that sought to bring together strategies for local adaptation in response to climate change and local-inter-municipal development possibilities, enhancing the objectives of local development plans, while recognising the functional interrelationships at the scales of intervention (spatial and temporal).

The operational framework of this exercise was defined as transdisciplinary and structured according to the process defined by Diedrich et al. (2015) as 'beyond best practices' as a participatory dialogue, involving inhabitants, municipal specialists, and academic disciplines of landscape/ecology, urbanism/urban design/governance, anthropology, and urban design as a platform for co-evaluation and participatory design in order to facilitate, un-

derstand, and coordinate the complexities of climate change and spatial planning at the local level.

The design of this interdisciplinary activation framework was defined as a speculative process that coordinated a way of creating, of deliberating, and of possible decision-making, as a testing ground for the definition of critical responses and evolution of the knowledge framework, particularly adapted to the strategic guidelines of climate adaptation, environmental improvement, and socio-spatial integration.

Through the results obtained in each phase of the exercise, and from re-evaluation of the processes and projects developed, it is possible to redefine the framework of theoretical, technical, and methodological reflection in order to promote new integrative proposals and provide specific disciplinary responses to each systemic feature being considered. This is essential because of the complexity of the problems, which require new approaches to transform complex urban landscapes into more sustainable environments (Janchez et al., 2019).

The exercise described here is structured within this design in a non-linear and interactive process of agreements, proposals, co-evaluations, measurements, and adjustments concluding with concrete possibilities to discuss possible development strategies with multiple actors and thereby define the specific strategies to follow. These improve and expand the objectives of existing strategic plans from a process that is not linear but iterative and incremental instead.

We now describe the phases of the exercise, its actions, and the actors involved in the transdisciplinary process. These defined the operational framework of the exercise, the systems considered, and the possible interrelationships between them.

Through their spatial definition, possible potentials were detected, which in turn revealed possible paths which were re-evaluated by the local actors involved from the economic and technical capacities of the municipalities to the possible spheres of participation of private actors, among other issues.

Phase 0: Systemic (prior) analysis and background review; strategic guidelines predefined by both municipalities

- Objectives: short-term: flood control, formalisation of marginal areas, industrial regeneration and activation programme, urban regeneration programme for the municipal park; medium-term: co-evaluation of strategic guidelines for the reconversion of a disused airport into a regional airport focused on the development of a multimodal metropolitan transport hub

- Actors: academics, municipal officials, inhabitants, and NGOs

- Actions: at the invitation of the municipalities, the strategic guidelines are jointly reviewed through discussions/interviews with the different stakeholders, the areas, the systems to be considered and their levels of risk and urgency are co-defined

- Output: the framework programme of the challenges to be considered, the map of actors and the urgent needs to be considered

Phase 1: Categorisation and prototypical proposal (integrating systems)

- Objectives: to define the systems at stake, and their possible interrelationships; to determine a prototypical synthesis of possible local solutions before approved and similar constraints

- Actors: academics and municipal officials

- Actions: re-evaluation of the system and its environmental impact, rainwater and sewerage management, socio-economic mapping, and integrated re-mapping; speculations from possible solutions based on the study of past actions and impact assessment

- Output: prototypical proposal of integrated local solutions

Phase 2: Presentation of prototype proposal (integrating systems) to local stakeholders; selection and review of technical feasibility, decision-making and management capacity

- Objectives: to evaluate the potentialities and limitations of the 'speculations' presented as tools or previous solutions from the economic and technical capacities of the municipalities and local actors involved

- Actors: academics, municipal officials, inhabitants, and NGOs

- Actions: implementation of three discussion tables, coordinated according to urgent problems where prototypes of possible solutions are presented and discussed by each group of actors to later define the possible frameworks and their limitations

- Output: definition of possible solutions from concrete strategies aligning the diverse interests of the stakeholders involved

Phase 3: Adjustment of the prototypical proposal recognising technical feasibility and decision and management capacity

- Objectives: detailed review of the technical feasibility required by the proposals and joint review of the institutional support system (financial and

programmatic)

- Actors: academics and municipal officials
- Actions: presentation of detailed reports of the proposals, evaluation and discussion of their possible operability
- Output: assessment of possible actions, potentials, and constraints, both operational and in terms of decision-making and competence

Phase 4: Spatial contextualisation and co-selection of possible strategic actions

- Objectives: quantification of possible actions, spatial expression, special impact, and co-definition of strategic actions
- Actors: academics, municipal officials, inhabitants, and NGOs
- Actions: implementation of three discussion tables coordinated by actions where prototype strategies are presented and discussed by each stakeholder group and then hierarchies of interests are defined by possible agreements of their impacts
- Output: selection of local strategic plans in stages

Phase 5: Final selection according to technical feasibility, decision-making, and management capacity

- Objectives: definition of the local strategic plan for the specific framework of the transdisciplinary plan to be developed
- Actors: academics, municipal officials, and NGOs
- Actions: summary report of the actions to be developed, possible impacts, cost, and time
- Output: full report of the local strategic plan to be developed

Phase 6: Co-evaluation of socio-environmental impact

- Objectives: the implementation of a socio-environmental impact co-evaluation system
- Actors: academics, municipal officials, and NGOs
- Actions: implementation through participatory scenario system of the co-evaluations from the more technical framework to the social impact
- Output: socio-environmental co-evaluation report

Phase 7: Co-definition of strategic actions in critical areas and possible phases of evolutionary change

- Objectives: once a local strategic plan has been defined and agreed upon, its stages are defined and agreements are made for specific goals over time
- Actors: academics, municipal officials, and NGOs
- Actions: creation of two moderated discussion tables to jointly define the objectives by stages
- Output: local strategic plan, stages, goals, and possible funding

Phase 8: Detail of actions for cost definition

- Objectives: to define the estimated costs of each stage, recognising possible governmental and cooperation agency plans for potential implementation
- Actors: municipal officials
- Actions: municipal, inter-municipal assessments, and possible review at regional level
- Output: cost plan by stages

Phase 9: Local level visualisations of integrated

systems and their possibilities. Second presentation to the community

- Objectives: to generate spatial visualisations of possible proposed changes and their spatial outcomes as a means of communication and dissemination for discussion among various actors and the strengthening of possible guidelines

- Actors: academics, municipal officials, and NGOs
- Actions: iterative process of visualisation, understanding, and detailing
- Output: visualisations and systemic-functional details of selected actions

Phase 10: Speculations; detailed strategic adaptive proposal

- Objectives: the definition and detail of possible local strategic plans presented as opportunities that determine the territorial changes linked to the socio-technical capacities of the actors and defined from the operative limitations of possible strategic adaptations

- Actors: academics, municipal officials, and NGOs
- Actions: two evaluation roundtables
- Output: final report of possibilities and adaptations of the decisions framed with possible financing

In each phase, the proposed processes were defined as ‘conversations’ where the framework consisted of proposals executed by the students, discussed/evaluated by the municipal experts, and enriched by discussions with the different parties, from inhabitants to different stakeholders within the river area between the two municipalities, culminating in a revised and delimited proposal of

possible evolutionary plans for the implementation of an inter-municipal development framework.

6. Some final observations

The possibilities proposed in this study link local adaptation strategies with local development strategies. This responds to the strategic adaptation platform and its specific theoretical foundations. The implementation possibilities of the case study are reinforced by the values of empowering local capacities and co-assessing the main causes and effects of an aligned two-pronged strategy.

The role of a more academic environment in facilitating systems assessments has been established to validate the need for a transdisciplinary research approach while offering different development alternatives. This has a crucial enabling role in the local adaptation process that aims at a long-term perspective and meets the definitions of the above-mentioned socio-environmental theories and approaches. The demands of flexible regulatory systems and the inclusive perspective of stakeholders, aligned with their shared development objectives, are fundamental for visualising co-defined assessments and opportunities.

Active strategies of co-definition, co-evaluation, and co-design for facing complex and highly uncertain problems appear as significant milestones for water management and local development. The challenges are open and the possible activation for change from different concrete and evaluated development possibilities is clearly a new opportunity for municipalities in delta conditions aiming at development but constrained by lack of resources.

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Street scene in Amsterdam (2015). Photo by R. Rocco.



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